



Rail Accident Investigation Branch



# Annual Report 2009 Section 2: Reported Status of RAIB's Recommendations 2009

*Department for*  
**Transport**

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This report is published by the Rail Accident Investigation Branch, Department for Transport.

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## Introduction

### Introduction

The Rail Accident Investigation Branch (RAIB) became operational in October 2005 as the UK's independent body for investigating accidents and incidents occurring on the railways of Great Britain and Northern Ireland and tramways in England and Wales. It is part of the Department for Transport, but is functionally and operationally independent; and the Chief Inspector reports directly to the Secretary of State on matters concerning accident investigation.

The role and duties of the RAIB are set out in the Railways and Transport Safety Act 2003 (the Act) and its associated implementing regulations, the Railways (Accident Investigation and Reporting) Regulations 2005 (the Regulations). These Regulations include details of the scope of the regulations and the categories of accidents that the industry must notify to the RAIB, and define the types of serious accident, involving moving trains or tramcars, that the RAIB is mandated to investigate. They also give the RAIB discretion to investigate the less serious accidents and incidents where it believes that there may be safety lessons to be learnt which could improve the safety of railways and prevent future accidents or incidents. Full details can be found at [www.raib.gov.uk](http://www.raib.gov.uk).

On completion of each investigation, the RAIB produces a detailed report which is sent to the Secretary of State for Transport and published on the RAIB's website. These reports contain any recommendations that the RAIB believe are appropriate to address issues that have been identified during the investigation and which could improve the safety of railways and prevent future accidents or incidents.

Recommendations are the prime output of the RAIB's investigations, and the RAIB can make recommendations to any organisation or person it thinks is best placed to implement the changes required. This includes railway and non-railway, private and public sector organisations. Those who are identified in the recommendations have a general and ongoing duty to comply with health and safety legislation, and need to take the RAIB's recommendations into account in ensuring the safety of their employees and others.

However, the RAIB has no legal powers itself to follow up progress in taking the recommendations forward and the recommendations are therefore addressed to the relevant safety authorities. In most cases this is the Office of Railway Regulation (ORR), or to other public bodies where appropriate, who are legally required to ensure that recommendations are duly considered and where appropriate acted upon. They are also required to report back to RAIB details of any implementation measures, or the reasons why no implementation measures are being taken.

Feedback to the RAIB giving the response and details of actions taken is very important to provide a clear view of the process, and enables everyone to have a view of the safety improvements arising from the RAIB's investigations.

This report contains the details of the recommendations made by the RAIB and their status as reported to the RAIB.

## The Recommendation Progress Report

The following section contains details of all the recommendations made by the RAIB in 2009 and details of recommendations made in previous years which have not been closed by the relevant safety authority or public body.

It also contains information, supplied to RAIB by the safety authorities, of the implementer's responses and the safety authorities' view of those responses.

There were 196 recommendations made in 2009 and of these 187 fell within the Office of Rail Regulations (ORR) area of responsibility as the relevant safety authority. Six were addressed to the Department for Regional Development in Northern Ireland and the remainder to individual public bodies.

The accidents/incidents are listed railway sector followed by the report number in chronological order of the date of publication. A summary of the details of each accident/incident, including details of the location and date of occurrence is also included.

In order to provide further clarity, the status of implementation of the RAIB's recommendations, as reported by the safety authority or public body, has been divided into four categories:

### Key to Recommendation Status

<b>Green 1 = Closed:</b>	The implementer has declared that it has taken measures to effect the recommendation and the safety authority or other public body is either satisfied that the work has been completed or it has confidence in the work being completed and intends taking no further action.
<b>Green 2 = Complete:</b>	The implementer has declared that it has taken measures to effect the recommendation and the safety authority or other public body has yet to decide whether it is satisfied with the response.
<b>Green 3 = Closed with no actions taken:</b>	The implementer has decided to take no measures to effect the recommendation and the safety authority or other public body has considered this and is satisfied with the implementer's full explanation.
<b>Amber = Open:</b>	Feedback from implementer or other public body is awaited or actions have not yet been completed.
<b>White = Awaiting Response</b>	Awaiting initial response.

The recommendations are grouped according to the specific rail sectors as follows:

- 1 - National Network(s)
- 2 - Light Rail
- 3 - Metro
- 4 - Heritage
- 5 - Channel Tunnel

## The Recommendations Progress Report

### Recommendations from reports published in 2006, with a status of open or complete in the 2008 Annual report

No	Investigation Title	Status Category				Total Recs open / completed from 2008 report
		1	2	3	4	
		Amber = Open	Green 1 = Closed	Green 2 = Complete	Green 3 = Closed with no action taken	
07	Collision at Loughborough (Great Central Railway)		4			4
08	Derailment of freight train at Hatherley			1		1
12	Collision at Blackhorse Drove Crossing		2			2
14	Derailment at Liverpool Central	1	4			5
15	Removal of rail from open line at Thirsk		4		1	5
17	Derailment at Carlisle North Junction		4			4
19	Derailment at Oubeck				1	1
20	Runaway manually-propelled trolley at Larkhall	1	2	1	1	5
21	Freight wagon derailment at York		4			4
22	Derailment at Moy	1	3			4
23	Fatal accident at Elsenham level crossing	2	1			3
<b>Total</b>		<b>5</b>	<b>28</b>	<b>2</b>	<b>3</b>	<b>38</b>
<b>Percentage of total</b>		<b>13%</b>	<b>74%</b>	<b>5%</b>	<b>8%</b>	<b>100%</b>



## The Recommendations Progress Report

### Recommendations from reports published in 2007, with a status of open or complete in the 2008 Annual report

No	Investigation Title	Status Category					6
		1	2	3	4	5	
		Awaiting response	Amber = Open	Green 1 = Closed	Green 2 = Complete	Green 3 = Closed with no action taken	
--	Autumn adhesion events (SPADs at Esher & Lewes)		11	3	3	1	18
01	Freight train derailment at Brentingby			4			4
02	Freight train derailment at Cricklewood			4		1	5
03	Derailment at Haymarket East Junction			1			1
04	Blowback of a locomotive fire at Grosmont (NYMR)			1	1	1	3
05	Freight Train derailment at Waterside, East Ayrshire			3			3
07	Derailment at Spouthouse Curve (Ravenglass & Eskdale)		2	3			5
08	LRV derailment at Long Millgate, Manchester Victoria			3	1		4
09	Collision at Bratts Blackhouse UWC		2	3		2	7
11	Serious injury to member of the public at Huntingdon			4			4
12	Near Miss involving runaway trolley at Notting Hill Gate			5			5
13	Runaway loco at East Didsbury			6	2		8
14	Driver fatality at Deal			4	1	2	7
15	Derailment of Tram at Starr Gate			1			1
16	Near misses at Crofton Old Station LC				1		1
19	Wrong direction move at High Street Kensington			4			4
20	Derailment at Ropley			5			5
21	Derailment on Seaton & District Electric Tramway			1			1
23	Fatal accident to shunter at Dagenham Dock			4	3		7
24	Derailment of freight wagons at Maltby					2	2
26	Near miss at Manor Park		1	1			2
27	Serious SPAD at Purley			3		1	4
29	Collision at Pickering Station (NYMR)			1			1
30	Collision at Badminton Old Station		1				1
31	Train door open in traffic at Desborough			9			9
32	Derailment at Fisherground (Ravenglass and Eskdale)		1	1			2
33	Collision and Derailment at Copmanthorpe		1				1
34	Derailment at Epsom		1	1			2
35	Collision at Swanage		1	4			5
36	Collision at Aylesford/M20		1	5			6
37	Eurotunnel fire			3	3	1	7
38	Derailment at Snow Hill, Birmingham			3			3
39	Derailment at Washwood Heath		1	2			3
41	Blackpool tram fire		1	1			2
42	Derailment at Cromore	1		6			7
43	Near miss with trackworkers, Tinsley Green Junction		3	3	1	1	8
44	Derailments at Waterloo		1	9	4		14
45	Collision at Shenley Hill Rd LC, (L'ton Buzzard Rwy)		1	2			3
46	Collision at Cavalry Horse crossing (L'ton Buzzard Rwy)			2			2
<b>Total</b>		<b>1</b>	<b>29</b>	<b>115</b>	<b>20</b>	<b>12</b>	<b>170</b>
<b>Percentage of total</b>		<b>0%</b>	<b>17%</b>	<b>64%</b>	<b>12%</b>	<b>7%</b>	<b>100%</b>

## The Recommendations Progress Report

### Recommendations from reports published in 2008, with a status of open or complete in the 2008 Annual report

No	Investigation Title	Status Category					Total Recs open / completed from 2008 report
		1	2	3	4	5	
		Awaiting response	Amber = Open	Green 1 = Closed	Green 2 = Complete	Green 3 = Closed with no action taken	
1	Collision near Burton on Trent			4			4
2	Derailment at King Edward Bridge, Newcastle		2	2			4
3	Derailment at Mile End on London Underground			3			3
4	Ruscombe Junction		4	1	1		6
5	Derailment at Merstham Tunnel			6	1		7
6	Near miss incident Camden Town			3			3
7	Passenger train derailment at Kemble				2		2
8	Runaway and collision at Armathwaite			3			3
9	Derailment of LRV at Pomona Station			5			5
10	Collision at Nutts Craig UWC, N. Ireland		2	4			6
11	Derailment of passenger train at Croxton AHB LC		4	4	3		11
12	Runaway at Camden Road Tunnel		2	5		1	8
13	Two trains in a single section at Aylesbury North		1	2	1		4
14	Injury to crossing keeper at Lydney Town junction			6	4		10
16	Freight train derailment at Duddleston Junction		8				8
17	Injury to a member of the public at Tooting Broadway			1			1
18	Collision and Derailment at Barrow on Soar			2		2	4
19	Member of P'way staff struck by train at Leatherhead		4		2		6
20	Derailment at Grayrigg		11	5	12		28
21	Track worker fatality east of Reading Station		3	2			5
22	Train overspeeding through ESR at Ty Mawr		4	1	2		7
23	Near miss following SPAD at Didcot North Junction		2	3	1	3	9
24	Runaway trolley at St Johns Wood		2	11	1		14
25	Earthworks - Class Investigation		2	4			6
26	Near miss at Bishops Stortford		2	3			5
27	Fatality at Moor Lane LC		3		1		4
<b>Total</b>		<b>0</b>	<b>56</b>	<b>80</b>	<b>31</b>	<b>6</b>	<b>173</b>
<b>Percentage of total</b>		<b>0%</b>	<b>35%</b>	<b>44%</b>	<b>18%</b>	<b>3%</b>	<b>100%</b>

## Recommendations made in 2009 and status

No	Investigation Title	Status Category					Total Recs made in 2009
		1	2	3	4	5	
		Awaiting response	Amber = Open	Green 1 = Closed	Green 2 = Complete	Green 3 = Closed with no action taken	
1	Fatality at West Lodge UWC		3	1			4
2	Freight train derailment at Ely Dock Junction		5	7	4		16
3	Near miss at Terryhoogan on NIR			4			4
4	Derailment at Exhibition Centre, Glasgow		3		1		4
5	Runaway RRV at Glen Garry		7				7
6	Cyclist fatality at Morden Hall Park Foot crossing			1			1
7	Derailment at Moor Street south Junction		1	1	1		3
8	Unsecured Road Coach on Eurotunnel Shuttle	3					3
9	Fatality at Tackley UWC		3	3			6
10	Derailment at Foreign Ore Branch Jn near Scunthorpe		8	1			9
11	Runaway of on-track plant at Brentwood & Snow Hill		3	2	1		6
12	Displacement of freight containers at Hardendale & Cheddington		5	1	4		10
13	Risk review of UWLC's (Class Investigation)	2	3	1	2		8
14	Near miss at Poplar Farm crossing, Norfolk				2		2
15	Train collision with trolley at Acton West		7	1			8
16	Derailment at Deptford Bridge		4	4	3		11
17	Near miss at New Southgate		5				5
18	Derailment on Ffestiniog Railway			5			5
19	Staff injury at Grosvenor Bridge, Victoria		6	1	2		9
20	Near miss at Llanbadarn ABCL		4		4		8
21	Container striking station canopy at Basingstoke		1	1	1		3
22	Partial collapse of bridge GE19 near Liverpool Street	1	3	1	2		7
23	Track worker struck at Stevenage		6				6
24	Freight train collision between Leigh-on-Sea & Chalkwell	4	1	2			7
25	Derailment at St Peter's Square	2	1	2			5
26	Fatal accident at Wraysholme AOCL, Cumbria	5					5
27	RRV class investigation	2	1				3
28	Derailment of Freight Locos at East Somerset Junction	11					11
29	Member of staff struck by train at Kennington Junction	3					3
30	Track worker struck at Dalston Junction	3					3
31	Container doors striking passenger trains at Penrith and Eden Valley Loop	3					3
32	Double fatality at Bayles and Wylies FPC, Nottingham	8					8
33	Collision and derailment at North Rode, Cheshire	3					3
Total		50	80	39	27	0	196
Percentage of total		28%	41%	17%	14%	0%	100%

## The Recommendations Progress Report

### Recommendations made in 2009 to end implementer

End Implementer	Number
Department for Transport (DfT)	1
Docklands Light Railway Ltd (DLRL)	4
Eurotunnel	3
Freight, Train Operating Company (FOC)	14
Heritage Railway	5
Heritage Railway Association	2
Light Rail Tram (LTR) Infrastructure	6
Light Rail Tram (LTR) Operating Company (TOC)	2
London Underground Ltd	1
Manufacturers	1
Metro, Train Operating Company (TOC)	7
Network Rail	114
Northern Ireland Railway	6
Other Public Bodies	3
Passenger, Train Operating Company (TOC)	7
Rail Safety and Standards Board	6
Railway Contractors	18
Rolling Stock Maintainers	1
The Office of Rail Regulation (ORR)	4
<b>Total:</b>	<b>205</b>
* Note: a number of Safety Recommendations are made to more than one end implementer	

## Recommendations made for National Network(s) in reports published in 2006 and 2007 with a status of open or complete in the 2008 Annual Report

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive	Hatherley, just south of Cheltenham Spa station	05:20	18 October 2005	Derailment
<b>RAIB Report No:</b>	08/2006		<b>Published:</b>	14 July 2006

### Summary

Freight train 6V19 was travelling between Bescot and Margam on the Birmingham to Bristol line when all the wheels of one of its wagons became derailed near Hatherley, just south of Cheltenham Spa station. The derailed wagon was the 14th vehicle in the formation.

**Recommendations** Five recommendations are made

### RECOMMENDATION

4

Status: Green 2 = Complete

Freight Operators should:

- determine appropriate limits for handbrake application force, consistent with the requirement for ease of operation;
- put systems in place to ensure that handbrakes on SSA and other fleets are maintained to these limits; and
- put systems in place to ensure that handbrake indicators are maintained to provide reliable indication to staff.

### Comment

All operators of freight trains have taken actions in response to this recommendation. ORR is considering whether to close the recommendation.

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 365 EMU	Black Horse Drove Crossing, near Littleport, Cambridgeshire	12:04	19 October 2005	Collision between train and farm vehicle
<b>RAIB Report No:</b>	12/2006		<b>Published:</b>	21 July 2006

### Summary

A passenger train from King's Cross to King's Lynn collided with a tractor, which was hauling a trailer over a user worked level crossing between Littleport and Downham Market.

**Recommendations** Four recommendations are made

### RECOMMENDATION

2

Status: Green 1 = Closed

ORR and the Department for Transport should evaluate whether highway signs at user worked crossings with miniature stop lights are appropriately designed and located to provide adequate information to unfamiliar or occasional users on how to operate the crossing safely. This evaluation should include consideration of the relative position of the signs that the road user must obey and remedial action should be taken as necessary. The introduction of new LED units should be progressed with this work.

### Comment

ORR and the Department for Transport have taken actions in response to this recommendation. ORR has closed the recommendation.

## 1

## National Network(s)

RECOMMENDATION	3	Status: Green 1 = Closed
Network Rail should instigate a robust means of recording the features required at each user worked crossing and ensure that these features are maintained in the same way as that Level Crossing Order provisions are.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 508 EMU	Liverpool Central underground station	17:41	26 October 2005	Derailment
<b>RAIB Report No:</b>	14/2006	<b>Published:</b>	11 August 2006	

Summary	
Train 2W43, the 17:06 hrs Merseyrail passenger train from West Kirby to West Kirby, via Liverpool Lime Street, derailed about 200 m on the approach to Liverpool Central underground station in Network Rail's London North Western Territory. The last bogie of the train derailed.	
<b>Recommendations</b>	<b>Eight recommendations are made</b>

RECOMMENDATION	1	Status: Green 1 = Closed
For the Liverpool Loop, Network Rail supported by Merseyrail should carry out a risk assessment of the compatibility between the rolling stock and the infrastructure and create an appropriate maintenance regime that may require going beyond current maintenance standards applicable to the track and to the trains. The risk assessment should consider parameters relating to track and trains, the operation of trains and the environment such as speed including TSRs (temporary speed restriction), curvature and stiffness. It should also consider how these elements interact at the wheel-rail interface. Network Rail should also extend this study to see if the effect of lowered speed restrictions increasing gauge spreading forces could exist elsewhere on their system.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	2	Status: Green 1 = Closed
Network Rail should review and change the competence assurance system covering the staff that maintain the track in the Liverpool Loop tunnel to ensure that it is appropriate to the special features of its construction.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	5	Status: Amber = Open
Network Rail should carry out studies to predict the fatigue life of tie-bars in different applications and ensure consistency with standards and practice to deliver tie-bars that are fit-for-purpose for all situations.		
<b>Comment</b>		
Network Rail is not proposing to take actions in response to this recommendation (reject).		

<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 1 = Closed</b>
Taking the outcome of the work in Recommendation 1 above, Network Rail should review the level of resources - both staff and supervision - available to the Merseyrail Track Maintenance Engineer and ensure enough are provided to implement and then sustain the appropriate maintenance regime required for the Liverpool Loop.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 1 = Closed</b>
Network Rail should implement a system to regularly clean the track bed of the Liverpool Loop Tunnel so that the build up of corrosive contaminants is minimised.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Procedure Fault	East Coast Main Line, near Thirsk Station	23:35	11 January 2006	Removal of rail from open line
<b>RAIB Report No:</b>	15/2006	<b>Published:</b>	18 August 2006	

<b>Summary</b>
A gang of track workers started to remove a rail from the down slow line on the approach to Y427 signal, just to the north of Thirsk station. As a consequence of this action a track circuit was interrupted causing it to show as occupied. Subsequently, train 1P64, the 21:22 hrs Manchester Airport to Newcastle, was held at signal Y423 which could no longer be cleared due to the track circuit showing occupied. It was then discovered that the rail had been severed on a line that was still open to traffic and was in the process of being removed (ie the worksite had been established outside of an engineering possession).
<b>Recommendations</b>
<b>Eight recommendations are made</b>

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: Green 1 = Closed</b>
The Rail Safety and Standards Board, in consultation with Network Rail and other Railway Group members, to modify forms RT 3198 and 3199 to include a record of the mileage of the possession limits (linked to Recommendation 5). This should be done in such a way that the PICOP (Person In Charge Of Possession) and ES (Engineering Supervisor) are able to easily identify any inconsistency between the location of the worksite and the extent of the possession.		
<b>Comment</b>		
RSSB has taken actions in response to this recommendation. ORR has closed the recommendation.		

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Green 1 = Closed</b>
Network Rail, in consultation with contractors, to re-brief track maintenance staff in the London North Eastern Area on their roles and responsibilities in the works planning process and the need for careful examination of the WON (Weekly Operating Notice) during the planning and execution of safety critical activities. This briefing should include the process and documentation to support late notice changes to planned work activities.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

## 1

## National Network(s)

RECOMMENDATION	3	Status: Green 3 = Closed with no actions taken
Network Rail, in consultation with contractors, to develop and adopt a universal standard process, with associated documents, for use by PICOPs, when planning possession activities. In all cases it should be clear who is responsible for the preparation of documents, submission of forms and approvals of work activities. Documents developed for this purpose should be designed for the avoidance of errors when transposing data from the WON.		
<b>Comment</b>		
Network Rail is developing alternative proposals to simplify the process of possession management. ORR has closed the recommendation.		

RECOMMENDATION	4	Status: Green 1 = Closed
Network Rail to take steps to ensure that all track maintenance staff make reference to the definitive line diagrams and signalling plans when planning engineering activities (currently available via national railway network intranet) and to ensure that such diagrams feature in possession planning documentation prepared by PICOPs. In consequence Network Rail should ensure that these diagrams are subject to regular validation and updates as appropriate.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	5	Status: Green 1 = Closed
Network Rail to implement a system to ensure that all relevant staff (including PICOPs and Engineering Supervisors) have easy access to accurate mileage information for all published possession limits and to ensure that the written descriptions of possession limits are sufficiently precise to enable staff to identify the actual geographical locations that are referred to.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive	Carlisle North Junction	13:20	6 February 2006	Derailment of Plough Brake Van
<b>RAIB Report No:</b>	17/2006		<b>Published:</b>	19 September 2006

Summary	
An engineering train, reporting number 6L57, became derailed on 756A points at the north end of Carlisle station. The train was in transit following its use within an engineering possession near Barrow-in-Furness. There were no injuries and the derailment was limited to all wheels of a plough brake van at the rear of the train. Minor damage occurred to the track and the vehicle.	
<b>Recommendations</b>	<b>Six recommendations are made</b>

RECOMMENDATION	1	Status: Green 1 = Closed
EWS (English, Welsh & Scottish Railways Ltd) should ensure that the advice and instructions given to site train preparers' in Operating Digest Advice Number 121 are incorporated into normal working procedures.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		



<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Green 1 = Closed</b>
EWS should consider providing further assistance to train preparers in regard to plough stowage by painting locking keys a bright colour and/or placing reminder/warning notices on the exterior of the vehicles.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		

<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Green 1 = Closed</b>
EWS should rebrief their site train preparers' that they must receive a Certificate of Readiness (CoR) in the correct format, as shown in The White Pages, before accepting engineering trains following their use in possessions.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		

<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 1 = Closed</b>
EWS should ensure that the unofficial 'authorisation slip / substitute driver's slip' is withdrawn from use.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 175 DMU	Oubeck North, near Lancaster	13:56	4 November 2005	Derailment due to landslide
<b>RAIB Report No:</b>	19/2006		<b>Published:</b>	2 November 2006

<b>Summary</b>	
<p>Passenger train, 1C62, operated by TransPennine Express, travelling on the Preston to Lancaster section of the West Coast Main Line, derailed after running into a landslip in a cutting at Oubeck North. The trailing wheel set on the leading bogie derailed to the right. No other wheels were derailed. The train travelled a further 1430 m before coming to rest in an upright position. There was no collision with structures or other trains and there were no injuries as a result of this derailment. Two coupler lateral bump stops were dislodged from the leading vehicle and came to rest 200 m after the landslip. They caused damage to the under frame, including holing the fuel tank on the leading vehicle. There was extensive damage to the rail fastenings over the length of track that the train ran on in a derailed state. Additionally, eighteen rail fractures were identified.</p>	
<b>Recommendations</b>	<b>Six recommendations are made</b>

<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 3 = Closed with no actions taken</b>
Alstom should ensure that the design of the coupler lateral bump stop mounting arrangements for the Class 175 and 180 trains is reviewed against load cases from 'credible accident scenarios', including longitudinal loads experienced at the coupler head.		
<b>Comment</b>		
The RAIB has not seen the basis for closing this recommendation, although Alstom have declared it complete. ORR has closed the recommendation.		

## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Manually-Propelled Trolley	Between Larkhall and Barncluith Tunnel	06:49 - 06:51	2 November 2005	Runaway
<b>RAIB Report No:</b>	20/2006	<b>Published:</b>		2 November 2006

**Summary**

A manually-propelled trolley being used within a T3 engineering possession on the partially built Larkhall branch in the Hamilton area in Scotland ran away from the trolley operator. The trolley travelled over three miles down hill, passing over steep gradients of up to 1 in 48 and reaching speeds above 20 mph (32.1 km/h), eventually leaving the limits of the possession and running onto a railway line open to traffic. The trolley eventually came to a stand within Barncluith tunnel. A possible collision with a passenger unit was prevented by the activation of a track circuit within the tunnel by the trolley.

**Recommendations** Sixteen recommendations are made

**RECOMMENDATION****9****Status: Amber = Open**

RSSB should propose revision of the rulebook to recognise the risks associated with the braking performance of trolleys in wet or icy conditions, on gradients and with contaminated brakes, along with instruction to perform any necessary brake test to demonstrate the trolley brake is performing to its specification in all circumstances.

**Comment**

RSSB believes that the level of details appropriate to the rule book.  
ORR is following up with Network Rail to ask it to ensure that the intent of this recommendation is incorporated in its procedures / standards.

**RECOMMENDATION****10****Status: Green 3 = Closed with no actions taken**

Network Rail should revise its training requirements to match the output of recommendation 9, and introduce a competency within the Sentinel system for a person in charge of trolleys.

**Comment**

Network Rail has considered the recommendation, and believes that a specific training module in the Sentinel suite is disproportionate to the risk of runaway trolleys.  
ORR has closed the recommendation.

**RECOMMENDATION****12****Status: Green 1 = Closed**

Network Rail should review their guidance on product acceptance processes and 'grandfather rights', with particular reference to plant, to ensure that there is clarity to relevant parties on the design change approvals criteria and particularly in respect where it affects 'grandfather rights'.

**Comment**

Network Rail have reviewed their guidance, as required by the recommendation, and consider that the existing process addresses the issue of approvals in clear terms, and that new approval should be sought for stock when used on new routes, or when subject to substantial modifications.  
ORR has closed the recommendation.

**RECOMMENDATION****13****Status: Green 1 = Closed**

All Infrastructure Controllers should brief relevant contractors and staff of the risks associated with braking performance on gradients, in wet/icy conditions, and with contaminated brakes.

**Comment**

Most Infrastructure Controllers have considered and carried out the recommendation. However, Network Rail has recently issued a Code of Practice, which they consider meets the need of this recommendation.  
ORR has closed the recommendation.

RECOMMENDATION	14	Status: Green 2 = Complete
<p>Network Rail should carry out a risk assessment on the use of red lights on trolleys used in T2 sites and either:</p> <ul style="list-style-type: none"> <li>enforce the existing requirement for such lights, which will include the fitting of brackets to all existing and future trolleys on the national railway network; or</li> <li>propose a modification to Rule Book Module T2, paragraph 15.5, to remove the requirement for a red light on a trolley.</li> </ul>		
<b>Comment</b>		
<p>Network Rail has taken actions in response to this recommendation.            ORR is considering whether to close the recommendation.</p>		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive	York station	23:22	18 January 2006	Wagon derailment
<b>RAIB Report No:</b>	21/2006	<b>Published:</b>	14 November 2006	

Summary	
<p>Freight train 6V49, from Tees Yard to Newport, was travelling through York station when one wheel set on a wagon became derailed. The wheel set re-railed at the first set of points south of the station.</p>	
<b>Recommendations</b>	<b>Four recommendations are made</b>

RECOMMENDATION	1	Status: Green 1 = Closed
<p>GE Rail Services should revise their maintenance arrangements for link and pin type suspensions to ensure that degraded link pins are detected and replaced at a periodicity that minimises the risk of in-service failure.</p>		
<b>Comment</b>		
<p>GE Rail Services has taken actions in response to this recommendation.            ORR has closed the recommendation.</p>		

RECOMMENDATION	2	Status: Green 1 = Closed
<p>GE Rail Services should determine in-service link pin strain and ensure that either link pins of an appropriate specification are used or that in-service loads are reduced to within the link pin load carrying capability.</p>		
<b>Comment</b>		
<p>GE Rail Services has taken actions in response to this recommendation.            ORR has closed the recommendation.</p>		

RECOMMENDATION	3	Status: Green 1 = Closed
<p>English Welsh and Scottish Railway should revise their system of assurance to ensure that wagons are assessed and documented as fit to run before commencing in-service operation.</p>		
<b>Comment</b>		
<p>English Welsh and Scottish Railway have taken actions in response to this recommendation.            ORR has closed the recommendation.</p>		

RECOMMENDATION	4	Status: Green 1 = Closed
<p>Freight Operating Companies that operate wagons with link and pin type suspensions should review their maintenance arrangements to ensure that degraded link pins are detected and replaced at a periodicity that minimises the risk of in-service failure.</p>		
<b>Comment</b>		
<p>The affected FOCs have taken actions in response to this recommendation.            ORR has closed the recommendation.</p>		

## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 170 DMU	Moy, Inverness-shire	07:02	26 November 2005	Derailment due to landslip
<b>RAIB Report No:</b>	22/2006		<b>Published:</b>	29 November 2006

**Summary**

Passenger train 1B08, a 3-car Class 170 diesel multiple unit (DMU) operated by First ScotRail, travelling from Inverness to Edinburgh on the Inverness to Perth section of the Highland Line, derailed after encountering a landslip in a cutting north of Moy in Inverness-shire.

All wheels of the leading car derailed to the left. No wheels of the other two cars were derailed. The derailed train travelled approximately 122 m before coming to rest upright close to the 105 ½ milepost.

The impact with the landslip debris, and the subsequent derailment, resulted in damage to the leading vehicle. This was mainly restricted to the front cab, the bogies and the vehicle under frame equipment. The impact also caused the release of a ceiling panel in the passenger saloon which hinged downwards and prevented the driver from being able to open the cab-to-passenger saloon door.

**Recommendations**

**Ten recommendations are made**

**RECOMMENDATION**

**4**

**Status: Amber = Open**

The Scottish Executive and the Department for Communities and Local Government in England and Wales should ensure that Network Rail becomes a statutory consultee for planning applications for developments in the vicinity of the railway.

**Comment**

The Department for Communities and Local Government in England and Wales have taken actions in response to this recommendation.

The Scottish Executive (Scottish Government) has taken actions in response to this recommendation.

**RECOMMENDATION**

**8**

**Status: Green 1 = Closed**

Bombardier should identify all vehicles manufactured with a similar method of secondary retention to that of unit 170431 and inform relevant train owners and operators of the risk of failure identified in this report.

Bombardier should modify all new rolling stock under manufacture, and the design for future rolling stock, to mitigate this risk.

**Comment**

Bombardier has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION**

**9**

**Status: Green 1 = Closed**

All rolling stock owners should identify rolling stock in their ownership with a similar method of secondary retention to that of unit 170431 and carry out modifications to mitigate the risk identified in this report.

**Comment**

Rolling stock owners have taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION**

**10**

**Status: Green 1 = Closed**

As part of their research into 'Whole train dynamic behaviour in collisions and improving crashworthiness' (project T188), RSSB should consider the practicability of design elements on the bogie that limit the degree of deviation from the track following derailments.

**Comment**

RSSB has carried out a preliminary review in response to this recommendation. At this time they propose no further action.  
ORR has closed the recommendation.

Equipment Type	Place	Time	Date	Incident
National Network(s): Pedestrian Crossings	Elsenham station (wicket gates)	10:40	3 December 2005	Fatal accident
<b>RAIB Report No:</b>	23/2006	<b>Published:</b>		11 December 2006

**Summary**

This investigation was initiated following a fatal accident at Elsenham station on 3 December 2005. The remit can be summarised as follows:

- to identify the number and distribution of station pedestrian crossings in the UK (including pedestrian gates associated with highway crossings);
- to investigate the safety issues associated with crossings of this type;
- to make general recommendations for the improvement of safety at station pedestrian crossings;
- to investigate the circumstances of the accident at Elsenham; and
- to make specific recommendations for the improvement of safety at Elsenham.

**Recommendations****Ten recommendations are made****RECOMMENDATION****4****Status: Green 1 = Closed**

ORR, in consultation with Network Rail and DfT, to undertake a comprehensive review of existing guidance relating to the design of station pedestrian crossings. This should include a review of current technologies and the modern understanding of human factors. This review should include each of the following:

- Use of fencing to direct passengers to approach the crossing by the route that best enables them to observe the approach of trains whilst drawing their attention to any associated signs or stop lights.
- An assessment of the safety benefits and disbenefits of providing pedestrian gates on the final approach to station pedestrian crossings.
- Research into the technical feasibility and safety benefit of providing an additional set of stop lights on the far side of the crossing from an approaching user to repeat the indication of the lights on the near side ('back-to-back' lights).
- Research into the most effective means of providing users with an active warning to alert them of the approach of a second train. This should encompass research into the effectiveness of visual displays and/or voice messages as a means of alerting users.

**Comment**

ORR has agreed with RSSB that they should commission this research. The findings have fed into a comprehensive review of the Railway Safety of Principles guidance.  
ORR has closed the recommendation.

**RECOMMENDATION****5****Status: Amber = Open**

Network Rail, to carry out the necessary research, tests and trials to inform a review its own designs and operating policies for station pedestrian crossings and as an input to the review of guidance to be undertaken by ORR in line with Recommendation 4.

**Comment**

Network Rail has still to confirm the actions to be taken in response to this recommendation.

**RECOMMENDATION****6****Status: Amber = Open**

Network Rail to seek approval from ORR for the installation of fixed signage at station pedestrian crossings that cross more than one running line to remind users of the risk from a second train.

**Comment**

Network Rail has initially rejected the recommendation.  
ORR is considering the response.

## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Mainline Passenger Trains	Autumn Adhesion Investigation, Parts 1, 2 & 3	06:30 & 19:07	25 & 30 November 2005	Review of adhesion-related incidents
<b>RAIB Report No:</b>	25/2006		<b>Published:</b>	8 January 2007

**Summary**

The immediate cause of the SPAD incidents that occurred at Esher on 25 November 2005 and Lewes on 30 November 2005 (which are the subject of Parts 1 and 2 of this investigation report) was poor adhesion between wheel and rail. Both trains involved had failed to stop within normally expected distances, despite the systems on the train performing in accordance with their specifications and the drivers correctly implementing the professional driving policy prevailing within the relevant Train Operating Company (TOC) at the time. Both trains had travelled a distance of approximately 3 km from the time that the driver had first applied the brake. Stopping distances under normal circumstances would have been less than 2 km. These two incidents occurred against a backdrop of an increase in the number of adhesion-related SPAD incidents and a significant increase in the number of adhesion-related station overrun incidents on the national rail network during autumn 2005, as compared with autumn 2004.

**Recommendations**

**Twenty-five recommendations are made**

**RECOMMENDATION**

**2**

**Status: Green 1 = Closed**

Network Rail and South West Trains to review jointly the adequacy of their Control Room procedures for dealing with trains that have been involved in severe overrun incidents to ensure that it is explicitly established whether any allegation has been made about the involvement of the train braking system in the incident before a decision is made on whether to allow the train to remain in service. Depending on the outcome from the review, the procedures should be modified and changes implemented as necessary.

**Comment**

Network Rail and South West Trains have taken actions in response to this recommendation. ORR has closed the recommendation.

**RECOMMENDATION**

**3**

**Status: Green 1 = Closed**

South West Trains to ensure that a brake test is undertaken on Class 444 and Class 450 units as a precondition for allowing a train to proceed after any SPAD and after any incident where the stopping performance of the train has fallen significantly below a driver's expectations.

**Comment**

South West Trains have taken actions in response to this recommendation. ORR has closed the recommendation.

**RECOMMENDATION**

**4**

**Status: Green 2 = Complete**

Network Rail to:

- conduct a review of the approach used to assess the competence of new and existing signallers in their use of emergency equipment and amend it as necessary to ensure that the questions used probe a signaller's understanding of how they would use the emergency equipment provided;
- use the training simulator at Redhill to test signallers employed in the Sussex Route periodically on their response to rarely-experienced scenarios such as the need to stop all trains and specific trains in an emergency; and
- review and modify as appropriate their current practice on other routes to exploit the availability of simulators for testing signallers periodically on their response to rarely-experienced scenarios such as the need to stop all trains and specific trains in an emergency.

**Comment**

Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.



<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 1 = Closed</b>
<p>Network Rail, Sussex and Southern Railway to jointly review, and modify as appropriate, their Control Room procedures governing the communication of incident details to ensure that they correctly identify the key information, including details of all staff involved and ensure that appropriate action is taken to promote the welfare of staff and the safety of the railway.</p> <p>The review should consider the need to amend procedure C32 of the Network Rail Control Manual, and if appropriate arrange for the necessary amendments to be made and implemented.</p>		
<b>Comment</b>		
<p>Network Rail, Sussex and Southern Railway have taken actions in response to this recommendation. ORR has closed the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 2 = Complete</b>
<p>Train operators to:</p> <ul style="list-style-type: none"> <li>make modifications to multiple units already fitted with sanding equipment to permit application of sand in brake step 2 and above (or the equivalent of brake step 2 and above on multiple units fitted with step-less brake controllers) for the duration of the period when the WSP system is active on the leading vehicle;</li> <li>adjust, as appropriate, rolling stock maintenance activities during the autumn low adhesion period to include enhanced monitoring of sand hoppers to ensure that sand is always available; and</li> <li>review their maintenance policies and practices for sanding systems to check that they are targeted at ensuring that the system continues to deliver sand to the point where wheel meets rail.</li> </ul>		
<b>Comment</b>		
<p>Many train operators have taken actions in response to this recommendation. ORR is considering whether to close the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 2 = Complete</b>
<p>Train operators to:</p> <ul style="list-style-type: none"> <li>Modify as appropriate their instructions to drivers regarding the braking of trains equipped with a WSP system in low adhesion conditions to ensure that if the expected level of retardation is not achieved during the initial stage of braking, the optimum position of the brake controller is immediately selected to maximise braking efficiency. This may involve selecting a full service brake application or, where appropriate, an emergency brake application.</li> <li>Brief any revised instructions to drivers.</li> </ul>		
<b>Comment</b>		
<p>Many train operators have taken actions in response to this recommendation. ORR is considering whether to close the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>9</b>	<b>Status: Amber = Open</b>
<p>Train operators of multiple units operating in single unit formations to consider increasing the length of train consists during the autumn low adhesion season where reasonably practicable, eg:</p> <ul style="list-style-type: none"> <li>where rolling stock is available;</li> <li>where platforms can accommodate longer trains; and</li> <li>where, based on the train operator's review of low adhesion events and knowledge of problem areas for adhesion, there is a demonstrable benefit in so doing on specific routes and/or at specific times of day.</li> </ul>		
<b>Comment</b>		
<p>Many train operators have taken actions in response to this recommendation, although some responses remain outstanding. ORR is considering whether to close the recommendation.</p>		

## 1

## National Network(s)

RECOMMENDATION	14	Status: Amber = Open
RSSB to extend research and testing into how severe low adhesion conditions occur with particular reference to the phenomenon of micro layers of contamination on rail surfaces, invisible to the eye. The research will seek to establish the nature of the contaminant, how it reaches the rail and bonds with it, the circumstances under which the contaminant poses a particular threat to train braking (eg the factors that exacerbate its impact), the factors that determine how long it endures, possible methods for identifying its presence and methods for preventing its formation and dispersing it.		
<b>Comment</b>		
RSSB does not propose to commission additional research in response to this recommendation. ORR is considering its position on this recommendation.		
RECOMMENDATION	15	Status: Amber = Open
Train operators to fit automatic sanding equipment to those multiple units of five cars or less that are not currently so equipped, unless they are specifically excluded from doing so by GM/RT2461.		
<b>Comment</b>		
Some train operators have taken actions in response to this recommendation, but ORR is still awaiting responses from other TOCs. ORR is considering whether to close the recommendation.		
RECOMMENDATION	16	Status: Amber = Open
RSSB to lead research into ways of deriving quantitative criteria for braking performance under low adhesion conditions and the implications of each identified approach (including the potential impact on railway infrastructure). The research should include a consideration of the levels of adhesion against which performance (eg stopping distances or deceleration rates) should be demonstrated. The implications of adopting the approach proposed in the draft second issue of the high speed rolling stock TSI should be considered. The results from the research should be incorporated into the relevant RGS as appropriate and disseminated to those who are revising the high speed rolling stock TSI.		
<b>Comment</b>		
RSSB does not propose to commission additional research in response to this recommendation. ORR is considering its position on this recommendation.		
RECOMMENDATION	17	Status: Amber = Open
RSSB to review the relevance of existing sanding parameters within GM/RT 2461 and amend, enhance or supplement them with additional guidance where appropriate. The review is to encompass:		
<ul style="list-style-type: none"> <li>• implications (cost, benefits and disbenefits) of increasing the guide value of 2kg/minute for maximum sanding rate (taking account of the trials undertaken during August 2006 by Southern Railway);</li> <li>• the current sanding initiation threshold (full service and emergency braking) and the effect of reducing it to Step 1 or equivalent value for trains equipped with step-less brake controllers;</li> <li>• the need for criteria covering minimum sanding duration;</li> <li>• the need for criteria on sanding at low speeds including the implications of permitting sanding until the train has come to a stand; and</li> <li>• identification of ways in which currently excluded vehicles (eg Classes 142-144, 153) can be equipped with sanders.</li> </ul>		
<b>Comment</b>		
RSSB has taken actions in response to this recommendation.		



<b>RECOMMENDATION</b>	<b>18</b>	<b>Status: Amber = Open</b>
<p>RSSB to carry out research in conjunction with Network Rail and train operators into the implications, (cost, benefits and disbenefits) of:</p> <ul style="list-style-type: none"> <li>adopting enhanced sanding rates under emergency conditions above a defined speed threshold (either activated manually by the driver or automatically activated by the placing of the brake controller into the emergency position when WSP is active);</li> <li>allowing leading wheel sanding for high speed emergency braking;</li> <li>permitting units other than the leading unit to dispense sand under emergency conditions; and</li> <li>methods of avoiding the problem of excessive sand causing failures to operate track circuits (e.g. use of different materials or additives).</li> </ul>		
<b>Comment</b>		
RSSB has taken actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>20</b>	<b>Status: Amber = Open</b>
<p>Train operators to check the sand dispensing rate of each train within their fleets and ensure that it is set to the RGS GM/RT2461 guidance value of 2kg/minute except where a higher value has been permitted.</p>		
<b>Comment</b>		
Many train operators have taken actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>21</b>	<b>Status: Amber = Open</b>
<p>RSSB to establish a project to:</p> <ul style="list-style-type: none"> <li>Measure the accuracy of existing WSP (Wheel Slide Protection) simulation rigs that could be used to support rolling stock approvals. This validation should include reference to records obtained from train data recorders following actual incidents and full-scale testing as appropriate. The latter should include a direct comparison between UIC (International Union of Railways) detergent test data and a simulation of the same.</li> <li>Examine the feasibility of extending the capability of an existing WSP simulation tool in order to predict more accurately the behaviour of an entire train in low adhesion conditions (eg allowing for rail head conditioning, the effect of sanding and more than one vehicle).</li> </ul> <p>The results from the project should be used to inform the developing Euronorm on WSP equipment testing.</p>		
<b>Comment</b>		
<p>RSSB does not propose to take actions to implement this recommendation.          ORR is considering its position in response to this recommendation.</p>		
<b>RECOMMENDATION</b>	<b>22</b>	<b>Status: Amber = Open</b>
<p>Subject to the successful development of the simulation tool described in Recommendation 15, RSSB to undertake a programme of modelling to evaluate the impact of different control strategies for minimising stopping distances under various low adhesion conditions. The simulation should specifically address potential alternative strategies for extreme circumstances including:</p> <ul style="list-style-type: none"> <li>changing WSP (Wheel Slide Protection) control algorithms for the level of slip permitted from the current value of 17-20%; and</li> <li>permitting different levels of slip on wheels on the same train to optimise overall braking during low adhesion conditions.</li> </ul> <p>All the simulations should be designed to evaluate the effect of different strategies on braking performance and rail head conditioning and should include simulations with sanding operative. The results from the programme should be shared with those responsible for drafting relevant highspeed and conventional TSIs (Technical Specification for Interoperability) for possible inclusion in new or revised versions of those documents.</p>		
<b>Comment</b>		
<p>RSSB does not propose to take actions to implement this recommendation.          ORR is considering its position in response to this recommendation.</p>		

## 1

## National Network(s)

RECOMMENDATION	23	Status: Green 3 = Closed with no actions taken
<p>RSSB to initiate a project to evaluate the costs and benefits of equipping multiple units operating over the British mainline network with magnetic track brakes for use in emergencies under low adhesion conditions. The project will:</p> <ul style="list-style-type: none"> <li>• Address and resolve the outstanding issues identified in Interfleet report ITLRT17544-001.</li> <li>• Subject to successful resolution of outstanding issues, specify and procure magnetic track brake (MTB) equipment and fit it to a small number of units. The units chosen should represent different traction types with different operating regimes and operate in different geographical areas.</li> <li>• Develop and implement trials of these units, incorporating in-service experience and specific comparative tests with a similar unit not equipped with MTB.</li> </ul> <p>The project will aim to determine whether MTBs are a cost effective solution for new-build rolling stock and/or retrofitting to existing rolling stock.</p>		
<b>Comment</b>		
<p>RSSB has undertaken an initial cost benefit analysis in response to this recommendation and concluded that no further work should be undertaken.</p> <p>ORR has closed the recommendation.</p>		
RECOMMENDATION	24	Status: Amber = Open
<p>RSSB to establish a study into the potential uses of systems on modern rolling stock to:</p> <ul style="list-style-type: none"> <li>• automatically sample adhesion conditions, eg by the controlled braking/release of a single wheel-set on service trains (other than during train braking);</li> <li>• establish the profile, nature and distribution of low adhesion conditions on the national rail network currently and provide input to WSP simulation packages; and</li> <li>• improve intelligence about adhesion conditions in real time, eg use of wireless data transmission to feed details of low adhesion conditions encountered during braking to a monitoring system.</li> </ul> <p>The study should take into account operating experience with the Low Adhesion Warning System (LAWS) and consider the lessons learnt in relation to the development of a network wide solution for monitoring low adhesion conditions. The study should be developed in the context of the work currently being undertaken by RSSB in research project T540, 'Scoping and Development of the Adhesion Management System'. The output from this study must include consideration of how the information can be used by the railway industry including the need for signallers and drivers to be made aware of low adhesion conditions in real time.</p>		
<b>Comment</b>		
<p>RSSB has taken actions in response to this recommendation.</p>		
RECOMMENDATION	25	Status: Amber = Open
<p>Network Rail to review ERTMS (European Rail Traffic Management System) low adhesion assumptions in the light of the findings of this report and consider whether any changes are needed to ERTMS design or operating parameters in the light of the review.</p>		
<b>Comment</b>		
<p>Network Rail has taken actions in response to this recommendation.</p>		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive	Brentingby Junction, near Melton Mowbray	05:31	9 February 2006	Derailment
<b>RAIB Report No:</b>	01/2007	<b>Published:</b>		23 January 2007

**Summary**

At 05:31 hrs on 9 February 2006, train 6Z41, the 05:17 hrs freight train, operated by EWS, from Mountsorrel, Leicestershire, to Barham, Suffolk, derailed at trap points at the end of the Up Goods Loop at Brentingby Junction, near Melton Mowbray. The derailment of the class 66 locomotive and the first three wagons occurred after the train passed signal 53 at the end of the Up Goods Loop at danger. No-one was injured as a result of the accident.

<b>Recommendations</b>	<b>Ten recommendations are made</b>
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**RECOMMENDATION****1****Status: Green 1 = Closed**

EWS should include napping within its fatigue management system and implement it as a fatigue counter-measure if the assessed risk of fatigue indicates that it is necessary.

**Comment**

EWS has taken actions in response to this recommendation. In addition Freightliner and DRS have reviewed their arrangements for the management of fatigue. ORR has closed the recommendation.

**RECOMMENDATION****2****Status: Green 1 = Closed**

If the assessed risk of fatigue requires napping as a fatigue counter-measure, EWS should provide facilities so that naps may be taken at locations where drivers take breaks and build sufficient time into rosters for taking naps and recovery afterwards.

**Comment**

EWS has taken actions in response to this recommendation. In addition Freightliner and DRS have reviewed their arrangements for the management of fatigue. ORR has closed the recommendation.

**RECOMMENDATION****5****Status: Green 1 = Closed**

EWS should produce simple, targeted guidance for train drivers that provides clear advice on how they should conduct their lifestyles outside work so that levels of alertness are adequate when at work. The guidance should include the specific issue of how drivers should prepare for a first night shift.

**Comment**

EWS has taken actions in response to this recommendation. In addition Freightliner and DRS have reviewed their arrangements for the management of fatigue. ORR has closed the recommendation.

**RECOMMENDATION****6****Status: Green 1 = Closed**

EWS should implement a system to rebrief at intervals the guidance issued as a result of Recommendation 5 above and include the families of drivers in the briefing if possible.

**Comment**

EWS has taken actions in response to this recommendation. In addition Freightliner and DRS have carried out a similar briefing. ORR has closed the recommendation.

## 1

## National Network(s)

RECOMMENDATION	8	Status: Green 1 = Closed
EWS should implement a system where standard, simple questions are asked of drivers when being checked face to face for fitness for duty in order to identify cases of very long spells without sleep and alert managers to cases of particularly high levels of fatigue.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 59 locomotive + 18 Hopper Wagons	Cricklewood Curve	02:25	31 January 2006	Derailment
<b>RAIB Report No:</b>	02/2007	<b>Published:</b>	23 January 2007	

Summary	
On 31 January 2006 at 02:25 hrs a freight train was traversing the Cricklewood Curve in North London on its way from St. Pancras to Acton Yard. The linespeed on this part of the curve is 10 mph (16 km/h) and the train was travelling at 7.5 mph (12 km/h) when two of the wagons derailed. The derailed wagons overturned and started to slide down the embankment but were held by the couplings between them and the remainder of the train. One of the wagons was loaded with aggregate which discharged from the wagon down the bank. The other derailed wagon was empty. There were residential flats at the foot of the embankment, the residents of which were evacuated by the police as a precaution in case the derailed wagons moved further down the bank.	
<b>Recommendations</b>	<b>Six recommendations are made</b>

RECOMMENDATION	1	Status: Green 1 = Closed
Network Rail LNET (London North East Territory) MP&I (Major Projects & Investment) should revise their systems for implementing the CDM (Construction Design and Management) regulations to minor works so as to ensure that information on the condition of the asset that might affect the safety of those who might be affected by the construction work is passed to the contractor in a manner which is clear, precise and in a form suitable for the users.		
<b>Comment</b>		
Network Rail has taken actions in response to the recommendation. ORR has closed the recommendation, but will monitor ongoing progress through their normal inspection procedure.		

RECOMMENDATION	2	Status: Green 1 = Closed
Network Rail LNET MP&I and the Network Rail LNE Territory civil engineer should revise their internal procedures to ensure the following:		
<ul style="list-style-type: none"> <li>for division of responsibility: MP&amp;I, in conjunction with the earthworks engineer, should establish for each project the responsibility for determining the need for, and the implementation of, monitoring of the track;</li> <li>for internal Communication: all MP&amp;I project engineers and project managers on all territories should be made aware of the procedures used to monitor the track during site works and when these procedures should be employed; and</li> <li>for external Communication: MP&amp;I should ensure that they communicate clearly the responsibilities for track monitoring, and any other matters that might affect safety of the line, to the track engineers and that this information is received and understood by them.</li> </ul>		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	5	Status: Green 1 = Closed
Network Rail MP&I should improve the technical control of works undertaken by the minor works team to ensure that risk information provided by the designer of a scheme and any knowledge within Network Rail of risks inherent in the condition of the asset are properly taken into account.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	6	Status: Green 1 = Closed
Network Rail should ensure that at all stages of a project there is an appropriate competent person to oversee it, and that if the competent person changes at any stage in the life of the project, an appropriate handover takes place.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 locomotive + 35 loaded ballast wagons	Haymarket, Edinburgh	15:00	14 January 2006	Unauthorised train movement and subsequent derailment
<b>RAIB Report No:</b>	03/2007		<b>Published:</b>	30 January 2007

Summary	
During engineering work on the railway between Haymarket East Junction and Curriehill on 14 January 2006, a train loaded with spent ballast left the section of line that was under engineers' possession without authority and ran onto a line open to other traffic. On reaching Haymarket East Junction it was diverted onto a line on which a passenger train was approaching in the opposite direction. The ballast train stopped in Haymarket station when the driver realised that he was travelling on the wrong line. The passenger train was stopped by the action of the signaller. Subsequently, during tests on the brakes of the ballast train, one wagon became derailed by one set of wheels. There were no injuries, and minor damage to a set of points.	
<b>Recommendations</b>	Three recommendations are made

RECOMMENDATION	1	Status: Green 1 = Closed
The Rail Safety and Standards Board (RSSB), in conjunction with Railway Group members, should undertake an urgent revision of Rule Book modules T3 and T11 to provide clarity in the requirements for the protection of possessions. This should include: <ul style="list-style-type: none"> <li>clearer definition of the responsibilities of persons authorised to lift protection at possession limits;</li> <li>emphasising the preference for placing protection on the approach to the last signal rather than clear of the points at the junction; and</li> <li>stressing the importance of a minimum separation distance between protection and an open line when protection is placed clear of points.</li> </ul>		
<b>Comment</b>		
RSSB has taken actions in response to this recommendation. ORR has closed the recommendation.		

## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive + 21 HTA bogie hopper wagons	Waterside, East Ayrshire	03:19	21 January 2006	Derailment
<b>RAIB Report No:</b>	05/2007		<b>Published:</b>	30 January 2007

**Summary**

Train 6C64 travelling from Chalmerston colliery to Ayr became derailed at low speed at 03:19 hrs on 21 January 2006. The train departed Chalmerston bound for Drax power station in Yorkshire and was partially derailed less than a mile into its journey on the section of single line owned by Scottish Coal. The train, comprising 21 loaded HTA bogie hopper wagons hauled by locomotive 66056, continued for 2¼ miles (3,800 m) until being brought to a standstill at 03:29 hrs. The train was halted by the increasing drag experienced when the track disintegrated beneath the rear six wagons as it passed through the village of Patna.

**Recommendations**

Seven recommendations are made

**RECOMMENDATION**

4

Status: Green 1 = Closed

EWS should review its internal quality assurance processes to ensure that the sign-off of safety critical reports is accompanied by a review of the content. The submission of photocopied data should be prohibited unless the summary sheet confirms that conditions have been checked and previous readings are fully replicated.

**Comment**

EWS has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION**

5

Status: Green 1 = Closed

EWS should enhance the level of information arising from inspection reports to provide quantitative information and guidance for maintenance planning, for example: prioritisation of defects and timescales for non-urgent action.

**Comment**

EWS has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION**

6

Status: Green 1 = Closed

EWS should review its private-party activities nationally and take immediate steps to correct any situations where local inspection or maintenance arrangements have allowed infrastructure condition to fall below the applicable standards.

**Comment**

EWS has taken actions in response to this recommendation.  
ORR has closed the recommendation.

Equipment Type	Place	Time	Date	Incident
National Network(s): Locomotive 20310	Bratts Blackhouse No.1 UWC, near Sizewell, Suffolk	09:21	22 May 2006	Freight train collision with road vehicle on level crossing
<b>RAIB Report No:</b>	09/2007		<b>Published:</b>	26 April 2007

**Summary**

On 22 May 2006, a freight train was conveying a discharged nuclear flask from Willesden Brent Yard to Sizewell via a freight only branch line that runs between Saxmundham and Sizewell. As the train crossed over Bratts Blackhouse No.1 User Worked Crossing (UWC) on the Sizewell Branch at 19 mph (30 km/h), it was in collision with a road vehicle travelling from the north side to one of the private dwellings on the south side of the crossing. The linespeed at this point is 25 mph (40 km/h). No one was injured in the collision. The train was not derailed but suffered some minor damage. The road vehicle also suffered some damage to its front and nearside front area.

<b>Recommendations</b>	<b>Eight recommendations are made</b>
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**RECOMMENDATION****1****Status: Amber = Open**

Network Rail should explain to the authorised users about the method of safe operation of Bratts Blackhouse No 1 UWC and their responsibilities and confirm this in writing. In addition, a notice to comply with GI/RT7012 Part K3 (Railway Group Standard Requirements for Level Crossings August 2004 Issue 1), should be sent to the authorised users and a copy displayed at the crossing. Network Rail should also take reasonably practicable steps to verify users' compliance with the method of safe operation.

**Comment**

Network Rail has taken some of the specified actions in response to this recommendation. ORR is considering whether to close the recommendation.

**RECOMMENDATION****2****Status: Amber = Open**

Network Rail should audit the effectiveness and implementation of the maintenance and inspection measures mandated by Network Rail company standards for UWCs within the maintenance area that includes Bratts Blackhouse No 1 UWC and amend company practices to address deficiencies that come to light.

**Comment**

Network Rail has taken some of the specified actions in response to this recommendation. ORR is considering whether to close the recommendation.

**RECOMMENDATION****3****Status: Green 1 = Closed**

Network Rail should duplicate the stop sign on the north side to a position on the left-hand side of the hinge gate post next to the 'Private' sign.

**Comment**

Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.

**RECOMMENDATION****5****Status: Green 1 = Closed**

Network Rail should ensure that all track maintenance staff in the Anglia Area are briefed on the need to preserve evidence following an accident that has been notified to the RAIB.

**Comment**

Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.



## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 3 = Closed with no actions taken</b>
Network Rail should modify the relevant company standard(s) to require the provision of a telephone number of the signaller on all signs at UWCs and to implement a programme for ensuring compliance.		
<b>Comment</b>		
Network Rail has responded to ORR, and the RAIB has commented on the response. ORR has closed the recommendation.		

  

<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 1 = Closed</b>
Network Rail should ensure that the signaller at Saxmundham is made aware of power and UPS failures that will affect the operation of the voice recorder and other safety related equipment.		
<b>Comment</b>		
Network Rail have fitted a voice recorder with a back up auto fault to notify Engineering Support Centre (ESC). RAIB is satisfied with the alternative solution. ORR has closed the recommendation.		

  

<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 3 = Closed with no actions taken</b>
Network Rail should install a sign at all UWCs indicating the name of the crossing to comply with Railway Safety Principles and Guidance, Section 2 part E, paragraph 287.		
<b>Comment</b>		
Network Rail has responded to ORR, and the RAIB has commented on the response. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 365 EMU	Huntingdon	15:59	15 February 2006	Train door incident
<b>RAIB Report No:</b>	11/2007	<b>Published:</b>	30 April 2007	

<b>Summary</b>	
On Wednesday 15 February 2006 at 15:59 hrs a member of the public was standing on the edge of platform two at Huntingdon station seeing a passenger off when he became trapped by the edge of his coat in the leading door of the third vehicle of train 1P71, the 15:44 hrs Peterborough to King's Cross West Anglia and Great Northern (WAGN) service. The Driver Only Operated (DOO) train departed and the person ran, then was pulled along the platform before falling down the gap between the train and platform edge. The person sustained serious injuries to his left arm and hand. The passenger that was accompanying the injured person prior to boarding the train had difficulty in following the correct procedure for stopping the train in the emergency. The person was not aware of the passenger emergency communication system on the train and ran towards the leading end to find and alert a member of staff, the Revenue Collection Officer (RCO). The train was brought to a stand when the RCO entered the cab and asked the driver to stop.	
<b>Recommendations</b>	<b>Six recommendations are made</b>

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: Green 1 = Closed</b>
FCC (First Capital Connect) should ensure that driver training is reviewed with a view to increasing the emphasis placed on, and understanding of, aligning the unit correctly with the optimum viewing position of the monitor bank. The training should also identify what actions the driver should take if a person is observed to be in close proximity to the side of the train when the driver is taking power.		
<b>Comment</b>		
FCC has taken actions in response to this recommendation. ORR has closed the recommendation.		



<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Green 1 = Closed</b>
HSBC should review the design of the Class 365 Unit door seal and the door control mechanism so as to reduce the door closing forces, with a view to reducing, so far as is reasonably practicable, the forces required to extract trapped objects. This review should take into account existing standards.		
<b>Comment</b>		
HSBC has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 1 = Closed</b>
Network Rail should review the position of the cameras associated with the CCTV system for DOO at Huntingdon station with the objective of minimising the likelihood that a passenger standing in close proximity to the train will obstruct the driver's view of passengers standing at other doors.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 1 = Closed</b>
FCC should review and if necessary modify the signage and controls for emergency exits at doors on the Class 365 Unit in view of the passenger reaction in this accident so as to ensure 'best' passenger reaction in an emergency is achieved. This review should be carried out in consultation with the Association of Train Operating Companies (ATOC) and with reference to the existing ATOC standard (Reference 13).		
<b>Comment</b>		
FCC has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive, wagon MHA 394620	East Didsbury	01:58	27 August 2006	Locomotive runaway
<b>RAIB Report No:</b>	13/2007	<b>Published:</b>	24 May 2007	

<b>Summary</b>		
At around 01:58 hrs on 27 August 2006, unmanned locomotive 66 084 became uncoupled from the rear of train 6L22 as it approached Heald Green Station. The locomotive then ran back northwards towards Manchester in the direction from which the train had come for around 3 miles (4.8 km), through a worksite set up between Gatley and Mauldeth Road stations. Staff working on the track within the worksite at East Didsbury station were not positioned on the same line as the runaway locomotive and consequently no one was injured.		
<b>Recommendations</b>	<b>Eight recommendations are made</b>	
<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: Green 2 = Complete</b>
Operators of locomotives that require the manual operation of a cock to allow such locomotives to be safely dead-hauled in single piped trains, should investigate possible design changes to mitigate the risks associated with the cock not being correctly operated. Design changes should be implemented so far as is reasonably practicable.		
<b>Comment</b>		
TOCs have taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		

## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Green 2 = Complete</b>
EWS should review and modify its procedures as necessary to ensure that when a maintenance action is not carried out at the scheduled time, the vehicle concerned is not returned to traffic and operated as if the maintenance action had taken place.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Green 1 = Closed</b>
EWS should train all drivers in the correct use of AFT cocks, include an assessment procedure to confirm that driver's understanding and thereafter put in place a monitoring regime to confirm that AFT cocks are being operated correctly. This should apply to all relevant classes of locomotives and methods of operation.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 1 = Closed</b>
EWS should modify their ongoing driver assessment procedures to ensure that drivers maintain a full understanding of, and can correctly use, the AFT cock. This should apply to all relevant classes of locomotives and methods of operation.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 1 = Closed</b>
EWS should ensure that all their procedures, documents and labels use the same terminology to describe the AFT cock. They should also assess whether moving away from the term, 'AFT cock' at this juncture will add to or reduce confusion, bearing in mind that if a design modification is implemented the AFT cock or a need to separately isolate it, may be obsolete.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 1 = Closed</b>
EWS should ensure that the AFT cock is clearly labelled with its name, function and open/closed positions.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 1 = Closed</b>
EWS should undertake a full and thorough review of their processes for conveying critical information to drivers in a consistent manner and for assessing that the information has been understood. The control of these processes should also be considered as should the ongoing access to the information and ongoing understanding by drivers. Reasonably practicable measures should be implemented.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	8	Status: Green 1 = Closed
EWS should review and if necessary modify their procedures to ensure that there are more thorough processes in accordance with best practice for hazard identification, risk assessment and mitigation associated with the introduction of technical or operational change. These processes should be proportionate to the change and be carried out before the change is implemented.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive	Deal, Kent	14:46	29 July 2006	Fatal accident involving a train driver
<b>RAIB Report No:</b>	14/2007	<b>Published:</b>	29 May 2007	

Summary
At around 14:46 hrs on 29 July 2006 train 6Z25 arrived at signal EBZ41 on the down line between Dover Priory and Deal, near Deal station, Kent. Whilst checking that the brakes of one of the wagons were released the driver elected to enter between that wagon and the wagon behind with the objective of reaching the other side of the train. In doing so the driver came into simultaneous contact with the live conductor rail and the buffer of the wagon and was fatally injured.
<b>Recommendations</b>
<b>Nine recommendations are made</b>

RECOMMENDATION	1	Status: Green 1 = Closed
RSSB, in consultation with affected parties, should review the Rule Book module DC with a view to incorporating a specific provision prohibiting railway staff from stepping over a live conductor rail whilst passing between coupled vehicles.		
<b>Comment</b>		
RSSB has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	2	Status: Green 2 = Complete
Freight Operators in areas of DC electrification should provide specific training to all drivers and ground staff with the objective of ensuring that they are fully aware of safe working practices when attending trains on lines with conductor rails. This training should also reinforce the message that the conductor rail should always be treated as live within possessions.		
<b>Comment</b>		
FOC's have taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		

RECOMMENDATION	3	Status: Green 1 = Closed
EWS should take steps to control oil contamination of brake blocks during lubrication of the brake rigging so far as is reasonably practicable.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		

## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 3 = Closed with no actions taken</b>
RSSB should develop a Railway Group Standard provision to prohibit the wearing of shorts by persons who may require to step over or walk close to live conductor rail that is not fitted with guard boarding as part of their duties. The specification for any long trousers that may be mandated should allow for comfort in hot weather and enhanced electrical resistance.		
<b>Comment</b>		
RSSB has proposed a change in the rules to its relevant industry committee, which has rejected the RAIB's recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 3 = Closed with no actions taken</b>
Recommendations to address staff behaviour in proximity to the conductor rail within possessions: RSSB, in consultation with affected parties, should review the Rule Book modules DC and G2 with a view to incorporating an explicit statement that staff should always consider the conductor rail inside possessions to be live unless they have been briefed by a person holding a valid conductor rail permit. This should be incorporated into the PTS (Personal Track Safety) handbook and the requirements for PTS training courses.		
<b>Comment</b>		
RSSB carried out a review and proposed change to module DC. This change was not supported by the Traffic Operation and Management Standards Committee. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 1 = Closed</b>
Recommendations to address staff behaviour in proximity to the conductor rail within possessions: Network Rail and Freight Operators, should jointly establish a regime for ensuring that all train crew working to and from engineering possessions are given a suitable safety briefing. In areas of DC electrification this should always include a reminder that the conductor rail inside the possession should be treated as live at all times.		
<b>Comment</b>		
Network Rail & FOCs have taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 1 = Closed</b>
RSSB, in consultation with affected parties, should review the Rule Book module DC with a view to clarifying the instructions to staff when attending a train in the absence of an insulating trough.		
<b>Comment</b>		
RSSB has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 locomotive	Crofton Old Station No.1 Level Crossing, West Yorkshire	12:45 & 09:45	1 & 18 May 2006	Two near misses
<b>RAIB Report No:</b>	16/2007	<b>Published:</b>		29 May 2007

**Summary**

Incident 1: At around 12:45 hrs on 1 May 2006, Class 66 locomotive 66508, running light and forming train 0D52 from Midland Road to Sudforth Lane, passed over Crofton Old Station No.1 level crossing whilst the crossing gates were open to the road. The crossing gates had been open for approximately two minutes prior to the arrival of train 0D52. A car had used the crossing around a minute prior to the train passing over the crossing.

Incident 2: At around 09:45 hrs on 18 May 2006, Class 155 diesel multiple unit (DMU) 155345, forming train 2F65 from Wakefield Kirkgate to Knottingley, passed over Crofton Old Station No.1 level crossing whilst the down line side crossing gate was open to the road. At the time of the train's passage over the crossing, the crossing keeper was attempting to close the gates to the road.

**Recommendations** Six recommendations are made

**RECOMMENDATION****2****Status: Green 2 = Complete**

Network Rail should undertake a risk assessment on all staffed level crossings that have no gate to signal interlocking safeguards to ensure that the risks from human errors are considered and are mitigated so far as is reasonably practicable.

**Comment**

Network Rail has taken actions in response to this recommendation.  
ORR is considering whether to close the recommendation.

Equipment Type	Place	Time	Date	Incident
National Network(s): Locomotive 47 811, wagon FRA 613035	Dagenham Dock	12:22	17 July 2006	Fatal accident to Shunter
<b>RAIB Report No:</b>	23/2007	<b>Published:</b>		12 July 2007

**Summary**

At 12:22 hrs on 17 July 2006, a 42 year-old shunter, employed by Freightliner Heavy Haul Limited (Freightliner), was crushed between a locomotive and a wagon during a shunting move at Dagenham Dock down yard. There were no immediate witnesses.

**Recommendations** Seven recommendations are made

**RECOMMENDATION****1****Status: Green 2 = Completed**

Freightliner should review the management of its infrastructure to ensure that risk factors identified in the local working instructions are recorded and assessed by trained personnel. The process should include follow-through checks to an agreed timescale to ensure that remedial action has been taken, and should provide a mechanism to elevate the issue to senior managers if compliance is not achieved. The local working arrangements should be changed where necessary.

**Comment**

Freightliner has taken actions in response to this recommendation.  
ORR is considering whether to close the recommendation.

## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Green 1 = Closed</b>
Freightliner should review the method of working at Dagenham and similar facilities to ensure that wagons are loaded from the points end wherever possible. Wagons could then easily be detached if there were not enough containers for a full train, and the number of shunting movements reduced. The local working arrangements should be changed where necessary.		
<b>Comment</b>		
Freightliner advises that traffic flows have changed at Dagenham reducing the case for this recommendation to be implemented. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Green 1 = Closed</b>
Freightliner should designate safe walking routes between frequently used parts of its yards. This includes marking or signing any hazards, and should include an instruction not to use walkways with substandard clearances where moving trains are present.		
<b>Comment</b>		
Freightliner has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 2 = Complete</b>
Freightliner should review its methods for checking and enforcing compliance with the Rule Book during shunting activities, in particular those relating to the proximity of staff to moving trains, the control of locomotives and the use of correct radio procedure.		
<b>Comment</b>		
Freightliner has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 2 = Complete</b>
Freightliner should review and enhance the training given to new staff and ensure that it is overseen by independent assessors.		
<b>Comment</b>		
Freightliner has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 1 = Closed</b>
Freightliner should re-brief staff on the importance of being in a position of safety before giving instructions for a driver to move a locomotive or train.		
<b>Comment</b>		
Freightliner has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 1 = Closed</b>
Freightliner should re-brief staff on wearing headgear that provides protection from impact and excessive exposure to the sun.		
<b>Comment</b>		
Freightliner has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive	Maltby North	03:00	28 June 2006	Derailment of freight train
RAIB Report No:	24/2007		Published:	18 July 2007

**Summary**

On 28 June 2006 train 6C51, a Freightliner Heavy Haul coal train from Redcar to West Burton, was traversing the facing turnout in the crossover (points number 31B) from the single South Yorkshire Joint Line to the loop at Maltby North when three of the wagons became derailed. The derailed wagons remained upright and did not spill their loads. The track was damaged for a distance of 80 m. The train was travelling at 17 mph (27 km/h) at the time of the derailment and was quickly brought to a halt by the automatic air brake. Nobody was injured in the accident.

<b>Recommendations</b>	<b>Four recommendations are made</b>
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**RECOMMENDATION****2****Status: Green 3 = Closed with no actions taken**

Network Rail should find out whether there are other similar installations where time of operation locking is specified but not implemented. Based on this, Network Rail should implement appropriate control measures to control the risk of a similar incident occurring at these locations.

**Comment**

Network Rail does not consider that it is reasonably practicable to implement this recommendation and is proposing no action.  
ORR has closed the recommendation.

**RECOMMENDATION****4****Status: Green 3 = Closed with no actions taken**

Network Rail should alter the design of the interlocking at Maltby so that movement of lever 31 positively destroys detection on the points until they have moved to the new position.

**Comment**

Network Rail did not consider the recommendation to be relevant to the causation of the accident and is proposing no action.  
ORR has closed the recommendation.

## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 360 EMU	Manor Park	09:23	19 March 2006	Possession irregularity
<b>RAIB Report No:</b>	26/2007	<b>Published:</b>		25 July 2007

**Summary**

At 09:23 hrs on Sunday 19 March 2006, train 1Y06, the 09:02 hrs London Liverpool Street to Ipswich service, struck two wheelbarrows as it approached Manor Park station at over 80 mph under clear signals. The staff on the track with the wheelbarrows had been able to jump clear, but two members of staff were injured.

**Recommendations**

**Three recommendations are made**

**RECOMMENDATION**

**1**

**Status: Amber = Open**

- (a) Network Rail should: Review their possession planning principles and formulate criteria for limiting the complexity of work sites within a possession. This is to aid compliance with Rule T3 10.7 which requires that COSSs sign form RT3199 personally;
- (b) Network Rail should: Undertake a review of the risks/benefits associated with long work sites covering different items of work compared to multiple short work sites unless those items of work are less than 300 m apart; and
- (c) Network Rail should: Review, and implement changes as necessary in, procedures to ensure that contractors are aware of major changes to planned possessions and that a record of this communication is maintained.

**Comment**

Network Rail identified actions which will respond to this recommendation.  
ORR to review the actions taken.

**RECOMMENDATION**

**3**

**Status: Green 1 = Closed**

- (a) Network Rail should: Review the possession planning system to ensure that any changes in possessions reflect back into the planned work sites that are recorded in the system.
- (b) Network Rail should: review the procedures for the storage of archived data, particularly any information associated with an incident which may be required to support a subsequent investigation, whether internally or by a statutory body.

**Comment**

Network Rail has taken actions in response to this recommendation.  
ORR has closed the recommendation.



Equipment Type	Place	Time	Date	Incident
National Network(s): Class 59 Locomotive	Purley station	11:03	18 August 2006	Signal Passed at Danger
<b>RAIB Report No:</b>	27/2007	<b>Published:</b>		8 August 2007

**Summary**

On 18 August 2006 a freight train conveying empty wagons from Purley yard to Acton yard passed signal T172 at danger by 35 m (38.27 yards) following a shunting move at Purley station. The freight train was stopped following a Train Protection Warning System (TPWS) intervention. The driver immediately reset the equipment without speaking to the signaller and continued his journey towards Acton yard. The freight train was finally stopped by the driver at signal T160 at Purley Oaks station, which had been changed to show a red aspect by the signaller at Three Bridges Area Signalling Centre (ASC).

**Recommendations** Five recommendations are made

**RECOMMENDATION****2****Status: Green 1 = Closed**

EWS should deliver a specific TPWS training module for all drivers and assessors; new and experienced. This should include the correct procedures in the case of TPWS intervention.

**Comment**

EWS has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****3****Status: Green 1 = Closed**

EWS should put in place a company process for the initiating, checking, authorising, issuing and briefing of local method of work instructions.

**Comment**

EWS has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****4****Status: Green 3 = Closed with no actions taken**

RSSB should make a Proposal, in accordance with the Railway Group Standards Code, to amend Railway Group Standards as appropriate to:

- mandate that in-cab TPWS should specifically identify a TPWS activation associated with a SPAD, (if reasonably practicable); and
- prevent the use of the driver's reverser key to reset TPWS once activated.

**Comment**

RSSB has carried out a review and concluded that no change to the RGSs can be supported. However, RSSB is supporting train operators' consideration of fitment on-board TPWS equipment.  
ORR has closed the recommendation

**RECOMMENDATION****5****Status: Green 1 = Closed**

Subject to the retention of arrangements for shunting into platforms 4 and 5, EWS should review the method of working instructions for ground staff in order to eliminate the requirement for staff to cross over a live conductor rail.

**Comment**

EWS has taken actions in response to this recommendation.  
ORR has closed the recommendation.

## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Two self-propelled track maintenance machines	Badminton	22:54	31 October 2006	Collision between two track maintenance machines
<b>RAIB Report No:</b>	30/2007		<b>Published:</b>	22 August 2007

**Summary**

At about 22:54 hrs on Tuesday 31 October 2006 two self-propelled track maintenance machines, a tamper and a ballast regulator, collided near the site of the former station at Badminton, Gloucestershire. The collision occurred on the up line of the railway between Bristol Parkway and Swindon stations, on a section of line that was closed to normal traffic for track renewal work. The tamper was travelling at about 35 mph (56 km/h), and the ballast regulator was stationary. All four people on board the machines, the drivers and two machine operators, were injured, two of them seriously.

<b>Recommendations</b>	<b>Four recommendations are made</b>
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**RECOMMENDATION****3****Status: Amber = Open**

RSSB should make a proposal, in accordance with the Railway Group Standards Code, to amend Module T11 of the Rule Book to require that on-track machines are operated in tandem/multiple within possessions and work sites where it is practicable to do so.

**Comment**

RSSB and Network Rail did not support implementation of this recommendation.  
ORR is considering whether to close the recommendation.

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 222 Meridian unit	Desborough	11:34	10 June 2007	Passenger door open on a moving train
RAIB Report No:	31/2007		Published:	30 August 2007

**Summary**

At 11:34 hrs on Saturday 10 June 2006, a passenger on train 1D17, the 10:30 hrs London St Pancras to Sheffield service, reported to on-board staff that an exterior door was open in the first class coach (vehicle 60249) while the train was moving. The train was formed of a class 222 Meridian unit, number 222009. The door became unlocked and able to open as result of a locking fault which occurred at 10:52 hrs when the train stopped at Luton station (30 miles 19 chains). The door came open at 11:31 hrs, two minutes after departing from Kettering station (72 miles 1 chain) while the train was travelling at 79 mph (127 km/h). There was no obvious indication – such as a visual or audible alarm – to the on-board staff of the locking fault at the station stop at Luton or afterwards. To the driver, the indications in the cab, when the door opened north of Kettering, were ambiguous. The train travelled for about five minutes with the door open, and it was only secured closed after the driver finally brought the train to a stand. Following this, the train went forward to Market Harborough (82 miles 74 chains) where the service was terminated and the passengers detrained. There were no injuries or material damage as a result of the incident.

<b>Recommendations</b>	<b>Nine recommendations are made</b>
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**RECOMMENDATION****1****Status: Green 1 = Closed**

HSBC Rail (UK) Limited and operators of class 222 trains (as appropriate) should review, in conjunction with Bombardier Transportation UK and Faiveley Transport, the door control algorithm and implement any changes necessary to ensure that:

- when door locking is required, the falling latch engages with the locking hook in all normal and degraded operating scenarios; and
- following the identification of a locking fault, real or otherwise, the motor is controlled so that the door is not left in an unrestrained condition.

**Comment**

HSBC Rail (UK) has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****2****Status: Green 1 = Closed**

Bombardier Transportation UK, Faiveley Transport and operators of class 222 trains (as appropriate) should review, in the light of the investigation findings, their processes for software specification, development, upgrading and verification. They should implement any changes necessary to ensure they identify and manage the risks due to performance errors occurring during fault conditions.

**Comment**

Bombardier Transportation UK, Faiveley Transport and Midland Mainline have taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****3****Status: Green 1 = Closed**

Bombardier Transportation UK and Faiveley Transport (as appropriate) should require their supplier Schaltbau to review and, if necessary, upgrade its manufacturing process and switch design in the light of the evidence presented in this report with the objective of minimising the risk of foreign bodies being present.

**Comment**

Bombardier Transportation UK and Faiveley Transport have taken actions in response to this recommendation.  
ORR has closed the recommendation.

## 1

## National Network(s)

RECOMMENDATION	4	Status: Green 1 = Closed
<p>HSBC Rail (UK) Limited, Bombardier Transportation UK and operators of class 222 trains (as appropriate), should review fault alarms and handling on class 222 units and implement any changes necessary to ensure that on-board staff are adequately warned and able to take the appropriate action (for instance, operation of the out-of-service lock or stopping the train) in the event of a door system failure. This should include the need for:</p> <ul style="list-style-type: none"> <li>the train manager to be aware of door locking faults before authorising train departure; and</li> <li>the driver to be aware of any door-related fault which may put the safety of the train 'in danger'.</li> </ul>		
<b>Comment</b>		
<p>HSBC Rail (UK) Limited, Bombardier Transportation UK and operators of class 222 trains have taken actions in response to this recommendation.</p> <p>ORR has closed the recommendation.</p>		
RECOMMENDATION	5	Status: Green 1 = Closed
<p>HSBC Rail (UK) Limited and operators of class 222 trains (as appropriate) should review the design of the 'pass comm/door activated' indication light and the two conditions requiring it to illuminate. If necessary, improvements should be made to the general design of indications on class 222 trains to ensure that the driver is clearly aware of which condition has occurred.</p>		
<b>Comment</b>		
<p>The recommended review has been carried out. The correct design is felt to be adequate.</p> <p>ORR has closed the recommendation.</p>		
RECOMMENDATION	6	Status: Green 1 = Closed
<p>HSBC Rail (UK) Limited and operators of class 222 trains (as appropriate) should review the ergonomics of the 'door close/locked' light to determine whether its conspicuity could be improved and therefore be more likely to be observed by drivers if a door opens when the train is moving.</p>		
<b>Comment</b>		
<p>The recommended review has been carried out. The correct design is felt to be adequate.</p> <p>ORR has closed the recommendation.</p>		
RECOMMENDATION	7	Status: Green 1 = Closed
<p>Operators of class 222 trains should review the content of training courses and the assessment of drivers, train managers and customer hosts in the practical application of procedures relating to unexpected incidents that may occur while trains are running in service. This should include ensuring that on-board staff members have an adequate understanding of their roles and responsibilities, particularly with regard to the use of the emergency brake override (and where the train should be brought to a stand), the operation of the passenger communication alarm system, and the use of the TMS and other sources of fault and event indication.</p>		
<b>Comment</b>		
<p>Operators of class 222 trains have taken actions in response to this recommendation.</p> <p>ORR has closed the recommendation.</p>		
RECOMMENDATION	8	Status: Green 1 = Closed
<p>HSBC Rail (UK) Limited and operators of class 222 trains (as appropriate) should review the ergonomics of the PCA emergency brake handle and, if necessary, make improvements to ensure that, when either passengers or on-board staff attempt to use it, it will successfully operate.</p>		
<b>Comment</b>		
<p>The recommended review has been carried out. The correct design is felt to be adequate.</p> <p>ORR has closed the recommendation.</p>		

<b>RECOMMENDATION</b>	<b>9</b>	<b>Status: Green 1 = Closed</b>
RSSB should make a Proposal, in accordance with the Railway Group Standards Code, to clarify the various requirements of the Rule Book relating to PCA and power operated doors to ensure they minimise the duration of any hazard affecting the safety of a train. This should include conditions for the use of the emergency brake override.		
<b>Comment</b>		
RSSB has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 221 DEMU "Super Voyager"	Copmanthorpe	20:56	25 September 2006	Collision between train and car
<b>RAIB Report No:</b>	33/2007	<b>Published:</b>	5 September 2007	

<b>Summary</b>	
At 20:56 hrs on 25 September 2006, a car passed through the fence at the end of Moor Lane just outside Copmanthorpe, south of York. Moor Lane is the site of a former level crossing, closed in 1982. The car came to rest with its front wheels in the four foot of the nearest railway line, the down Leeds line. It was dark and the weather was drizzly with some fog. At that time, a Virgin Cross Country class 221 Super Voyager train was approaching Copmanthorpe on the down Leeds line travelling towards York at 100 mph (161 km/h).The train was the 14:25 hrs Plymouth to Edinburgh service, reporting number 1S91. The driver of the train sounded the horn and applied the emergency brakes after he first saw the car approximately a quarter of a kilometre ahead of him. However there was not sufficient time to decelerate, and at 20:57 hrs the train struck the car and pushed it along the track, breaking it up in the process. The driver of the car died from his injuries. As parts of the front-half of the car broke up, they passed under the train and caused wheelsets two, three, and four of the leading vehicle to derail. The leading wheelset remained on the track. However, the train remained upright and ran in-line throughout its deceleration; no one on the train was injured. The train came to a stand 907 metres beyond the point of the collision. The train crew performed all necessary train protection duties and the emergency services were informed.	
<b>Recommendations</b>	<b>Two recommendations are made</b>

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: Amber = Open</b>
Network Rail should ensure that all cul-de-sacs currently leading directly to their railway are or have been assessed in line with the DfT guidance, and that their procedures enforce such assessment for any future changes to the highway infrastructure immediately adjacent to their boundary.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation.		

## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): 2x Class 455 EMUs + 8 Carriages	Epsom	19:42	12 September 2006	Derailment
<b>RAIB Report No:</b>	34/2007		<b>Published:</b>	13 September 2007

**Summary**

A South West Trains service from London Waterloo to Effingham Junction became derailed as it approached Epsom station, Surrey, at 19:42 hrs on Tuesday 12 September 2006. One bogie of the fourth coach of the eight-carriage train derailed towards the left as the train was travelling at about 17 mph (27 km/h). The train came to a stop partly in Epsom station, and the passengers (estimated at between 300 and 400 people) were able to alight onto the platform. There were no injuries, and minor damage to the train and track.

**Recommendations**

Three recommendations are made

**RECOMMENDATION**

1

Status: Green 1 = Closed

Network Rail should review the resourcing of the track maintenance organisation in the Wessex area, Wimbledon section to ensure that it is adequate for its existing and planned workload. The review should consider the recruitment and retention arrangements in the area, the numbers of posts and the necessary competences, the arrangements for ensuring that all sections of line are given appropriate levels of attention, and the technical and professional support available to the inspection and maintenance staff.

**Comment**

Network Rail has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION**

2

Status: Amber = Open

Network Rail should revise its instructions to staff to ensure that patrollers and local track managers have clear and specific instruction and guidance on the identification of and response to alignment faults and localised poor rail condition.

**Comment**

Network Rail has stated that its existing processes adequately define how staff should respond to alignment faults and localised poor rail condition.  
ORR is considering its position regarding this recommendation.

Equipment Type	Place	Time	Date	Incident
National Network(s): Passenger Train	M20 Overline bridge, Aylesford	22:25	5 February 2007	Collision
<b>RAIB Report No:</b>	36/2007	<b>Published:</b>		26 September 2007

**Summary**

On 5 February 2007 a bridge inspection unit working on the M20 was deployed over a railway bridge between Maidstone Barracks and Aylesford stations. The gantry on the bridge inspection unit was struck by a scheduled passenger train, causing significant damage to the leading carriage and wrecking the gantry. The train driver and the sole passenger were slightly injured. Nobody was on the gantry at the time.

**Recommendations** Six recommendations are made

**RECOMMENDATION****1****Status: Green 1 = Closed**

InterRoute should review the briefing process for their staff and contractors to ensure that all concerned are adequately aware of any railway that crosses or adjoins the highway worksite. Procedures should be amended where necessary.

**Comment**

Formal site safety management training for bridge inspectors and similar worksite supervisory personnel has been carried out. The subcontractor and plant hire procurement process has been strengthened to ensure that method statements are incorporated and understood. The method statements and risk assessments for bridge inspection works have been rewritten to incorporate lessons learned.

**RECOMMENDATION****2****Status: Green 1 = Closed**

InterRoute should rebrief the bridge inspector on the processes for managing safety at a worksite.

**Comment**

All concerned have been briefed on the revised risk assessments and method statements.

**RECOMMENDATION****3****Status: Amber = Open**

InterRoute should review their systems in order to ensure site supervisory competence is effective for the duties required.

**Comment**

Status of actions taken by InterRoute is unknown.

**RECOMMENDATION****4****Status: Green 1 = Closed**

E.S. Access Platforms (NE) Ltd. should ensure that the Moog operator is retrained in railway Personal Track Safety.

**Comment**

The operator concerned will re-attend and complete the PTS Training Scheme.

**RECOMMENDATION****5****Status: Green 1 = Closed**

E.S. Access Platforms (NE) Ltd. should ensure its staff know to receive a site safety briefing prior to entering a worksite, and ask for one if it is not provided by the person in charge at the site.

**Comment**

Site procedures regarding site inductions for Underbridge Unit Operators have been amended.



## 1

## National Network(s)

RECOMMENDATION	6	Status: Green 1 = Closed
InterRoute should review its Safety Induction system so that the cards issued have an expiry date, and that there is a robust method of rebriefing personnel when changes are made to working practices.		
<b>Comment</b>		
The Safety Induction system has been amended with cards expiring after 2 years.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive	Washwood Heath	16:05	8 September 2006	Derailment
<b>RAIB Report No:</b>	39/2007	<b>Published:</b>		21 November 2007

Summary	
Train 4026 was the 11:47 hrs service from Burton to Southampton Docks, operated by EWS. It comprised locomotive 66070 hauling 17 flatbed wagons. At about 15:48 hrs on the 8 September 2006 the train departed from Washwood Heath Up Side sidings. It left the yard along a reception siding from where it was routed onto the Down Goods via the series of four crossovers that link all tracks at the southwest end of Washwood Heath. As the train passed over the crossover between the Down & Up Goods line and the Up Main line the leading bogie of the 13th wagon, 609001, derailed to the left-hand side.	
<b>Recommendations</b>	<b>Four recommendations are made</b>

RECOMMENDATION	1	Status: Amber = Open
EWS should complete its programme for installing UIC sprung side bearers in FAA wagons in order to overcome the known deficiencies with the existing arrangement.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation.		

RECOMMENDATION	2	Status: Green 1 = Closed
EWS, pending the replacement of all existing side bearers, should test a representative sample of the unmodified fleet of FAA wagons in order to confirm that the values obtained for bogie rotational resistance and torsional stiffness remain acceptable once the central pivot and side bearer components have been subject to wear and to measure any change in the performance of the side bearer lubrication between Planned Preventative Maintenance (PPM).		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	4	Status: Green 1 = Closed
Engineering Support Group Ltd. should implement changes to its processes to mandate that when undertaking scrutiny of design and proposed maintenance the degradation of components in service is taken into account and the railway undertaking is advised of any additional maintenance and/or inspection requirements to keep the vehicle in a safe state as components wear.		
<b>Comment</b>		
Engineering Support Group Ltd has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Diesel electric locomotive no. 8113 + test vehicle	Cromore, Northern Ireland	01:00	14 April 2007	Derailment
<b>RAIB Report No:</b>	42/2007		<b>Published:</b>	28 November 2007

**Summary**

At about 01:00 hrs on Saturday 14 April 2007, a Northern Ireland Railways (NIR) ultrasonic test train became derailed near Cromore, Antrim, while travelling at about 49 mph (77 km/h). The train consisted of a locomotive and a single ultrasonic test vehicle. All four wheels of the test vehicle were derailed. There was some damage to the track and to the test vehicle. No-one was hurt.

**Recommendations**

**Seven recommendations are made**

**RECOMMENDATION**

**1**

**Status: Green 1 = Closed**

Northern Ireland Railways (NIR) should revise their process for the preparation and issue of the Weekly Operating Notice (WON) so the process ensures that the information that it contains is accurate and complete.

**Comment**

Northern Ireland Railways have taken actions in response to this recommendation.  
DRDNI has closed the recommendation.

**RECOMMENDATION**

**2**

**Status: Green 1 = Closed**

Northern Ireland Railways should revise their process for the preparation, issue and circulation of Special Operating Instructions (SOIs) to ensure that they are seen and acted upon by all relevant staff at the appropriate time.

**Comment**

Northern Ireland Railways have taken actions in response to this recommendation.  
DRDNI has closed the recommendation.

**RECOMMENDATION**

**3**

**Status: Green 1 = Closed**

Sperry Rail International should modify the suspension of the wagons that they use for ultrasonic testing to minimise their sensitivity to track irregularities including cyclic top (already complete).

**Comment**

Sperry Rail International has taken actions in response to this recommendation.  
DRDNI has closed the recommendation.

**RECOMMENDATION**

**4**

**Status: Green 1 = Closed**

Northern Ireland Railways should revise their operating instructions to ensure that, where staff who are not qualified to act as guards travel unaccompanied in the rear cab of locomotives and trains, they are suitably briefed on action to be taken in case of emergency.

**Comment**

Northern Ireland Railways have taken actions in response to this recommendation.  
DRDNI has closed the recommendation.

**RECOMMENDATION**

**5**

**Status: Green 1 = Closed**

Northern Ireland Railways should assess the risk arising from the absence of communication between the front and rear cabs of locomotives and trains, and either provide suitable fixed equipment or make other appropriate arrangements to control such risk.

**Comment**

Northern Ireland Railways have taken actions in response to this recommendation.  
DRDNI has closed the recommendation.

## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: White = Awaiting response</b>
Sperry Rail International should revise the vehicle weight information that is marked on the ultrasonic test vehicle and shown in the maintenance documentation to accurately reflect the unladen and laden weights of the vehicle.		
<b>Comment</b>		
Status of this recommendation is unknown.		

<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 1 = Closed</b>
Northern Ireland Railways should establish appropriate standards for track installation and maintenance throughout its network, define a timetable for the adoption of these standards, and implement them accordingly.		
<b>Comment</b>		
Northern Ireland Railways have taken actions in response to this recommendation. DRDNI has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 377 EMU	Tinsley Green Junction	09:33	17 March 2007	Near miss involving track worker
<b>RAIB Report No:</b>	43/2007	<b>Published:</b>	18 December 2007	

<b>Summary</b>
This incident occurred at 09:33 hrs on the morning of Saturday 17 March 2007, at Tinsley Green Junction, near Gatwick Airport. The driver of train 1M20, the 08:55 hrs Brighton to Watford Junction service, reported to the signaller that a member of track maintenance staff had dived clear of his train with only seconds to spare. The incident had occurred as train 1M20 was being routed from the up fast line towards the up platform loop via a series of high-speed crossovers.
<b>Recommendations</b>
<b>Eight recommendations are made</b>

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: Green 1 = Closed</b>
Network Rail's IMM (Infrastructure Maintenance Manager) Sussex should identify all welders in the Area who have only limited experience of working in the Red Zone. The IMM should ensure that all such welders that are qualified to act as COSS have the necessary skills, knowledge and experience to set up a safe system of work in the Red Zone.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Amber = Open</b>
Network Rail should update the COSS handbook and associated training material with the objective of ensuring that staff that are qualified to act as COSS are fully aware of the hazards associated with working in a Red Zone at locations beyond facing points and can set up appropriate safe systems of work. Included in the revised documentation should be a clear definition of the term 'approaching train'.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR is considering whether this recommendation can be closed.		

<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Green 2 = Complete</b>
Network Rail should prohibit lookouts from being required to observe the position of points as a means of determining if an approaching train is routed towards the site of work. Associated rules (e.g. rule book, module T7) and training documentation should clearly state that when working beyond facing points lookouts should give a warning, and staff move to the position of safety, for all trains approaching those points in the facing direction.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Amber = Open</b>
Network Rail should modify its management processes to require that all RT9909 'Record of Site Safety Arrangements and Briefing' forms issued to Controllers of Site Safety contain details of any high speed crossovers and/or points, the direction and speed of associated train movements and a specific warning about the hazards at such locations.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 1 = Closed</b>
Network Rail should carry out a detailed assessment of the way in which Business Process Document 0019 and Standard Maintenance Procedure 0094 are being applied. This assessment should include a survey of Work Schedulers to assess the extent to which they feel able to question, or challenge, requests made to them. The results of this assessment should be used to inform a review of the effectiveness of the existing management arrangements and steps taken to rectify any deficiencies identified.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Amber = Open</b>
Network Rail should implement a process to ensure that any person requesting that a plan be prepared by a Works Scheduler checks that an appropriate safe system of work has been selected and the adequacy of the resulting 'Record of Site Safety Arrangements and Briefing' form. This check should include a review of the accuracy of data contained and completeness of hazard identification.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 1 = Closed</b>
Network Rail should assess the feasibility of configuring the SSOWPS (Safe System of Work Planning System) to automatically check that the work site data entered in the system corresponds with the work site location.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation, and has carried it out by alternative means. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 3 = Closed with no actions taken</b>
Network Rail should review the presentation of information in Table A of its Sectional Appendices with the objective of clarifying the direction of signalled train movements through junctions and crossovers.		
<b>Comment</b>		
Network Rail has concluded that this recommendation is not practicable to implement. ORR has closed the recommendation.		

## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): 2x Class 455 EMUs	London Waterloo	22:48	11 September 2006 & 24 October 2006	Derailments
<b>RAIB Report No:</b>	44/2007		<b>Published:</b>	18 December 2007

**Summary**

At 22:48 hrs on 11 September 2006, a train formed of two class 455 electric multiple units derailed on 1565 points, which were traversed in the facing direction as the train made an empty coaching stock move into Waterloo south sidings. The points had recently been subject to unplanned maintenance.

At 18:27 hrs on 24 October 2006, a loaded passenger train, also formed of two class 455 units derailed on 1507 points, which were traversed in the facing direction as the train approached Waterloo station from Dorking. These points had also been subject to recent unplanned maintenance.

**Recommendations** Fourteen recommendations are made

**RECOMMENDATION****1****Status: Green 2 = Complete**

Network Rail should review and revise the guidance provided for staff undertaking or supervising standard 053 inspections to make clear the following:

- the detailed requirements for visual and increased-frequency inspections, including the use of photographs, and the development of standard forms with suitable prompts for this purpose;
- the conditions where a switch blade repair cannot be safely achieved such that staff understand the alternative courses of action available; and
- that work should be suitably planned and organised so that there is time for it to be carried out and with sufficient lighting for individuals to complete necessary inspections.

**Comment**

Network Rail has taken actions in response to this recommendation.  
ORR is considering whether to close the recommendation.

**RECOMMENDATION****2****Status: Green 1 = Closed**

Network Rail should review the frequency and content of training to:

- improve skills retention amongst occasional standard 053 inspection practitioners;
- introduce a mentoring programme with individual staff log books;
- introduce refresher training; and
- introduce a programme of periodic monitoring of AIs and TSMs by a supervising manager.

**Comment**

Network Rail has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****3****Status: Green 1 = Closed**

Network Rail should provide a handbook for use by front-line and supervisory staff which summarises the requirements of standard 053 inspections, post-inspection actions, and pre and post-grinding inspections. This should contain the necessary inspection forms. The handbook should be written in plain English and certified as such.

**Comment**

Network Rail has taken actions in response to this recommendation.  
ORR has closed the recommendation.

<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 1 = Closed</b>
Network Rail should establish a formal communication channel between Asset Inspection staff and TSMs such that the relevant TSM reviews and signs-off all standard 053 inspection reports.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 1 = Closed</b>
Network Rail should update the training of TSMs to enable them to obtain the standard 053 derailment hazard recognition training and experience necessary to properly fulfil their functions when undertaking supervisor's inspections and signing-off standard 053 inspection reports.		
<b>Comment</b>		
Issue 4 of Standard NR/L2/TRK/0053 mandates this requirement and the training package has now been reviewed to ensure that it properly delivers the requirements of the standard. Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Amber = Open</b>
Network Rail should introduce the requirement for a follow-up inspection after a standard 053 repair is carried out involving welding or grinding. This should be undertaken by an independent and competent person within a timescale commensurate with minimising the risk of derailment.		
<b>Comment</b>		
Network Rail has responded to ORR, and the RAIB has commented on the response. ORR is in ongoing discussion with Network Rail about this recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 1 = Closed</b>
Network Rail should undertake a check of all S&C components held in stock within the Wessex area to check whether information on any remaining legacy renewal plans is identified and captured within the current planning system as appropriate.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 1 = Closed</b>
Network Rail and South West Trains should jointly review and amend track access arrangements to ensure that sufficient and appropriate track access is provided to enable the safe inspection of switches and crossings between Waterloo and Clapham Junction. This should include consideration of Network Rail's daily T2(H) line blockage initiative and an extension of the existing Sunday possession arrangements if appropriate.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>9</b>	<b>Status: Green 2 = Complete</b>
Network Rail should review resource requirements for the undertaking of special inspections in complex track areas to ensure that the problems identified at Waterloo do not exist elsewhere. Sufficient AI positions should be provided to allow the mandated inspections to be completed, and planning resources should be aligned to support TISE requirements for track access.		
<b>Comment</b>		
Network Rail has considered and is carrying out the recommendation. ORR is considering whether to close the recommendation.		

## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>10</b>	<b>Status: Green 1 = Closed</b>
KCI Rail should ensure that any appointed GSM retains full authority and responsibility for site activities. Any transfer of responsibility between staff should be undertaken with the agreement of both parties and by reference to the grinding manager or duty shift manager.		
<b>Comment</b>		
KCI Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>11</b>	<b>Status: Green 2 = Complete</b>
Network Rail should provide sufficient technical resources to select and manage sub-contractors engaged in rail grinding activity effectively. This should include the pre-scoping of any non-routine work and the undertaking of on-site checks including periodic technical audits. Standard 053 repairs should not be attempted unless the work has been scoped in advance by an appropriately experienced and qualified person.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>12</b>	<b>Status: Green 2 = Complete</b>
Network Rail should review inspection regimes at recognised high-risk sites (ie sites with little used turnouts, a history of sidewear, or a turnout of similar flexure) to ensure these are effective. This should consider the introduction of bespoke inspection regimes such as more frequent visual inspections or periodic detailed inspections regardless of the degree of wear apparent.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>13</b>	<b>Status: Green 1 = Closed</b>
Network Rail should develop a handbook for use by staff who operate or otherwise use the Ellipse system. This document should provide guidance on the nature of information to be presented, and interpretation of the resulting reports.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>14</b>	<b>Status: Green 1 = Closed</b>
Network Rail should mandate the provision of a standard 053 detailed inspection report or equivalent paperwork prior to all switch repair activity. The report should describe the defect and proposed repair and identify who will undertake the post-repair inspection and any subsequent inspections.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		



## Recommendations made for National Network(s) in 2008 with a status of open or complete in the 2008 Annual Report

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 170 DMU Tubostar	Willington	16:16	1 August 2007	Collision with other train
<b>RAIB Report No:</b>	01/2008		<b>Published:</b>	10 January 2008

### Summary

At 16:16 hrs on Wednesday 1 August 2007, a stanchion on EWS freight train 6E79 struck and damaged Central Trains passenger train 1G46 as they passed in opposite directions at a location north of Burton on Trent station. There were no injuries but there was some damage to the passenger train as a consequence of this incident.

The 14:17 hrs freight train service from EWS Wolverhampton Steel Terminal to Scunthorpe Anchor Sidings comprised a locomotive and ten empty wagons. The 15:34 hrs passenger train service from Nottingham to Birmingham New Street comprised a two vehicle diesel multiple unit (DMU).

**Recommendations** Four recommendations are made

### RECOMMENDATION

1

Status: Green 1 = Closed

EWS should put in place a system to assure itself that damaged stanchions are detected and replaced by its load examiners.

### Comment

EWS has taken actions in response to this recommendation.  
ORR has closed the recommendation.

### RECOMMENDATION

2

Status: Green 1 = Closed

EWS should revise its manual and procedures to require the detection and replacement of damaged stanchions, where possible by those responsible for loading and unloading wagons, and by train preparers before every despatch.

### Comment

EWS has taken actions in response to this recommendation.  
ORR has closed the recommendation.

### RECOMMENDATION

3

Status: Green 1 = Closed

EWS should revise its manual and procedures so they define the type of damage that would require a stanchion to be replaced using pass/fail criteria, diagrams or photographs.

### Comment

EWS has taken actions in response to this recommendation.  
ORR has closed the recommendation.

### RECOMMENDATION

4

Status: Green 1 = Closed

EWS should evaluate the practicability of using stanchions similar in height to their associated loads and, if practicable, revise its manual, procedures and stanchion specifications accordingly so that the relevant members of staff are able to select stanchions appropriate in height to their loads.

### Comment

EWS has carried out the evaluation and concluded that it is not practicable to implement the proposed solution.  
ORR has closed the recommendation.

## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive	King Edward Bridge, Newcastle	06:39	10 May 2007	Freight train derailment
<b>RAIB Report No:</b>	02/2008	<b>Published:</b>		31 January 2008

**Summary**

At 06:40 hrs on 10 May 2007 an empty coal train became derailed whilst passing through King Edward Bridge South Junction on the approach to Newcastle station.

**Recommendations** Four recommendations are made

**RECOMMENDATION****1****Status: Green 1 = Closed**

EWS and other operators of two axle wagons on the Network Rail system should ensure that their annual maintenance procedures adequately mitigate the risk of derailment which may arise due to frame twist. This could be achieved by post maintenance wheel weighing or by increased dimensional checks.

**Comment**

EWS has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****2****Status: Amber = Open**

Network Rail should investigate the capability for Wheelchex data to be used to identify out-of-balance lateral wheel loading on vehicles and if practicable to instigate a warning system using Wheelchex to minimise the risk to the network.

**Comment**

Network Rail has taken actions in response to this recommendation.

**RECOMMENDATION****3****Status: Amber = Open**

Network Rail should review and amend the design and maintenance of the layout of the up main line to up Carlisle line crossover at King Edward Bridge South Junction or implement any necessary measures to ensure that it does not become out of specification within the monitoring interval.

**Comment**

Network Rail has taken actions in response to this recommendation.

**RECOMMENDATION****4****Status: Green 1 = Closed**

Network Rail should include guidance in NR/SP/TRK/001 Section 11.4.2 to ensure that additional consideration is given to the geometry monitoring frequency and methodology for locations where the dynamic track geometry is likely to deteriorate and exceed the maintenance limit without otherwise being detected. This may occur because of the proximity of the design geometry to the maintenance limit, where there is difficulty identifying the geometry or loaded parameters or where geometry deterioration rates are high.

**Comment**

Network Rail has taken actions in response to this recommendation.  
ORR has closed the recommendation.

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 165 DMU	Ruscombe Junction	11:30	29 April 2007	Staff hit by train (Fatality)
RAIB Report No:	04/2008	Published:	28 February 2008	

**Summary**

At 11:26 hrs on Sunday 29 April 2007, train 5Z71, the 10:45 hrs empty coaching stock train from Old Oak Common depot to Reading depot, struck and fatally injured a track welder at Ruscombe Junction, 5 miles (8 km) west of Maidenhead station. The accident occurred as train 5Z71 was being routed from the down main line towards the down relief line via two high speed crossovers.

**Recommendations** Seven recommendations are made

**RECOMMENDATION****1****Status: Amber = Open**

Network Rail should update the COSS handbook and associated training material with the objective of ensuring that staff that are qualified to act as COSS are fully aware of the hazards associated with working in a Red Zone at locations beyond facing points and can set up appropriate safe systems of work. Included in the revised documentation should be a clear definition of the term 'approaching train'.

**Comment**

Network Rail has taken actions in response to this recommendation.

**RECOMMENDATION****2****Status: Amber = Open**

Network Rail, in consultation with RSSB, should carry out human factors research into the impact of peer pressure, group communications and dynamics on safety decision making in small COSS led work teams. This should include a consideration of how teams are constituted and how a relatively inexperienced COSS can deliver authority, compliant behaviour, leadership and a challenge function. The findings of this research should be used to inform a review of training and management systems.

**Comment**

Network Rail has taken actions in response to this recommendation.

**RECOMMENDATION****3****Status: Green 1 = Closed**

First Great Western should rebrief all train drivers on the use of a repeated series of horn blasts and the application of the emergency brake. Driver training modules should be updated to include a scenario of track workers not moving clear of an approaching train.

**Comment**

First Great Western has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****4****Status: Amber = Open**

Associated rules (eg Rule Book, module T7) and training documentation should clearly state that when working beyond facing points lookouts should give a warning, and staff move to the position of safety, for all trains approaching those points in the facing direction.

**Comment**

RSSB do not support a modification of the Rule Book. In the view of the RAIB, subsequent accidents at Leatherhead 29 August 2007, Grosvenor Bridge 14 November 2008 and Kennington Junction 23 May 2008 all indicate there are ongoing issues with staff working in the vicinity of S&C.

## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Amber = Open</b>
Network Rail should implement a national plan to reduce the proportion of weld repairs at points and crossovers undertaken in Red Zones so far as is reasonably practicable.		
<b>Comment</b>		
Network Rail are considering a means of meeting the intent of this recommendation. RAIB is concerned that NR is not taking active steps to move S&C welding activities to the red zone. ORR still consider that this recommendation is 'open'.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 2 = Complete</b>
Network Rail should introduce a procedure that mandates the briefing of Safety Bulletins to its staff within specified timescales.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 377 EMU	Merstham Tunnel	12:22	13 January 2007	Passenger train derailment
<b>RAIB Report No:</b>	05/2008	<b>Published:</b>	28 February 2008	

<b>Summary</b>	
On Saturday 13 January 2007 the 1C23 service left Bognor Regis at 10:59 hrs for London Victoria. It was formed of eight cars of class 377 electric multiple unit stock. The train had an uneventful journey from Bognor to the booked stop at Redhill after which it departed for the non-stop run to East Croydon. At 12:23 hrs the train emerged from Merstham tunnel into the deep Hooley cutting on the up Redhill line. The train was travelling at 83 mph (132 km/h). The driver, observing debris from a landslip on the line approximately 100 m from the tunnel mouth, immediately made an emergency brake application. The train hit the debris at approximately 70 mph (112 km/h) causing the leading wheelset to derail to the cess side of the track. The train remained upright and came to a stand after travelling another 320 m. The train was conveying about 413 passengers, none of whom were injured by the incident. Passengers were evacuated in small groups along the track and up steep access steps to the public highway.	
<b>Recommendations</b>	<b>Nine recommendations are made</b>

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: Green 1 = Closed</b>
Network Rail should review the content of the appropriate Company Standards including NR/SP/CIV/065 and NR/SP/TRK/05201 so that they are sufficiently comprehensive to manage the risks from root balls on, or adjacent to, their infrastructure.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Green 1 = Closed</b>
Network Rail should review the guidance it provides on felling of trees on embankments and cuttings. This guidance should include the criteria and actions to be taken on the retention of root balls and stumps.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Green 1 = Closed</b>
Network Rail should inspect or assess all cuttings of a depth where falling root balls or stumps could pose a risk to the operational infrastructure. Root balls or stumps posing high risk should be removed or otherwise stabilised within a defined time scale.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 1 = Closed</b>
Network Rail should develop a list of civil engineering assets that may be susceptible to severe weather conditions or rapid natural deterioration and should develop plans for mitigating the effects on the operational railway.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 2 = Complete</b>
Network Rail should periodically implement a process to assess Hooley cutting for the risk posed to the operational infrastructure by any remaining tree roots and stumps. Such assessments should also include the stability of the cutting at the crest.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 1 = Closed</b>
Network Rail should issue the (credit card size) 'Special Inspections in Adverse Weather' to all track inspection personnel and widen its scope to cover any observation of earthworks.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 1 = Closed</b>
Network Rail, in connection with Southern, should ensure that access locations for relevant parts of the network are held at control rooms, and if appropriate, at signal boxes and manned stations. It should include street references, postcodes, grid references etc, as appropriate, along with information on any difficulties of use by emergency services and for passenger evacuation.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 158 DMU	Kemble	22:15	15 January 2007	Passenger train derailment
<b>RAIB Report No:</b>	07/2008		<b>Published:</b>	27 March 2008

**Summary**

On 15 January 2007, at approximately 22:14 hrs, the 21:52 hrs train from Swindon to Cheltenham Spa, consisting of a two-car diesel multiple unit (DMU), was travelling at 51 mph (82 km/h) when it struck debris from a collapsed wall following a landslip in the cutting just south of Kemble tunnel. The leading bogie of the train was derailed and the train was brought to a halt at the tunnel mouth. There were no injuries to passengers or crew. Evacuation of passengers from the derailed train was completed by 23:40 hrs. The line was closed until early on 18 January 2007 to enable repairs to be undertaken to the track and the cutting.

<b>Recommendations</b>	<b>Two recommendations are made</b>
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**RECOMMENDATION****1****Status: Green 2 = Complete**

Network Rail should identify, through the examination process, any other wall on the network which has a similar construction to the block wall at Kemble, and is also a free standing wall in front of a natural slope. Network Rail should consider the stability of such walls against any likely loading, taking due account of the blockage of weep holes and other drainage problems. Network Rail should instigate remedial action as appropriate.

**Comment**

Network Rail has taken actions in response to this recommendation.  
ORR is considering whether to close the recommendation.

**RECOMMENDATION****2****Status: Green 2 = Complete**

Network Rail should undertake a review of the classification of walls on their infrastructure so that the purpose of each wall is correctly identified in the records and notified to structures examiners. Network Rail should inform structures examiners about any changes in the classification of structures that they are to examine in the current programme.

**Comment**

Network Rail has taken actions in response to this recommendation.  
ORR is considering whether to close the recommendation.

Equipment Type	Place	Time	Date	Incident
National Network(s): Freight wagon / RRV	Armathwaite	14:37	28 January 2007	Collision with other train
<b>RAIB Report No:</b>	08/2008		<b>Published:</b>	24 April 2008

**Summary**

At about 14:15 hrs on Sunday 28 January 2007, a bogie flat wagon known as a salmon wagon ran away along the down line in the down direction near Armathwaite, Cumbria and collided with a Case WX170 RRV positioning new rail with a thimble. This followed an accident earlier in the day, at 06:22 hrs, when a Kirow crane being used to lay new sleepers derailed.

**Recommendations** Three recommendations are made

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: Green 1 = Closed</b>
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First Engineering Ltd should instruct their staff under what circumstances they are permitted to couple and uncouple vehicles that make up the consist of Kirow cranes.

**Comment**

First Engineering Ltd has taken actions in response to this recommendation.  
ORR has closed the recommendation.

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Green 1 = Closed</b>
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First Engineering Ltd should ensure that their staff who are permitted to couple and uncouple rail vehicles are competent in the appropriate sections of the rule book.

**Comment**

First Engineering Ltd has taken actions in response to this recommendation.  
ORR has closed the recommendation.

<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Green 1 = Closed</b>
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First Engineering Ltd should ensure that operators of Kirow cranes are adequately trained to respond correctly to a cant compensator alarm.

**Comment**

First Engineering Ltd has taken actions in response to this recommendation.  
ORR has closed the recommendation.



## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 330 DMU	Nutts Craig UWC, Northern Ireland	15:23	2 August 2007	Level Crossing Fatality
<b>RAIB Report No:</b>	10/2008		<b>Published:</b>	24 April 2008

**Summary**

At approximately 15:22 hrs on 2 August 2007, train B413, the 15:05 hrs Northern Ireland Railways (NIR) service from Londonderry to Belfast Great Victoria Street, collided with a tractor on User Worked Crossing XL202, located approximately 700 m south-west of the disused station at Limavady Junction.

**Recommendations**

**Six recommendations are made**

**RECOMMENDATION**

**1**

**Status: Green 1 = Closed**

NIR should reissue its booklet, 'The Safe Use of User Worked Crossings' to enhance the section on special farm activities to include:

1. a clearer description of the circumstances that should trigger a request from a landowner for additional assistance in managing movements at the crossing;
2. details of who, within NIR, a landowner should contact for assistance in these circumstances; and
3. guidance on how long before the event the request should be made. NIR should use the reissuing of the guidance booklet and the accident at crossing XL202 as the basis for reminding users how to cross UWCs safely and how to consult with NIR regarding the provision of additional risk mitigation measures under the defined circumstances.

**Comment**

Northern Ireland Railways have taken actions in response to this recommendation.  
DRDNI has closed the recommendation.

**RECOMMENDATION**

**2**

**Status: Green 1 = Closed**

NIR should revise the risk assessment for crossing XL202 to ensure that it more accurately reflects usage of the crossing.

**Comment**

Northern Ireland Railways have taken actions in response to this recommendation.  
DRDNI has closed the recommendation.

**RECOMMENDATION**

**3**

**Status: Amber = Open**

NIR should review its crossing risk assessment model in the light of this investigation report to establish whether the model's accuracy could be improved by reclassifying road crossing user types, giving greater significance to peak usage of the crossing, reconsidering how animal movements are treated in the model and considering the relative importance of factors affecting visibility and audibility of approaching trains for different types of crossing user. Consideration should also be given to the effectiveness of mitigation provided (e.g. sounding of train horns at whistle boards).

**Comment**

UWCs to be risk assessed using a national all level crossing risk model, this work is ongoing.

**RECOMMENDATION**

**4**

**Status: Green 1 = Closed**

NIR should work with the owner of the land adjacent to crossing XL202 to establish a safe system of work for crossing cattle.

**Comment**

Northern Ireland Railways have taken actions in response to this recommendation.  
DRDNI has closed the recommendation.

<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Amber = Open</b>
NIR should work with DRDNI to add a template to the Private Crossings (Signs and Barriers) Regulations (Northern Ireland) 2007 that is appropriate to the circumstances at crossing XL202 and includes a permitted variant to allow the telephone number of the crossing operator to be added.		
<b>Comment</b>		
Northern Ireland Railways have rejected this recommendation, the safety authority (DRDNI) are seeking a meeting.		

<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 1 = Closed</b>
NIR should review the design of evacuation ladders to determine whether an alternative design incorporating handrails could be adopted to provide a more robust means for passengers to descend from train to track.		
<b>Comment</b>		
Northern Ireland Railways have taken actions in response to this recommendation. DRDNI has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 170 EMU (Turbostar)	Croxtan AHB LC	06:10	12 September 2006	Passenger train derailment
<b>RAIB Report No:</b>	11/2008	<b>Published:</b>	13 May 2008	

<b>Summary</b>	
At 06:03 hrs on 12 September 2006 the leading bogie of the 05:33 hrs train from Norwich to Cambridge, running number 1K55, derailed at 87 mph (140 km/h); the train ran for 463 m before the driver brought it to a stop. There were no casualties.	
<b>Recommendations</b>	<b>Eleven recommendations are made</b>

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: Green 2 = Complete</b>
Network Rail should assess the sleeper spacings and panel length of all HoldFast crossings until the rate of shrinkage is understood, and take such steps as are necessary so that no panel end is left unsupported by a sleeper. At the same time they should ensure that legged base plates are installed as specified by HoldFast Level Crossings Ltd.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Green 1 = Closed</b>
Network Rail should review the information that they provide to their level crossing teams, so that the requirements of their standards, the risks of particular crossings using panel surfaces and the installation, inspection and maintenance actions that they expect are clearly communicated to front-line staff in a way that is useful and comprehensible to them.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Amber = Open</b>
HoldFast Level Crossings Ltd. should define the performance limits of their level crossing panels in consideration of the loads and layouts to which they are exposed. It is suggested that HoldFast seek assistance from Rosehill Polymers and Network Rail in this task.		
<b>Comment</b>		
Holdfast Level Crossings Ltd advises that feedback is required from Network Rail and Rosehill before they can progress this recommendation.		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Amber = Open</b>
Network Rail should arrange a complete generic risk assessment of the HoldFast level crossing system by an appropriately technically qualified person, once the service environment of level crossings and the limits of performance of panels have been assessed. This should involve Holdfast Level Crossings Ltd and Rosehill Polymers Ltd appropriately in accordance with Network Rail's Engineering Safety Management System definition of 'system supplier'. This assessment should review the risks associated with the design, manufacture, installation and maintenance of the system, and should be supported by a wide review of in-service experience. The principles of Network Rail's Engineering Safety Management System should be adopted for guidance. The generic assessment should then be used to develop a site-specific assessment methodology for all locations where HoldFast crossings are to be used.		
<b>Comment</b>		
Network Rail is renewing the need to implement this recommendation. RAIB consider Network Rail's response to be inadequate in light of seriousness of the accident.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Amber = Open</b>
Network Rail should update specification NR/SP/TRK/040 to include any revisions or clarifications of load parameters and assurance measures necessary to better define the performance requirements of level crossing panel systems.		
<b>Comment</b>		
Network Rail is reviewing the steps to be taken in light of the output from Recommendations 1 & 3.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 2 = Complete</b>
Network Rail should review how it controls any application and design change associated with level crossing panel systems, including working with suppliers, manufacturers and front-line staff.		
<b>Comment</b>		
Network Rail has stated that processes have been improved since the accident. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 1 = Closed</b>
Network Rail should ensure that HoldFast Level Crossings Ltd. have applied for and received product acceptance of their current base plate design.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 1 = Closed</b>
Network Rail should review their processes for approval of level crossing panels and consider adopting the principles of hazard identification and mitigation within their Engineering Safety Management System.		
<b>Comment</b>		
Network Rail has stated that actions have been taken since the accident to improve the processes.		

RECOMMENDATION	9	Status: Green 1 = Closed
Network Rail should review all their public highway crossings fitted with panel surfaces to identify any that do not comply with the normal operating conditions defined in NR/SP/TRK/040 or those outside of their limit of application. Any crossings identified as such, should be listed and the risks associated with operating them outside of these conditions assessed and reasonable steps taken to mitigate them.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	10	Status: Green 1 = Closed
HoldFast Level Crossings Ltd should amend their panel designs so that the manufacturing configuration of all panels supplied in the future is uniquely and indelibly marked on the panel, so as to be visible when the panel is in-situ in a level crossing.		
<b>Comment</b>		
HoldFast Level Crossings Ltd has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	11	Status: Amber = Open
HoldFast Level Crossings Ltd and Rosehill Polymers Ltd should put in place processes so that any lessons learned during the addressing of the recommendations of this report to other users of their level crossing surface system.		
<b>Comment</b>		
Holdfast Level Crossings Ltd is awaiting feedback from National Rail before taking actions in response to this recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive	Camden Road Tunnel	22:40	19 July 2007	Runaway incident
<b>RAIB Report No:</b>	12/2008	<b>Published:</b>	22 May 2008	

Summary	
When EWS train 7M59, the 20:10 hrs from Angerstein Wharf to London St Pancras Churchyard Sidings, started from signal WH204 at the south end of Camden Road Tunnel, the screw coupling broke between the second and third wagons from the back of the train. The driver examined the rear of the front portion of the train and concluded that while the train was stopped at signal WH204, vandals had opened the brake pipe cock and main reservoir cock and had removed the tail lamp. He did not realise that the train had divided and did not see the two detached wagons which were in the tunnel. After the front portion had worked into Churchyard Sidings, the two detached wagons ran away southwards for 200 to 300 metres, reversed direction and came to rest about 140 metres from where the runaway started.	
<b>Recommendations</b>	<b>Eight recommendations are made</b>

RECOMMENDATION	1	Status: Green 1 = Closed
EWS should revise their operational procedures to require drivers to take the TOPS list with them and use this to check the consist if they need to examine their train following an unsolicited brake application.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		

## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Amber = Open</b>
Network Rail should review the competence management system applied to signallers with the aim of improving the way that signallers' actions in response to accidents and incidents are practised and assessed.		
<b>Comment</b>		
Network Rail is proposing to keep this under review.		
<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Green 1 = Closed</b>
EWS should revise their operational procedures to require maintenance controllers to always consider the possibility of a divided train when giving advice to drivers following a report of an unsolicited brake application.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 1 = Closed</b>
EWS should implement a process to brief its maintenance staff that heat should not be applied to forged components such as couplings to prevent a degradation in the material properties.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 1 = Closed</b>
EWS should review and amend, if necessary, its maintenance processes relating to the brake system of HLA/ JHA and HGA wagons to ensure that all required maintenance and quality assurance measures are covered.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 3 = Closed with no actions taken</b>
EWS should introduce a system to monitor incidents of coupling failures by type of coupling.		
<b>Comment</b>		
EWS has stated that this process was in place, and no action was required. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Amber = Open</b>
EWS should introduce a system to analyse coupling failures for individual types of coupling and implement any necessary measures to reduce the number of occurrences of train divisions for specific coupling types.		
<b>Comment</b>		
EWS has stated that this process was in place and no action was required. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 1 = Closed</b>
EWS should revise its procedures for keeping wagon maintenance records to ensure that continuous records are available which provide an auditable trail of the maintenance history throughout each individual wagon's life.		
<b>Comment</b>		
EWS has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 121 DMU	Aylesbury North	10:42	27 August 2007	Unauthorised train movement
<b>RAIB Report No:</b>	13/2008		<b>Published:</b>	11 June 2008

**Summary**

An operating irregularity occurred at 10:38 hrs on 27 August 2007 on the single line between Aylesbury and Claydon L&NE Junction. A passenger train ran onto a section of line already occupied by a locomotive which was part way through making a run-round move.

**Recommendations** Four recommendations are made

**RECOMMENDATION****1****Status: Green 1 = Closed**

All freight operators should revise their operating instructions for single lines with intermediate token instruments to state clearly that the token must not be returned while any part of the train is on the single line. This should be included in the regular briefing/assessment process.

**Comment**

All FOCS (except EWS) have taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****2****Status: Amber = Open**

EWS should introduce processes so that all shunters are fully briefed on the method of operation of all locations at which they are required to work.

**Comment**

EWS has taken actions in response to this recommendation.  
ORR is considering the response.

**RECOMMENDATION****3****Status: Green 1 = Closed**

Rail Safety and Standards Board (RSSB) should devise a means of disseminating to the industry safety lessons from incidents which are not so urgent as to require an NIR.

**Comment**

RSSB has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****4****Status: Green 1 = Closed**

Network Rail and the operators who use this line should agree who is authorised to receive and deliver the token and update the sectional appendix and/or their operating instructions accordingly.

**Comment**

Network Rail has taken actions in response to this recommendation.  
ORR has closed the recommendation.

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## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive	Duddeston Junction	02:20	10 August 2007	Freight train derailment
<b>RAIB Report No:</b>	16/2008		<b>Published:</b>	31 July 2008

**Summary**

At around 02:20 hrs on Friday 10 August 2007, two wagons forming part of train 4O84, travelling from Freightliner's Lawley Street Terminal to the Isle of Grain, became derailed just outside the terminal.

**Recommendations**      **Eight recommendations are made**

**RECOMMENDATION****1****Status: Amber = Open**

Freightliner should investigate the possibility of modifying current, or developing new, software, to give warning if containers are loaded onto a wagon in a way that contravenes company loads standards with regard to the distribution of load. Appropriate solutions should be implemented.

**Comment**

Freightliner is taking actions in response to this recommendation.  
ORR is monitoring the actions taken.

**RECOMMENDATION****2****Status: Amber = Open**

Freightliner should take steps, including re-briefing and assessment, to ensure that loading staff clearly understand and can apply the company's rules on permissible loading of container wagons. Freightliner should monitor compliance with their loading standards to provide assurance that such rules are being complied with.

**Comment**

Freightliner is taking actions in response to this recommendation.

**RECOMMENDATION****3****Status: Amber = Open**

Freightliner should re-examine how they present information on permissible container wagon loads. They should aim to present the information in a clear unambiguous way that suits the needs of the user of the information, be they terminal staff, Freightliner management, wagon manufacturers or approval bodies. This will involve the modification of MIE 0767 and the possibility of generating other related documents suited to the particular needs of the recipients.

**Comment**

Freightliner is proposing actions in response to this recommendation.

**RECOMMENDATION****4****Status: Amber = Open**

Network Rail Vehicle Conformance Group should put in place procedures so that when considering derailment resistance during the approvals process of wagons, they determine the full range of loads and their distributions that can legitimately be encountered in service, and consider the sensitivity of the wagon to likely longitudinal and lateral offsets in loading. They should take these factors into account when deciding what testing and calculations need to be undertaken to demonstrate compliance with applicable derailment resistance standards.

**Comment**

Network Rail have rejected this recommendation. The RAIB is of the opinion that it remains valid, and is discussing this with the ORR.

**RECOMMENDATION****5****Status: Amber = Open**

Freightliner should put in place procedures so that when procuring wagons, they unambiguously define to manufacturers and approvals bodies the full range of loads and distribution of loads that can reasonably expected to be encountered by the wagon in service.

**Comment**

Freightliner is not proposing to take action in response to the recommendation.



<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Amber = Open</b>
Freightliner should arrange that the FEA-B wagon wheel unloading performance is re-evaluated taking into account the full range of load conditions they permit (currently defined in MIE 0767) to confirm compliance with GM/RT 2141. This should consider sensitivity to longitudinal and lateral offsets in load that can reasonably be encountered in service.		
<b>Comment</b>		
Freightliner have rejected the recommendation on the basis that it was disproportionate for a "one off" accident. The RAIB notes that there has been a subsequent derailment, and considers the recommendation remains valid. The RAIB is in discussion with ORR about this.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Amber = Open</b>
Freightliner should act upon and close NIR 2084.		
<b>Comment</b>		
Freightliner has taken actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Amber = Open</b>
Network Rail should amend NR/SP/TRK/001 section 11.4.2 to make clear into which regime, areas that are not covered by measurement vehicles but are operated at less than 20 mph (32 km/h), fall. They should also clarify under what conditions it is mandated for the TME to maintain a list of areas of track not covered by measurement vehicles.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 158 DMU	Barrow upon Soar	06:32	1 February 2008	Passenger train derailment
<b>RAIB Report No:</b>	18/2008	<b>Published:</b>	25 September 2008	

<b>Summary</b>	
At 06:32 hrs on 1 February 2008 train 1L03, the 06:13 hrs Nottingham to Norwich train, travelling at 65 mph (104 km/h) collided with debris from a collapsed footbridge at Barrow upon Soar, Leicestershire.	
<b>Recommendations</b>	<b>Four recommendations are made</b>

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: Green 1 = Closed</b>
Network Rail should assess the risks to the safety of workers and the infrastructure which may arise from the transit and operation of road vehicles onto land near the running line, for the purpose of delivering materials. This should include consideration of:		
<ul style="list-style-type: none"> <li>a. the alarm systems that Network Rail require to be fitted to tipper lorries delivering to their sites indicating when the body is raised; and</li> <li>b. how road vehicles are to be controlled when operating on Network Rail land near the running line.</li> </ul>		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

## 1

## National Network(s)

RECOMMENDATION	2	Status: Green 1 = Closed
Network Rail should then revise and implement procedures to manage those risks including emphasising the appropriate means of protection of the line.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	3	Status: Green 3 = Closed with no actions taken
RSSB should consider the practicability of design elements on the bogie that limit the degree of deviation from the track following derailments and, where appropriate, proposals should be made to the relevant bodies to make changes to appropriate standards.		
<b>Comment</b>		
RSSB has assessed the practicality, of the design elements and concluded that no change to the standards should be recommended. RAIB is concerned that this measure would have the potential to mitigate the consequences of future derailments. ORR has closed the recommendation.		

RECOMMENDATION	4	Status: Amber = Open
Network Rail should review the arrangements for ensuring that their staff and contractors understand the differences between the purposes of T2 and T12 protections and the applicability of each.		
<b>Comment</b>		
Network Rail have rejected the recommendation on the basis that there is no evidence of a wider problem than on this occasion. ORR is considering this response.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 455 EMU	Leatherhead	09:57	29 August 2007	Staff hit by train (Injury/near miss)
<b>RAIB Report No:</b>	19/2008		<b>Published:</b>	23 October 2008

Summary	
At 09:55 hrs on 29 August 2007 a member of railway staff, engaged in routine track inspection work, was struck by a passenger train near Leatherhead station, Surrey, and seriously injured. The injured person was given first-aid by colleagues, treated on site by paramedics and later removed to hospital by air ambulance.	
<b>Recommendations</b>	<b>Six recommendations are made</b>

RECOMMENDATION	1	Status: Amber = Open
Network Rail should prohibit red zone working at Leatherhead Junction (reported by Network Rail as already complete).		
<b>Comment</b>		
Network Rail has taken actions to carry out patrolling in the green zone but has not banned red zone working.		

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Green 2 = Complete</b>
<p>Network Rail should review the inspection arrangements for S&amp;C throughout its network, especially at junctions where sighting is restricted by curvature or train speeds are high, so that the staff carrying out the inspection are adequately protected, considering for example:</p> <ul style="list-style-type: none"> <li>• S&amp;C inspection in non traffic hours, or other green zone arrangements;</li> <li>• provision of suitable lighting to enable inspection in green zone in darkness; and</li> <li>• train operated warning systems.</li> </ul>		
<b>Comment</b>		
<p>Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Green 2 = Complete</b>
<p>Network Rail should review the arrangements for protection of patrolling staff and others whose work involves moving along the line, throughout its network so that adequate warning time to move to a position of safety is always available.</p>		
<b>Comment</b>		
<p>Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Amber = Open</b>
<p>Network Rail should review its arrangements for the assessment and monitoring of staff who have to set up safe systems of work, so that there is regular confirmation that they are making appropriate arrangements, particularly for work which moves along the line.</p>		
<b>Comment</b>		
<p>Network Rail has proposed action in response to this recommendation.</p>		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Amber = Open</b>
<p>Network Rail should review the implementation of mechanised inspection techniques for plain line, on routes laid with continuous welded rail with the objective of ending the practice of foot patrolling under traffic.</p>		
<b>Comment</b>		
<p>Network Rail is taking actions to meet the intent of this recommendation wherever appropriate.</p>		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Amber = Open</b>
<p>Network Rail should revise the standards and procedures for the inspection of S&amp;C on the routes referred to in Recommendation 5, so that:</p> <ul style="list-style-type: none"> <li>• S&amp;C inspections are carried out by specialist staff who are appropriately trained; and</li> <li>• S&amp;C inspection takes place in green zone conditions.</li> </ul>		
<b>Comment</b>		
<p>Network Rail has rejected the recommendation as they consider the specialist inspection of S&amp;C was not an issue at Leatherhead. However, Network Rail is taking actions in the area in connection with Rec 19 of the Grayrigg investigation.</p>		

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## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 390 Pendolino EMU	Grayrigg	20:15	23 February 2007	Passenger train derailment
<b>RAIB Report No:</b>	20/2008		<b>Published:</b>	23 October 2008

**Summary**

On 23 February 2007 at 20:12 hrs, an express passenger train derailed at facing points, known as Lambrigg 2B points, located near Grayrigg in Cumbria. The train, reporting number 1S83, was the 17:15 hrs service from London Euston to Glasgow, operated by West Coast Trains Ltd, part of Virgin Rail Group (referred to as 'Virgin Trains' in the remainder of this report), and was travelling at 95 mph (153 km/h). All nine vehicles of the Class 390 Pendolino unit derailed. Eight of the vehicles subsequently fell down an embankment and five turned onto their sides. The train was carrying four crew and at least 105 passengers at the time of the accident. One passenger was fatally injured; 28 passengers, the train driver and one other crew member received serious injuries and 58 passengers received minor injuries. The remaining 18 passengers and two crew members were not physically injured in the derailment. The railway line through the area remained closed until 12 March 2007. Initially this was for the rescue of the injured, then solely for accident investigation, then (in parallel) for accident investigation, vehicle recovery and repairs to the infrastructure, and finally to complete the repairs to the infrastructure.

**Recommendations****Twenty-nine recommendations are made****RECOMMENDATION****1****Status: Amber = Open**

*The intention of this recommendation is that Network Rail should modify the design of the non-adjustable stretcher bar assembly, including its joints, so that it can withstand normal operational loads (and credible faults) with a safety margin and without excessive reliance on human intervention.*

Network Rail should review its S&C non-adjustable stretcher bar assembly design, so as to understand the relationships between the design, loading, usage, and the inspection and maintenance regimes, and implement any appropriate modifications to the design or the regimes.

The following elements (A to G) should be considered to achieve this:

- A. Define the system level functional and safety requirements for S&C with non-adjustable stretcher bars.
- B. Determine all of the functions that the non-adjustable stretcher bar assembly is required to deliver for the functional and safety performance of the S&C system, including from traffic, fastenings and operating/motor forces.
- C. Determine a set of load cases for the non-adjustable stretcher bar assembly, including its rail fastening arrangement. This should include forces which it experiences during both normal and reasonably foreseeable fault conditions. All foreseeable combinations of normal and fault conditions that could exist within the stretcher bar assembly itself, other components and the S&C system, should be considered. This should include, but not be limited to:
  - a. configurations of S&C on which it is fitted;
  - b. traffic usage patterns and track geometries;
  - c. manufacturing and installation variations.

The load cases should be established and validated by field measurements, supported by appropriate other testing, modelling and/or calculation.
- D. Assess the performance of the current non-adjustable stretcher bar assembly against the forces that arise from the load cases.
- E. If justified by the outcomes of the previous work, modify the current design of the non-adjustable stretcher bar assembly to include an appropriate factor of safety. The revised design should be risk assessed, taking into account the quality and reliability of human intervention in inspection and maintenance (refer also to Recommendation 13). Should measures such as component redundancy or other defence barriers be necessary to achieve the required integrity, the reliability of each redundant element and defence barrier should itself be assessed using the above process.
- F. Modify the current installation, inspection and maintenance regimes against the requirements determined in E so that they are appropriately risk based for the new design (refer also to recommendation 13).
- G. Introduce processes to implement the modified design and modified inspection and maintenance regimes and any associated mitigation measures where justified.

**Comment**

Network Rail has initiated actions in response to this recommendation (ORR expect closure date of Dec 2011).

RECOMMENDATION	2	Status: Amber = Open
<p><i>The intention of this recommendation is that Network Rail should implement processes to gather and analyse data, both in the short term and thereafter, that will enable it to identify and monitor accident precursor events in its S&amp;C. This information can then be used to identify potential problems before they can lead to catastrophic failure, and also to inform the development of process safety indicators (see Recommendation 14).</i></p> <p>Network Rail should implement processes to:</p> <ol style="list-style-type: none"> <li>capture, and record on a single national database, data about component failures, and interventions made during maintenance and inspection activities, for each set of S&amp;C;</li> <li>use the data from a) above to monitor failure and intervention rates locally and nationally in the behaviour of S&amp;C components;</li> <li>identify precursor faults that might lead to more serious failures; and</li> <li>identify those precursor faults where the failure and intervention rates indicate a need to reduce the risk of catastrophic failure.</li> </ol>		
<b>Comment</b>		
Network Rail has reported taking actions in response to this recommendation. ORR is reviewing progress with implementation of this recommendation.		
RECOMMENDATION	3	Status: Amber = Open
<p><i>The intention of this recommendation is that Network Rail should implement the measures it identifies from Recommendations 2.</i></p> <p>Network Rail should introduce processes to implement any design modifications arising from Recommendation 2 using the principles outlined in Recommendation 1.</p>		
<b>Comment</b>		
Network Rail has rejected the recommendation. ORR does not support non-implementation of this recommendation, and is still in discussion with Network Rail.		
RECOMMENDATION	4	Status: Green 2 = Complete
<p><i>The intention of this recommendation is that Network Rail should move to a riskbased regime for the maintenance and inspection of S&amp;C.</i></p> <p>Network Rail should introduce processes that require the adoption of a structured risk based approach when reviewing and enhancing its standards for the inspection and maintenance of all existing types of S&amp;C.</p>		
<b>Comment</b>		
Network Rail accepted this rec and stated that its processes already meet its intent. ORR is considering whether to close the recommendation.		
RECOMMENDATION	5	Status: Amber = Open
<p><i>The intention of this recommendation is that Network Rail should, as soon as possible, provide its front line staff with clear guidance on when a defect, fault or failure requires investigating, and the scope of investigation required.</i></p> <p>Network Rail should include in maintenance standards and instructions:</p> <ul style="list-style-type: none"> <li>the circumstances under which an investigation of a defect, fault or failure to S&amp;C systems as a whole or its sub-components is required; and</li> <li>definition of the scope of the investigation and other immediate actions to be taken (eg temporary speed restrictions, special monitoring) for each situation.</li> </ul>		
<b>Comment</b>		
Network Rail has reported taking actions in response to this recommendation.		

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## National Network(s)

<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Amber = Open</b>
<p><i>The intention of this recommendation is that Network Rail should be able to systematically identify, and rectify, any potential or actual incidence of flange-back contact.</i></p> <p>Network Rail should review its processes for S&amp;C examination so that the following are included:</p> <ol style="list-style-type: none"> <li>examination for, and reporting of, signs of flange-back contact; and</li> <li>measuring, recording and reporting gauge, free wheel clearance and residual switch opening dimensions, at frequencies commensurate with adequate risk control.</li> </ol>		
<b>Comment</b>		
Network Rail has reported taking actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 2 = Complete</b>
<p><i>The intention of this recommendation is that Network Rail should provide its front line staff with adequate information on the correct installation, inspection and maintenance of fasteners associated with non-adjustable stretcher bars.</i></p> <p>Network Rail should modify its maintenance instructions to define:</p> <ul style="list-style-type: none"> <li>how staff should initially fit and tighten non-adjustable stretcher bar fasteners;</li> <li>how staff should inspect and maintain the fasteners if necessary during subsequent visits, including practical instructions to achieve any required torque;</li> <li>when a fastener is considered to be loose taking into account the nut rotation required to achieve the required preload;</li> <li>how staff should act in the event of a fastener being identified as loose;</li> <li>how staff should record actions taken; and</li> <li>how staff should carry out any other actions identified from Recommendation 4.</li> </ul>		
<b>Comment</b>		
Network Rail has reported taking actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 2 = Complete</b>
<p><i>The intention of this recommendation is that Network Rail should provide its front line staff with clear information on permitted residual switch opening dimensions.</i></p> <p>Network Rail should revise its maintenance instructions to clearly specify the value (or range of values) required for residual switch openings, particularly with reference to the maximum permissible value (or range of values) and the frequency at which it must be checked.</p>		
<b>Comment</b>		
Network Rail has reported taking actions in response to this recommendation. ORR is considering whether to close the recommendation.		

RECOMMENDATION	9	Status: Amber = Open
<p><i>The intention of this recommendation is that Network Rail should provide its front line signalling maintenance staff with all the information that they need to carry out their work, including secondary documents referred from principal documents, and that its systems provide for checking and recording the actions taken. The information from this system should be readily accessible and usable on or off site.</i></p> <p>Network Rail should review management systems and associated documentation covering the maintenance of S&amp;C systems so that signalling maintenance staff:</p> <ol style="list-style-type: none"> <li>have ready access to all relevant documentation on and off site;</li> <li>are reminded on site of all the required maintenance actions;</li> <li>positively record that each required maintenance action has been carried out; and</li> <li>are subject to regular supervisory checks to verify that actions that are required to be taken have been carried out to the required quality.</li> </ol>		
<b>Comment</b>		
Network Rail has reported taking actions in response to this recommendation.		

RECOMMENDATION	10	Status: Green 2 = Complete
<p><i>The intention of this recommendation is that Network Rail should improve the quality of the existing basic visual inspections. Longer term issues concerning track inspection are dealt with under Recommendation 19.</i></p> <p>Network Rail should review and amend its processes for basic visual track inspection so that the issues identified in this report are addressed. To achieve this Network Rail should consider issuing modified instructions to define:</p> <ol style="list-style-type: none"> <li>the contents of task instructions issued to staff undertaking basic visual inspections;</li> <li>the nature of defects that can occur and how to detect those that are difficult to readily observe;</li> <li>job cards to advise the start and finish locations and the direction of the inspection for every occasion;</li> <li>the information supplied to a patroller before an inspection in terms of clearly-presented intelligence on previously-reported defects;</li> <li>the scope of information that is to be recorded during an inspection (including definition of the need to record or comment on previously reported defects);</li> </ol> <p>Recommendations: Matters observed in the investigation:</p> <ol style="list-style-type: none"> <li>the requirement to make positive statements about areas of the inspection where no defects have been found;</li> <li>the checks for completeness that should be made within the track section manager's office, including verification that every inspection has been carried out;</li> <li>the analysis and supervision that should be undertaken to confirm that inspections are being conscientiously completed; and</li> <li>a suitable level of continuity that can be achieved by identifying individual patrollers with individual sections.</li> </ol>		
<b>Comment</b>		
<p>Network Rail has reported taking actions in response to this recommendation.</p> <p>ORR is considering whether to close the recommendation.</p>		



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## National Network(s)

<b>RECOMMENDATION</b>	<b>11</b>	<b>Status: Green 2 = Complete</b>
<p><i>The intention of this recommendation is to ensure that when a supervisory and a basic visual inspection are combined, both are fully and correctly delivered, and recorded.</i></p> <p>Network Rail should modify its processes to specify the following safeguards when a supervisor's visual track inspection is combined with a basic visual inspection:</p> <ol style="list-style-type: none"> <li>all the paperwork relevant to the basic visual inspection (see Recommendation 10) is supplied to the supervisor; and</li> <li>an assurance check is carried out by a person other than the relevant supervisor to confirm that both inspections have been completed and recorded appropriately.</li> </ol>		
<b>Comment</b>		
<p>Network Rail has reported taking actions in response to this recommendation.</p> <p>ORR is considering whether to close the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>12</b>	<b>Status: Amber = Open</b>
<p><i>The intention of this recommendation is that Network Rail should address the competence and management issues relating to the inspection and maintenance of S&amp;C that have been demonstrated in this report.</i></p> <p>Network Rail should review its processes for practical training, assessment competence assurance for those undertaking S&amp;C inspection and maintenance against current UK rail industry best practice (eg ORR's publication 'Developing and Maintaining Staff Competence'), and make relevant changes so that the requirements arising from Recommendations 6, 7, 8, 9, 10 and 11, as appropriate, and those from the more general observation about competence in this report, can be delivered.</p>		
<b>Comment</b>		
<p>Network Rail has rejected the recommendation and ORR are considering their response. The RAIB considers that the recommendation remains valid.</p>		
<b>RECOMMENDATION</b>	<b>13</b>	<b>Status: Amber = Open</b>
<p><i>The intention of this recommendation is that Network Rail should establish whether it is practicable, in human factors terms, for the inspection and maintenance processes to identify and rectify all defects to an adequate and consistent standard, and revise the design of S&amp;C to allow for any identified impracticability or variability in those activities.</i></p> <p>Network Rail should conduct a review, focused on human factors, to develop an accurate understanding of the practicability of, and variability in, the performance and outcome of inspection and maintenance so that any issues identified can be taken into account in the design of S&amp;C systems and the associated inspection and maintenance specification. This activity is integral to Recommendations 1 and 10, and a precursor to Recommendation 19.</p>		
<b>Comment</b>		
<p>Network Rail has rejected the recommendation and ORR are considering their response. The RAIB considers that the recommendation remains valid.</p>		
<b>RECOMMENDATION</b>	<b>14</b>	<b>Status: Green 2 = Complete</b>
<p><i>The intention of this recommendation is that Network Rail should have adequate monitoring of S&amp;C failure precursors.</i></p> <p>Network Rail should review and improve its management arrangements for monitoring performance in relation to the inspection and maintenance of S&amp;C assets, taking account of the guidance contained in HS(G) 254, 'Developing process safety indicators' by introducing an suitable 'leading' and 'lagging' performance indicators. The indicators should encompass measures of the reliability of both maintenance and inspection activities and the performance and condition of key components.</p>		
<b>Comment</b>		
<p>Network Rail has accepted the recommendation and suggests that its existing processes meet the intent of the recommendation.</p> <p>ORR are considering their response.</p>		

<b>RECOMMENDATION</b>	<b>15</b>	<b>Status: Green 2 = Complete</b>
<p><i>The intention of this recommendation is that Network Rail's compliance and assurance systems should mandate site checks of its S&amp;C asset so that it is independently aware of the actual state of its assets on the ground, any developing trends in its asset performance (see Recommendation 2), and their relationship to its records from inspections.</i></p> <p>Network Rail should extend its compliance and assurance processes to include independent end product checks on a sample of its S&amp;C asset to:</p> <ul style="list-style-type: none"> <li>confirm that its inspections and work database reflect the physical state of its assets;</li> <li>confirm that the asset is compliant with appropriate standards;</li> <li>confirm that the actions identified in Recommendations 1 to 3 are, in fact, delivering an improvement in the performance of S&amp;C assets;</li> <li>observe for defects or problems that, although the asset and systems may comply with the appropriate standards, may effect the safety of the line.</li> </ul>		
<b>Comment</b>		
<p>Network Rail has reported taking actions in response to this recommendation. ORR is considering whether to close the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>16</b>	<b>Status: Green 2 = Complete</b>
<p><i>The intention of this recommendation is that Network Rail should specify adequate opportunities for inspection (and also for maintenance, although recognising that lack of maintenance opportunities was not an issue in the Grayrigg derailment) activities when developing infrastructure enhancement projects.</i></p> <p>Network Rail should include within its infrastructure enhancement project processes an assessment of the impact of any project on the inspection and maintenance of the assets at a stage of the project which allows identification and implementation of suitable measures before commissioning.</p>		
<b>Comment</b>		
<p>Network Rail has reported taking steps that it considers address the recommendation. ORR is considering these steps.</p>		
<b>RECOMMENDATION</b>	<b>17</b>	<b>Status: Green 2 = Complete</b>
<p><i>The intention of this recommendation is that Network Rail should review whether there is currently adequate access for inspection on its main-line routes.</i></p> <p>Network Rail should review and, if necessary, revise its access arrangements and plans (including Rules of the Route) for its main-line routes. This should be done to provide for the needs of maintenance and inspection of existing infrastructure, given current and planned traffic levels.</p>		
<b>Comment</b>		
<p>Network Rail has reported taking actions in response to this recommendation. ORR is considering whether to close the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>18</b>	<b>Status: Green 2 = Complete</b>
<p><i>The intention of this recommendation is that Network Rail should review the interfaces in its headquarters' engineering department concerning S&amp;C, with particular reference to track and signalling engineering.</i></p> <p>Network Rail should review and, if necessary, revise its management organisation to provide effective stewardship of S&amp;C assets. The review should include consideration of the creation of a single professional department (design authority) responsible to the chief engineer for all aspects of S&amp;C, including specifying design, procurement, installation, set-up, commissioning, inspection, maintenance and performance.</p>		
<b>Comment</b>		
<p>Network Rail has accepted this recommendation and reports having taken action to address its intent. ORR is considering the response.</p>		

## 1

## National Network(s)

RECOMMENDATION	19	Status: Green 2 = Complete
<p><i>The intention of this recommendation is that Network Rail should review its track inspection requirements so that best use is made of new technology for plain line and S&amp;C inspections.</i></p> <p>Network Rail should re-assess the differing requirements of plain line and S&amp;C track inspections with regard to:</p> <ul style="list-style-type: none"> <li>the amount that is appropriate to be done by human intervention, and the amount by automated data capture, for both types of track;</li> <li>the different relative frequencies that may be appropriate for both types of track; and</li> <li>what protection arrangements should be provided.</li> </ul> <p>Consideration should be given to separate processes for plain line and S&amp;C inspections to recognise the different requirements of each.</p>		
<b>Comment</b>		
<p>Network Rail has reported initiating work to assess the feasibility of new technology. ORR is considering whether to close the recommendation.</p>		
RECOMMENDATION	20	Status: Amber = Open
<p><i>The intention of this recommendation is that Network Rail should carry out its S&amp;C engineering safety management in line with UK railway industry documented best practice.</i></p> <p>Network Rail should review its S&amp;C engineering safety management arrangements with reference to current UK rail industry best practice (eg the 'Yellow Book') and address any deficiencies identified.</p>		
<b>Comment</b>		
<p>Network Rail has accepted the recommendation and says that it adopts the 'Yellow Book' for new and existing assets. It is not clear that they have carried out a review of its existing maintenance arrangements against Yellow Book guidance. ORR are considering their response.</p>		
RECOMMENDATION	21	Status: Green 1 = Closed
<p><i>The intention of this recommendation is to ensure that, in the short term, ORR explicitly includes S&amp;C in its delivery plan assignments for as long as it remains an identified high risk in the ORR's assessment. In the longer term the intention is to ensure that the ORR includes assignments for all the higher risk items within its delivery plan, irrespective of the topic in which it is grouped.</i></p> <p>The ORR should amend its process for planning and briefing the annual delivery plan to make explicit when an area of high risk is to be included within an individual assignment.</p>		
<b>Comment</b>		
<p>ORR has considered, carried out and closed the recommendation.</p>		
RECOMMENDATION	22	Status: Green 1 = Closed
<p><i>The intention of this recommendation is to minimise the risk of injury from detachment of seats in the event of an accident, by enhancing the requirement in the current design standard, for seats to deform in a ductile manner when overloaded, particularly in the lateral direction.</i></p> <p>RSSB should make a proposal in accordance with the Railway Group Standards code to introduce a specific requirement in the relevant interiors design standard, that future seats designs, including those that may be fitted at refurbishment, should demonstrate a ductile deformation characteristic, when overloaded in the vertical, lateral or longitudinal directions, in order to minimise the risk of complete detachment in accidents.</p>		
<b>Comment</b>		
<p>RSSB has reported taking actions in response to this recommendation. ORR has closed the recommendation.</p>		

<b>RECOMMENDATION</b>	<b>23</b>	<b>Status: Green 1 = Closed</b>
<p><i>The intention of this recommendation is to minimise the risk of injury arising from the detachment of heavy internal panels in the event of an accident.</i></p> <p>RSSB should consider, and where appropriate, make a proposal in accordance with the Railway Group Standards code to implement a requirement in the relevant design standard to provide sufficient means of retention for internal panels assessed as capable of causing serious injury in the event of complete detachment.</p>		
<b>Comment</b>		
<p>RSSB has reported taking actions in response to this recommendation.</p> <p>ORR has closed the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>24</b>	<b>Status: Amber = Open</b>
<p><i>The intention of this recommendation is to minimise the risk of the reading light panels in a Pendolino train becoming detached in the event of an accident.</i></p> <p>Virgin Trains and Angel Trains should review the mounting of the reading light panels on the Class 390 Pendolinos and take steps to minimise occupant injury from failure of the panel retention system.</p>		
<b>Comment</b>		
<p>Virgin Trains and Angel Trains have reported taking actions in response to this recommendation.</p> <p>ORR is considering whether to close the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>25</b>	<b>Status: Amber = Open</b>
<p><i>The intention of this recommendation is that general safety lessons regarding rail vehicle crashworthiness emerging from the Grayrigg accident are considered and, where appropriate, research is undertaken to assess the practicability of making improvements. If suitable improvements are found, proposals should be made for changes to crashworthiness standards.</i></p> <p>RSSB should:</p> <ol style="list-style-type: none"> <li>Identify any gaps in industry knowledge about vehicle dynamic behaviour in derailments (for example the forces acting on inter-vehicle couplers and bogie retention systems) and where appropriate, undertake research to investigate improvements in vehicle performance. Where appropriate, RSSB should make a proposal in accordance with Railway Group Standards code to change relevant design standards.</li> <li>Investigate and, where practicable, make a proposal in accordance with Railway Group Standards code to introduce specifications for roll-over strength and penetration resistance of rail vehicle bodysHELLS in design standards to ensure consistency of performance in accidents across all future fleets;</li> <li>Undertake research into the injury mechanisms at Grayrigg to identify means of improving occupant survivability in future rail vehicle designs. Where appropriate, RSSB should make a proposal in accordance with Railway Group Standards code to change relevant design standards;</li> <li>Review and revise, if necessary, its past research into seat belts in rail vehicles in the light of the findings from the Grayrigg derailment, taking into account foreseeable changes to vehicle behaviour in future accidents, in order to check whether the conclusions reached therein remain valid; and</li> <li>Confirm and publish the results of its cost benefit analysis as to the reasonable practicability of fitting seat belts to passenger trains. If the analysis shows that fitting seat belts is other than grossly disproportionate to the risks involved, further investigate how to take the issue forward.</li> </ol>		
<b>Comment</b>		
<p>a) &amp; b) To be assessed against existing findings of existing research.</p> <p>c) RSSB have removed RAIB data and propose not to propose changes to standards or commission further research.</p> <p>e) RSSB conducted outline risk assessment and concluded that no further work should be undertaken.</p>		

## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>26</b>	<b>Status: Green 1 = Closed</b>
<p><i>The intention of this recommendation is to assist the emergency services to optimise their response to an accident.</i></p> <p>Cumbria Police should carry out a review of, and change as appropriate, its management, procedures and training relating to the rapid and accurate location of an accident from information received in emergency calls in the control room so that received information is filtered effectively and without loss of significant data.</p>		
<b>Comment</b>		
Cumbria Police has reported taking actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>27</b>	<b>Status: Green 1 = Closed</b>
<p><i>The intention of this recommendation is to promote the safety of Ambulance Service personnel who are called upon to carry out rescue work after a railway accident.</i></p> <p>The Department of Health's eleven mainland Ambulance Service NHS Trusts, the Welsh Ambulance Services NHS Trust and the Scottish Ambulance Service should:</p> <ul style="list-style-type: none"> <li>• agree and implement suitable processes so that their staff are suitably trained for work on the railway; and</li> <li>• agree a protocol with Network Rail to cover the necessary steps for the ambulance services to enter Network Rail property safely in an emergency.</li> </ul>		
<b>Comment</b>		
The Department of Health has reported taking actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>28</b>	<b>Status: Amber = Open</b>
<p><i>The intention of this recommendation is to improve communications between rescue organisations after an accident.</i></p> <p>The Ministry of Defence should equip the Royal Air Force and Royal Navy search and rescue fleet of helicopters with radio communication equipment that allows direct contact with civil emergency services.</p>		
<b>Comment</b>		
No information available.		
<b>RECOMMENDATION</b>	<b>29</b>	<b>Status: Green 2 = Complete</b>
<p><i>The intention of this recommendation is to identify possible links between working hours and performance, and to implement steps that can be taken to reduce any resultant risk.</i></p> <ol style="list-style-type: none"> <li>Network Rail should carry out research to establish if there is a link between working long hours over extended periods, including the number and distribution of rest days, and the propensity for human errors during safety critical tasks. The study should include, but not be limited to, those staff who have ordinary office-based duties interspersed with safety critical tasks, such as inspections. The output of the research should be a set of threshold levels of hours for differing roles.</li> <li>Using the output of the research, Network Rail should establish procedures to deliver compliance with the thresholds identified.</li> </ol>		
<b>Comment</b>		
Network Rail has reported that it has studied the impact of overtime on safety critical staff and that its processes meet the intent of this recommendation. ORR reported that it has not formally notified Network Rail of this recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 165 DMU	Reading	04:58	29 November 2007	Staff hit by train (Fatality)
RAIB Report No:	21/2008		Published:	28 October 2008

**Summary**

At 04:53 hrs on 29 November 2007, a track worker was struck and killed by a train while walking on the line east of Reading station. He was on site to remove detonator protection from the up and down relief lines following a T3 possession.

**Recommendations** Five recommendations are made

**RECOMMENDATION****1****Status: Green 1 = Closed**

Network Rail should specifically prohibit the use of umbrellas by staff on or near lines which are open to traffic.

**Comment**

Network has stated that its briefs to staff cover the intent of this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****2****Status: Green 1 = Closed**

Network Rail should introduce procedures to improve the safety of staff removing detonator protection by:

- reinforcing the message that persons removing detonator protection should either be permanently clear of the running lines, or have sufficient sighting to protect their own safety while walking back to the permanent position of safety before confirming to the PICOP that the protection has been lifted, for example by including this information in the RIMINI plan; and
- providing guidance to BRMs on the sequence for withdrawing detonator protection to reduce the opportunity for a possession to be given up unintentionally before staff are clear of the track.

**Comment**

Network Rail has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****3****Status: Amber = Open**

Network Rail should look critically at the possession management process to reduce the need for staff to be on the track for the purpose of taking or giving back a possession.

**Comment**

Network Rail is carrying out a review of its processes to reduce reliance of staff on track when taking or giving back possessions.

**RECOMMENDATION****4****Status: Amber = Open**

Network Rail should introduce a structured approach to the monitoring of compliance with Network Rail's standard maintenance procedure NR/PRC/MTC/0117 'Planned general safety inspections', and incorporate in this the means to assess the workload of those tasked with undertaking these inspections.

**Comment**

Network Rails initial response to this recommendation is to take no action.  
Still under review by ORR.



## 1

## National Network(s)

RECOMMENDATION	5	Status: Amber = Open
Network Rail should, at those locations where T3 protection is regularly placed, introduce a system to physically mark the location of possession limit boards on the track to assist staff in positioning and checking the position of equipment, or consider installing a semi-permanent possession limit board system.		
<b>Comment</b>		
Network Rail advises that this action in response recommendations 2 & 3 will address the risk, no action is therefore proposed.		

Equipment Type	Place	Time	Date	Incident
National Network(s): 2x Class 158 DMU	Ty Mawr	12:57	29 August 2007	Unauthorised train movement
<b>RAIB Report No:</b>	22/2008	<b>Published:</b>	30 October 2008	

Summary	
At around 10:50 hrs on 29 August 2007, an emergency speed restriction (ESR) of 20 mph (32 km/h) was imposed between Newtown and Caersws on the Shrewsbury to Machynlleth line close to Ty Mawr Farm User Worked Crossing (UWC) because of two defects in a length of rail. The signaller at Machynlleth was responsible for advising drivers of the ESR. At around 12:35 hrs, the signaller contacted the driver of train 1G71, the 11:27 hrs Aberystwyth to Birmingham (New Street) operated by Arriva Trains Wales (ATW), at Talerddig and advised him of the ESR approximately 10 miles away at Ty Mawr. Train 1G71 left Talerddig and, after making a scheduled station stop at Caersws, approached Ty Mawr at a speed of 75 mph (120 km/h). The driver reduced speed to 58 mph (93 km/h) as he ran through the ESR.	
<b>Recommendations</b>	Seven recommendations are made

RECOMMENDATION	1	Status: Amber = Open
The RSSB should, in consultation with Network Rail and representatives from the train operators, develop and implement a method for formally dictating and recording communication between signallers and drivers to be used when it is necessary for a signaller to warn drivers of a hazard ahead that requires reduction in speed, and no physical warning of the speed restriction is present locally. Consideration should be given as to whether the chosen means could be designed in such a way as to enable it to be used as an effective visual reminder to the driver of the location of the hazard and the speed restriction applied.		
<b>Comment</b>		
Rejected by Network Rail, and redirected to ATOC who propose no action. ORR is considering next steps. RAIB does not accept that any purely verbal system would prevent this occurring again.		

RECOMMENDATION	2	Status: Amber = Open
Network Rail should: <ol style="list-style-type: none"> <li>use the circumstances of the incident at Ty Mawr to re-brief the requirements of 'Interpretation of Apply 20 mph ESR' (Appendix D, Page 79) in Standard NR/SP/TRK/001, 'Inspection and Maintenance of Permanent Way'; and</li> <li>within one year of the briefing taking place, conduct an audit of ESRs imposed in the intervening period, to identify the number of occasions when the duration of an ESR has exceeded two hours without emergency equipment being erected, and take action, as appropriate, to address any deficiencies found.</li> </ol>		
<b>Comment</b>		
Network Rail advise this recommendation to be tracked and delivered at local level.		



<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Amber = Open</b>
Network Rail should review the range of speed restrictions and the timings for trains between Talerddig and Caersws to determine whether rationalisation of the number of such restrictions and/or relaxation of timings could enhance the driveability of the route and reduce the potential for distraction and misunderstanding by train drivers under degraded operating conditions.		
<b>Comment</b>		
Network Rail advise that actions to implement this recommendation are planned.		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 1 = Closed</b>
Network Rail should conduct a review of the availability of warning equipment for emergency speed restrictions for the more remote areas of its network. The purpose of the review should be to identify how the requirement in NR/SP/TRK/001 to install warning equipment within two hours can be achieved. The review should include consideration of whether improvements in the speed of installation could be achieved, for example, by providing warning equipment at additional locations or on road vehicles used by staff who may have to install it as part of their duties.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 2 = Complete</b>
Network Rail should:		
<ul style="list-style-type: none"> <li>a. review the circumstances of this incident and identify other parts of the network where the length of signal sections results in the potential for a significant period of time to elapse between a driver being informed of an ESR and the ESR being encountered; and</li> <li>b. for each location identified, include within the relevant Sectional Appendix any additional locations where drivers should be reminded of the presence of an ESR ahead and how and by whom that reminder will be administered.</li> </ul>		
The purpose of this recommendation is to identify those areas of the national network where there might be significant elapsed time between a warning of an ESR being given and it being encountered and to provide further warnings to drivers, where practical.		
<b>Comment</b>		
Network Rail is implementing programme of work to address this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 2 = Complete</b>
Network Rail should modify procedure NR/PRC/MTC/MG0110 to list the information that the signaller is required to be told when an emergency speed restriction is to be imposed as defined in section 9.1 of module SP of the rule book, and clearly identify who is responsible for providing each item of information.		
<b>Comment</b>		
Network Rail is implementing improvements to its documentation to address this recommendation. ORR is considering whether to close the recommendation.		

## 1

## National Network(s)

RECOMMENDATION	7	Status: Amber = Open
<p>The Association of Train Operating Companies should develop guidance for train operating companies on 'for-cause' drugs and alcohol testing with the objective of achieving greater consistency in its application. The guidance should address the issue of who should have the authority to permit a driver to continue driving after an incident. It should also consider different scenarios where drugs and alcohol testing might be required, including how to deal with a situation where an incident requires a member of staff to be screened as soon as reasonably practicable and that member of staff is remote from a location where such testing can easily be administered. The purpose of this recommendation is not to conduct a comprehensive review of drugs and alcohol policy or practice, but rather to offer guidance on the application of existing drugs and alcohol policy in order that a more consistent approach by train operating companies can be achieved.</p>		
<b>Comment</b>		
ATOC has taken actions in response to this recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 43 HST Power car & Class 165 DMU	Didcot North Junction	16:38	22 August 2007	Signal Passed at Danger
<b>RAIB Report No:</b>	23/2008	<b>Published:</b>	20 November 2008	

Summary	
<p>At 16:38 hrs on 22 August 2007 train 1W47, the 15:51 hrs First Great Western passenger service from London Paddington to Worcester Shrub Hill, formed by an HST set, passed SB2209 signal at danger on the Down Avoiding line to the north of Didcot Parkway station. This signal is located on the approach to Didcot North junction and is fitted with TPWS equipment that is designed to mitigate the consequences of signals being passed at danger.</p> <p>At the same time train 2P66, the 16:21 hrs First Great Western passenger service from Oxford to London Paddington, was just passing clear of the junction after being routed from the Up Oxford line towards Didcot Parkway station. Despite the correct operation of the TPWS equipment, train 1W47 did not come to a stand until it had run onto the Up Oxford line, foul of the junction. No injuries were incurred by any of the staff or passengers concerned. No damage was sustained by either train. However, had the circumstances been slightly different this event could have resulted in the two trains colliding.</p>	
Recommendations	Nine recommendations are made

RECOMMENDATION	1	Status: Green 1 = Closed
<p>First Great Western should review its driving policy with the objective of enhancing its guidance on driving technique when approaching signals that are showing restrictive aspects. This review should include consideration of the principle that when travelling at or near the maximum permitted line speed drivers should not apply power after passing a signal with a restrictive aspect and should not subsequently reapply power until the aspect of the next signal is observed to be no more restrictive than the signal they have just passed.</p> <p>Having completed the above review First Great Western should ensure that its drivers are briefed on any changes to the driving policy and trained accordingly.</p>		
<b>Comment</b>		
<p>First Great Western has taken actions in response to this recommendation.</p> <p>ORR has closed the recommendation.</p>		

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Amber = Open</b>
<p>Network Rail should, in consultation with train operators, review its existing risk assessments for all existing junction signals in order to verify that:</p> <ul style="list-style-type: none"> <li>the actual braking performance of trains signalled by that route has been correctly taken into account; and</li> <li>proper consideration has been given to any reasonably practicable measures identified.</li> </ul> <p>When addressing this recommendation Network Rail should ensure that risk assessors are competent and have access to accurate input data.</p>		
<b>Comment</b>		
Network Rail stated that it has a programme to implement this work.		
<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Green 3 = Closed with no actions taken</b>
<p>In support of Network Rail's assessment of risk at junction signals (see Recommendation 2), RSSB should make a 'proposal', in accordance with the Railway Group Standards Code, to amend Railway Group Standards to require train operators, in consultation with rolling stock owners, to publish and disseminate to Network Rail any detailed data they may possess relating to the actual braking performance of the trains they operate on the national network (for a range of typical train formations). This should include the distance to stop from a range of speeds (or the duration of any freewheel time and the subsequent rate of deceleration).</p>		
<b>Comment</b>		
<p>RSSB is not proposing to take actions in response to this recommendation. RAIB has ongoing concerns about the availability of data required for adequate junction risk assessments, Network Rail express concerns about this in their response to recommendation 9.</p> <p>ORR has closed the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 3 = Closed with no actions taken</b>
<p>RSSB, in consultation with industry stakeholders, should review the practicability of enhancing the minimum emergency braking performance mandated for new passenger trains in Railway Group Standards. The objective of any such enhancement shall be to improve consistency between the minimum braking performance of new passenger trains and the design of train protection systems in use on the network. If shown to be reasonably practicable, RSSB should make a 'proposal', in accordance with the Railway Group Standards Code, to amend Railway Group Standards accordingly.</p>		
<b>Comment</b>		
<p>RSSB is not proposing to take actions in response to this recommendation.</p> <p>ORR has closed the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Amber = Open</b>
<p>Network Rail should review its management processes with the objective of ensuring that:</p> <ul style="list-style-type: none"> <li>the findings of signal and layout risk assessments (using tools such as SAT) are translated into reasonably practicable measures to address the risk identified; and</li> <li>relevant risk assessments are properly considered when reviewing the actions to be taken in response to recommendations made following investigations.</li> </ul>		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 3 = Closed with no actions taken</b>
<p>ATOC should review its guidance note ATOC/GN007 with the objective of clarifying the advice to passenger train operators on good practice for driving technique when approaching signals displaying a restrictive aspect. This review should give detailed consideration to the adoption of the principle outlined in Recommendation 1.</p>		
<b>Comment</b>		
<p>ATOC carried out a review and concluded that no change to the existing guidance note is required.</p> <p>ORR has closed the recommendation.</p>		

## 1

## National Network(s)

RECOMMENDATION	7	Status: Green 1 = Closed
<p>First Great Western should review its systems for the management of route knowledge with the following objectives:</p> <ul style="list-style-type: none"> <li>to assess whether the extent of current route knowledge required by its drivers is compatible with the need for drivers to retain adequate situational awareness;</li> <li>to assess whether the currently mandated minimum frequency of exposure to each route is sufficient (this review should be updated when the actions at Recommendation 8 have been completed);</li> <li>to put in place systems for monitoring the actual exposure of drivers to each route they have signed for; and</li> <li>to assess the adequacy of driver training and competency management systems related to route learning and the retention of route knowledge.</li> </ul>		
<b>Comment</b>		
First Great Western has taken actions in response to this recommendation. ORR has closed the recommendation.		
RECOMMENDATION	8	Status: Green 1 = Closed
RSSB, in consultation with ATOC, and with reference to project T655, should carry out further research into the periodicity of driving turns/refresher training required to acquire and retain route knowledge.		
<b>Comment</b>		
RSSB and ATOC have taken actions in response to this recommendation. ORR has closed the recommendation.		
RECOMMENDATION	9	Status: Green 2 = Complete
Network Rail should ensure that its methodology and computer systems for assessing the risk associated with signal overruns correctly take into account the actual braking performance of all trains scheduled to pass a signal. This should allow for freewheel time and the subsequent average deceleration.		
<b>Comment</b>		
Network Rail has reported taking actions in response to this recommendation. ORR is considering whether to close the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 158 DMU	Earthworks - Class Investigation	22:15	28 February 2008	Earthwork failure
<b>RAIB Report No:</b>	25/2008	<b>Published:</b>		23 December 2008

### Summary

Previous RAIB investigations into three accidents where earthworks failures were significant causal factors raised a broader question regarding the current state of the earthworks on the national rail network. This investigation was carried out to address this broader question and not, as is more common practice for the RAIB, in response to a specific incident. The format is therefore that of a technical review of the current status and practice within Network Rail.

This investigation:

- a) considered whether the risks were being adequately identified and managed;
- b) identified whether there was any evidence of an undesirable trend in the incidences of major earthworks failures;
- c) considered the accuracy and effectiveness of Network Rail's technical assessments, and
- d) compared Network Rails' systems with other infrastructure owner's earthworks management systems.

<b>Recommendations</b>	<b>Six recommendations are made</b>
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### RECOMMENDATION

1

Status: Amber = Open

Network Rail should conduct a study into the potential contribution to the assessment and understanding of earthworks risk from the following factors, and amend their processes as appropriate to include any improvements identified:

- a) the use of inspection intervals of one, five and ten years;
- b) local maintenance staff not reporting all precursor earthworks related defects – these may have rectification measures applied locally without further reporting;
- c) lack of a process for maintenance staff to report earthworks defects to the Territory Earthworks and Drainage Engineer organisation to enable appropriate action to be taken;
- d) track inspection staff not routinely looking over cutting horizons;
- e) a high focus by track inspection staff on track support areas and particularly embankments to the detriment of other earthworks elements;
- f) track maintenance staff not having the capability, knowledge or time available to routinely inspect off-track issues – for example water in neighbouring land;
- g) the potential for earthworks examiners to not observe all relevant factors and indicators, because of the infrequent and seasonal visits;
- h) the relative weighting attached to the risks from cuttings and embankments in the Slope Stability Hazard Index algorithm – and particularly in view of b), d), e) above;
- i) the risk weighting attached to the operational consequence of an earthworks failure; and
- j) the value of information sources used in other inspections and whether this could be utilised in the reduction of risk from an earthworks failure.

### Comment

Network Rail has accepted the recommendation, except for points d), e), g) and j) and is taking steps to implement actions.  
RAIB is discussing the response to these points with the ORR.

## 1

## National Network(s)

RECOMMENDATION	2	Status: Green 1 = Closed
<p>Network Rail should review the best practice found in the following areas during this investigation and include within their procedures so that it is universally applied:</p> <ul style="list-style-type: none"> <li>• maintenance of Territory Earthworks and Drainage Engineers resource levels;</li> <li>• track maintenance staff briefings;</li> <li>• the reporting arrangements for earthworks problems; and</li> <li>• communication systems between maintenance staff and territory earthworks teams.</li> </ul>		
<b>Comment</b>		
<p>Network Rail has reported taking actions in response to this recommendation.            ORR has closed the recommendation.</p>		
RECOMMENDATION	3	Status: Green 1 = Closed
<p>Network Rail should provide clear policy, information and guidance to staff, particularly those in the maintenance organisation, with regard to neighbours and problems related to the management of infrastructure risk.</p>		
<b>Comment</b>		
<p>Network Rail has reported taking actions in response to this recommendation.            ORR has closed the recommendation.</p>		
RECOMMENDATION	4	Status: Green 1 = Closed
<p>Network Rail should align the actions in regard to adverse weather which currently appear in NR/CIV/S/086, NR/L3/TRK/1010 and RT/LS/S/021 to provide a clearer and more cohesive response and ensure that this is communicated throughout the relevant parts of the organisation.</p>		
<b>Comment</b>		
<p>Network Rail has reported taking actions in response to this recommendation.            ORR has closed the recommendation.</p>		
RECOMMENDATION	5	Status: Green 1 = Closed
<p>Network Rail should develop and implement a communications procedure between Territory Earthworks and Drainage teams and local maintenance staff to provide relevant information and allow more effective management of the earthworks risk and Safety of the Line.</p>		
<b>Comment</b>		
<p>Network Rail has reported taking actions in response to this recommendation.            ORR has closed the recommendation.</p>		
RECOMMENDATION	6	Status: Amber = Open
<p>Network Rail should clarify the requirements for maintenance inspectors to observe earthworks and develop an appropriate reporting process. This information should be included in NR/SP/TRK/001.</p>		
<b>Comment</b>		
<p>Network Rail states that the existing documents meet the intent of the recommendation.</p>		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 317 EMU	Bishops Stortford	16:24	20 January 2008	Staff hit by train (Injury/near miss)
<b>RAIB Report No:</b>	26/2008	<b>Published:</b>		23 December 2008

**Summary**

At about 16:21 hrs on Sunday 20 January 2008 the driver of train 1B78, the 14:25 hrs from London Liverpool Street to Stansted Airport, who was standing alongside his train while two fitters made repairs to it, had to take rapid evasive action to avoid being struck by another train travelling at speed on the adjacent line.

The driver threw himself to the ground as the train passed. No-one was hurt in the incident, and there was no damage to trains or infrastructure. The train which was being repaired subsequently completed its journey.

**Recommendations** Five recommendations are made

**RECOMMENDATION****1****Status: Green 1 = Closed**

Network Rail and London Eastern Railway (National Express East Anglia) should carry out an exercise to improve the quality of safety critical communications between drivers and signallers. This should be monitored by the Communications Review Group system.

**Comment**

Network Rail and London Eastern Railway (National Express East Anglia) have considered and are carrying out the recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****2****Status: Amber = Open**

Network Rail, with the train operating companies, should evaluate the quality of communications between drivers and signallers when drivers have to go onto the track. This assessment should include the adequacy of the arrangements, and Network Rail should make any necessary improvements to the process. The Communications Review Group system may provide an appropriate means of gathering data for use in this evaluation.

**Comment**

Network Rail has advised that the recommendation is being carried out.

**RECOMMENDATION****3****Status: Green 1 = Closed**

London Eastern Railway (National Express East Anglia) should review the competence management arrangements for fitters acting as designated persons against recognised good practice (such as the ORR Railway Safety Publication 1 'Developing and Maintaining Staff Competence'), so that the occasions on which this qualification is used are recorded and used to inform the choice of recertification interval and nature of refresher training.

**Comment**

London Eastern Railway (National Express East Anglia) have accepted the recommendation and are carrying it out.  
ORR has closed the recommendation.

**RECOMMENDATION****4****Status: Amber = Open**

Network Rail should devise and implement a more suitable method for recording occurrences at signal boxes and signalling centres which are not normally required to record the passage of each train.

**Comment**

Network Rail is proposing no action in response to this recommendation. RAIB is concerned that the safety issue has not been addressed.



## 1

## National Network(s)

RECOMMENDATION	5	Status: Green 1 = Closed
London Eastern Railway (National Express East Anglia) should introduce arrangements to provide all staff undertaking Designated Person duties with suitable and sufficient information to enable them to identify and plan safe access to locations where they may have work.		
<b>Comment</b>		
London Eastern Railway (National Express East Anglia) has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 450 EMU	Moor Lane FPC, Staines	08:13	16 April 2008	Level Crossing Fatality
<b>RAIB Report No:</b>	27/2008	<b>Published:</b>	23 December 2008	

<b>Summary</b>	
At about 08:10 hrs on 16 April 2008, a train travelling from London (Waterloo) to Windsor & Eton struck and fatally injured a pedestrian on Moor Lane footpath level crossing, near Staines, Surrey. There was no damage to the train or the railway infrastructure.	
<b>Recommendations</b>	<b>Four recommendations are made</b>

RECOMMENDATION	1	Status: Green 2 = Complete
Network Rail should assess the risk to crossing users from slippery surfaces at all footpath, bridleway and user worked crossings, and take appropriate measures, such as the provision of a non-slip surface, to reduce them so far as is reasonably practicable.		
<b>Comment</b>		
Network Rail have reported that it will be carrying out a generic risk assessment to assess the reasonable practicality of installing non-slip surfaces. ORR is considering whether to close the recommendation.		

RECOMMENDATION	2	Status: Amber = Open
Network Rail should review the operation of the 'Ellipse' computer system and the associated processes for managing work orders, and ensure that appropriate controls are in place to prevent the premature or inadvertent closure of work orders.		
<b>Comment</b>		
Network Rail reports that it has taken action in response to this recommendation.		

RECOMMENDATION	3	Status: Amber = Open
Network Rail should revise document NR/SP/OPS/100 to provide better guidance for risk assessors at level crossings on what level of upgrading of the crossing to improve safety can be regarded as reasonably practicable.		
<b>Comment</b>		
Network Rail reviewed and revised NR/SP/OPS/100. Further notices under consideration.		

RECOMMENDATION	4	Status: Amber = Open
Network Rail should revise the guidance it gives to staff inspecting level crossings, ensuring that the importance of the correct position and layout of the warning signs is adequately emphasised.		
<b>Comment</b>		
Network Rail has still to report the actions it will take in respect of footpath crossings		

## ANNEX B Appendix 1c

## Recommendations made for National Network(s) in reports published in 2009

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive	West Lodge UWC	17:20	22 January 2008	Level Crossing Fatality
RAIB Report No:	01/2009		Published:	20 January 2009

**Summary**

At 17:13 hrs on 22 January 2008, a freight train struck and killed a young person using West Lodge crossing, Haltwhistle.

**Recommendations** Four recommendations are made

**RECOMMENDATION****1****Status: Green 1 = Closed**

Network Rail should make adequate arrangements for the safe pedestrian use of West Lodge crossing. They should pay particular attention to the use of the crossing in darkness: the visibility of the relevant crossing features, the legibility of warning signs and the legibility of instructions for the use of the telephone.

**Comment**

Network Rail has taken actions in response to this recommendation.  
ORR has closed the recommendation. RAIB has concerns about the adequacy of actions taken.

**RECOMMENDATION****2****Status: Amber = Open**

Network Rail should identify any footpath crossings that do not provide adequate arrangements to protect users, and draw up and implement a programme to improve them. The programme should prioritise the order in which the crossings are improved, with crossings presenting the highest risk improved ahead of those of lower risk.

**Comment**

Network Rail has stated that the existing processes will address the risk identified. RAIB has concerns about the way local risks at crossings of this type are assessed.

**RECOMMENDATION****3****Status: Amber = Open**

Network Rail should revise its management systems so that the findings of level crossing inspections and assessments are acknowledged, prioritised and acted upon to provide arrangements that adequately protect users.

**Comment**

Network Rail has stated that its processes will address the intent of the recommendation. Network Rail response does not appear to address the link between action and inspection.

**RECOMMENDATION****4****Status: Amber = Open**

Network Rail should revise its methods of crossing inspection and assessment so that they confirm that arrangements to protect users and safeguard the railway:

- (a) remain adequate in all normal and foreseeable operating conditions; and
- (b) make allowance for the mobility of likely users.

**Comment**

Network Rail is proposing to amend its documentation to promote an assessment of special factors.

## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 60 Locomotive	Ely Dock Junction	02:05	22 June 2007	Freight train derailment
<b>RAIB Report No:</b>	02/2009	<b>Published:</b>		22 January 2009

**Summary**

At 02:00 hrs on 22 June 2007 wagon REDA16002, the 15th wagon in train 6L58, the 21:19 hrs Mountsorrel to Chelmsford, derailed on the approach to underbridge 2235 near Ely. The derailed wagon was dragged onto the bridge, where it, and other wagons that subsequently derailed, caused considerable damage to the structure. The railway was closed for six months, and the River Great Ouse for three months, which caused significant disruption to the local community and tourism in the area. There were no casualties in the derailment.

**Recommendations**

**Sixteen recommendations are made**

**RECOMMENDATION**

**1**

**Status: Green 1 = Closed**

Network Rail should investigate the capability of Wheelchex or a similar system to produce data to identify laterally out of balance wagons, and should instigate a system to use this data to reduce risk from such wagons.

**Comment**

Network Rail is addressing this issue in response to Newcastle King Edward Bridge Recommendation 1. ORR has closed the recommendation.

**RECOMMENDATION**

**2**

**Status: Amber = Open**

Lafarge should as a short term measure, evaluate the use of, and if practical fit, visual markers on PHA wagon suspension, to enable train preparation staff to identify if a frictional lock up has occurred, after discharge and before the train movement from the depot.

**Comment**

Lafarge is carrying out an evaluation in response to this recommendation.

**RECOMMENDATION**

**3**

**Status: Green 2 = Complete**

Network Rail and PHA wagon owners should review the risks arising from the derailments of these vehicles and whether in light of the Ely incident the current mitigation measures are adequate in respect to the compliance of the PHA wagon and the suspension characteristics of the PHA wagon against the requirements of GMRT/2141, including the effects of contamination and frictional breakout. If appropriate, Network Rail's Private Wagon Registration Agreement department should require the owners of these wagons to take such steps as are necessary to ensure they comply with its requirements.

**Comment**

Testing is planned. Findings to be incorporated into a maintenance instruction. ORR is considering whether to close the recommendation.

**RECOMMENDATION**

**4**

**Status: Amber = Open**

Network Rail should review the historical research data and recommendations on the GFA to determine if the recommendations are valid for the current PHA wagon design and its operating and maintenance environment. If it is found to be relevant they should arrange for this research to be briefed to all owners of PHA wagons, and for them to take any necessary steps.

**Comment**

Network Rail has reported taking actions in response to this recommendation.

<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 2 = Complete</b>
Network Rail should instruct all private wagon owners on the importance of compliance with POCL 484, and in particular with the requirement to mark wagons that have been shimmed for frame twist correction.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 1 = Closed</b>
Network Rail should instruct all private wagon owners to comply with the requirement to mark wagons that have been shimmed for frame twist correction.		
<b>Comment</b>		
Network Rail is addressing this issue in response to Newcastle King Edward Bridge Recommendation 1. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Amber = Open</b>
Network Rail should brief private wagon owners to retain maintenance records relating to wagons and provide an auditable history on sale or transfer.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 2 = Complete</b>
Network Rail, in conjunction with wagon owners and maintainers, should review, and if appropriate revise, inherited British Rail maintenance manuals so that they are complete in their coverage and that they include processes from the current Railway Group Standards and POCL.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>9</b>	<b>Status: Green 2 = Complete</b>
Network Rail should review maintenance hours and resources available for the maintenance of track between Ely Dock Junction and Soham, and provide appropriate levels of time and resource.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>10</b>	<b>Status: Green 2 = Complete</b>
Network Rail should include guidance in NR/SP/TRK/001 Section 11.4.2 so that additional consideration is given to geometry monitoring frequency and methodology for locations where the dynamic track geometry is likely to deteriorate and exceed the maintenance limit without otherwise being detected.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>11</b>	<b>Status: Green 1 = Closed</b>
Wabtec and other maintainers of torsionally stiff 2 axle wagons in conjunction with their owners should revise their annual maintenance procedures so they adequately mitigate the risk of derailment which may arise due to frame twist. Post-maintenance wheel weighing or dimensional checks may achieve this.		
<b>Comment</b>		
Network Rail is addressing this issue in response to Newcastle King Edward Bridge Recommendation 1. ORR has closed the recommendation.		

## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>12</b>	<b>Status: Green 1 = Closed</b>
English Welsh & Scottish Railway should review and if necessary, adjust resource levels at Mountsorrel so that there is sufficient staffing to prepare trains in accordance with their procedures.		
<b>Comment</b>		
Former EWS (now DBS) has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>13</b>	<b>Status: Green 1 = Closed</b>
Lafarge should re brief all staff involved in loading wagons to check peak loadings and residual load safety limits.		
<b>Comment</b>		
Lafarge has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>14</b>	<b>Status: Amber = Open</b>
English Welsh & Scottish Railway should implement processes so that incident investigation managers are appointed where appropriate, a comprehensive remit is prepared and investigations are completed in accordance with Railway Group Standards and their own procedures.		
<b>Comment</b>		
Former EWS (now DBS) is undertaking a review of its processes.		
<b>RECOMMENDATION</b>	<b>15</b>	<b>Status: Green 1 = Closed</b>
Lafarge should introduce a system so that the Mountsorrel computer loading system is within calibration and that time intervals are sufficient to allow the wagon payload to be within the accepted tolerance.		
<b>Comment</b>		
Lafarge has modified its loading control system and is satisfied that the current system is sufficient to meet the recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>16</b>	<b>Status: Green 1 = Closed</b>
Lafarge should introduce and enforce procedures at Mountsorrel so that the staff involved in the loading of wagons, provide an accurate list for input into TOPS.		
<b>Comment</b>		
All loading staff have be re briefed about the importance of providing accurate information to TOPS. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Engineers vehicles	Terryhoogan, Northern Ireland	23:53	9 March 2008	Freight train derailment
RAIB Report No:	03/2009	Published:	11 February 2009	

**Summary**

At 23:20 hrs on 9 March 2008, a road rail excavator and two road rail wagons derailed at Terryhoogan, near Scarva. The excavator ran down a steep embankment before overturning and coming to rest on its side with the driver still in its cab. Its descent derailed its wagons and pulled them part way over the embankment edge. No-one was injured as a consequence of the derailment. The excavator and the wagons sustained damage to their running gear and bodywork, and there was minor damage to the infrastructure.

**Recommendations** Four recommendations are made

**RECOMMENDATION****1****Status: Green 1 = Closed**

The Downpatrick and County Down Railway should make arrangements to:

- maintain the excavator so that it distributes its weight appropriately in low ride mode;
- amend the operating and maintenance manual to prohibit an operator adjusting weight distribution by feel; and
- train and assess its staff in the correct method of machine operation.

**Comment**

The Downpatrick and County Down Railway has taken actions in response to this recommendation. DRDNI has closed the recommendation.

**RECOMMENDATION****2****Status: Green 1 = Closed**

Northern Ireland Railways and McLaughlin and Harvey should each put in place a process for planning work that:

- considers all the factors that may affect the safe operation of road rail vehicles; and
- identifies the arrangements to eliminate or mitigate those factors as part of a safe system of work.

**Comment**

Northern Ireland Railways and McLaughlin and Harvey have taken actions in response to this recommendation. DRDNI has closed the recommendation.

**RECOMMENDATION****3****Status: Green 1 = Closed**

Northern Ireland Railways should:

- clearly identify the members of staff who have a responsibility to ensure the safety of vehicle movements in worksites;
- brief the process identified in Recommendation 2 to those staff members; and
- make the process form part of training and assessment for those staff members.

**Comment**

Northern Ireland Railways have taken actions in response to this recommendation. DRDNI has closed the recommendation.

**RECOMMENDATION****4****Status: Green 1 = Closed**

Northern Ireland Railways should put in place a process for the periodic inspection and assessment of road rail vehicles and their associated wagons that they or their contractors undertake before permitting operation on their infrastructure.

**Comment**

Northern Ireland Railways have taken actions in response to this recommendation. DRDNI has closed the recommendation.

## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 318 EMU	Exhibition Centre, Glasgow	08:48	3 September 2007	Passenger train derailment
<b>RAIB Report No:</b>	04/2009		<b>Published:</b>	12 February 2009

**Summary**

The last carriage of an empty stock 3-car class 318 electrical multiple unit (EMU) train became derailed at low speed as it passed over facing points between Exhibition Centre and Anderston stations, Glasgow. The carriage tilted over and came to rest at an angle of approximately 75 degrees against the tunnel wall.

**Recommendations**

**Four recommendations are made**

**RECOMMENDATION**

**1**

**Status: Green 2 = Complete**

Network Rail should introduce a policy that competence training on the use of tools and equipment shall include hands-on use of the tools and equipment on the infrastructure on which it is intended for use, in order for competence to be assessed from the training (this is not intended to apply to appreciation training, as opposed to competence training).

**Comment**

Network Rail has proposed a risk assessment in response to this recommendation. ORR is considering whether to close the recommendation.

**RECOMMENDATION**

**2**

**Status: Amber = Open**

Network Rail should assess the risks associated with the use of points on slab track. If these are found to be substantially different from those of points on ballasted track, Network Rail should develop measures to mitigate any increased risks.

**Comment**

Network Rail has proposed a risk assessment in response to this recommendation.

**RECOMMENDATION**

**3**

**Status: Amber = Open**

Network Rail should undertake research in order to better understand the effects of derailments at points on slab track, and establish whether the mitigation afforded is sufficient to prevent the overturning of vehicles in the manner described.

**Comment**

Network Rail's response to this recommendation is linked to recommendation 2.

**RECOMMENDATION**

**4**

**Status: Amber = Open**

Network Rail should review its management processes in order to achieve a regular quality check on the methods of work used and the quality of the work performed by track staff maintaining points and crossings. This is to minimise the risk presented when a supervisor is responsible for carrying out the primary work.

**Comment**

Network Rail has proposed to conduct a review of its assurance processes.



Equipment Type	Place	Time	Date	Incident
National Network(s): Engineers vehicles	Glen Garry	01:52	5 December 2007	Collision with other train
<b>RAIB Report No:</b>	05/2009		<b>Published:</b>	25 February 2009

**Summary**

At 01:30 hrs on 5 December 2007, a road-rail vehicle (RRV) hauling a loaded trailer was unable to stop as it approached a work site where rock face repairs were taking place in a possession. Several site staff narrowly avoided injury by jumping clear and, although a low-speed collision between the RRV and another one at the site occurred, the staff in the RRVs were not injured.

**Recommendations**      **Seven recommendations are made**

**RECOMMENDATION****1****Status: Amber = Open**

Network Rail should publish the gradient of lines in an easily accessible way, for example in the sectional appendix and at track access points.

**Comment**

Network Rail is proposing to disseminate information to enable staff to access gradient data.

**RECOMMENDATION****2****Status: Amber = Open**

Network Rail should brief their contractors using on track plant on the hazards of rail contamination and gradient to RRV operation.

**Comment**

Network Rail has proposed to undertake a review of its existing documentation and the production of a briefing note.

**RECOMMENDATION****3****Status: Amber = Open**

Network Rail should require that contractors include the risks from rail contamination and gradient in their risk assessments along with proposed mitigation measures.

**Comment**

Network Rail has proposed an action plan in response to this recommendation.

**RECOMMENDATION****4****Status: Amber = Open**

Network Rail should enhance the Sentinel On Track Plant documentation for RRV operator training so that positive confirmation of the operator's understanding of the speed limit within a work site, and of the meaning of the term 'work site', is obtained.

**Comment**

Network Rail has proposed a review of OTP competence and training requirements in response to this recommendation.

**RECOMMENDATION****5****Status: Amber = Open**

Network Rail should enhance the Sentinel On Track Plant documentation for RRV operator training to include advice to trainee operators on:

- operating on gradients;
- operating in low adhesion conditions; and
- what to do in a braking emergency.

**Comment**

Network Rail is proposing to incorporate additional information into its OTP documentation in response to this recommendation.

## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Amber = Open</b>
Companies who own or operate RRV/trailer combinations not fitted with service brakes should provide clear guidance to machine operators on the maximum speed and hauled load that the RRV can operate to, given the gradient and track conditions expected or existing at site. This guidance could take the form of a duty chart, covering all duties, displayed in the cab.		
<b>Comment</b>		
ORR has directed this recommendation to manufacturers rather than owners or operators. Rail Plant Association has agreed to coordinate an industry response.		

<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Amber = Open</b>
Network Rail should provide a time-bound plan for the elimination of the use of RRV trailers not fitted with service brakes from its network.		
<b>Comment</b>		
Network Rail has implemented a seven year plan for the elimination of RRV trailers without service brakes in response to this recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive	Moor Street South junction	06:38	25 March 2008	Freight train derailment
<b>RAIB Report No:</b>	07/2009	<b>Published:</b>	18 March 2009	

<b>Summary</b>	
At 06:37 hrs on 25 March 2008 train 6M15 became derailed on plain line on the up and down goods line on the approach to Moor Street South junction. The train, the 01:46 hrs Aldwarke to Handsworth, consisted of a class 66 locomotive and 30 empty SSA four-wheel box wagons, and was travelling at 15 mph (24 km/h) at the time of the derailment.	
<b>Recommendations</b>	Three recommendations are made

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: Green 2 = Complete</b>
Network Rail should review and amend the design and maintenance of the layout at Moor Street South junction or implement other measures to reduce the risk of it becoming out of specification within the monitoring interval.		
<b>Comment</b>		
Network Rail has reported taking actions in response to this recommendation. ORR is considering whether to close the recommendation.		

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Amber = Open</b>
Network Rail should develop methods to improve the identification of voids in lightly used track and provide this as guidance to their inspection staff. Where this is a critical factor, consideration should be given to other methods of determining voids by measurement. This may include use of a track recording vehicle or void measurement using void meters.		
<b>Comment</b>		
Network Rail states that it has processes in place to manage this risk. ORR has still has to decide status of the recommendation.		

<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Green 1 = Closed</b>
DB Schenker Rail (UK) Ltd should review their maintenance and operation procedures so that VIBT intervals are compliant with the stated specification.		
<b>Comment</b>		
DB Schenker Rail (UK) Ltd has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 221 DEMU "Super Voyager"	Tackley UWC	15:30	31 March 2008	Level Crossing Fatality
<b>RAIB Report No:</b>	09/2009	<b>Published:</b>		30 March 2009

**Summary**

At approx 15:16 hrs on 31 March 2008, a train travelling from Dundee to Bournemouth struck and fatally injured a female pedestrian at Tackley station level crossing in Oxfordshire. There was no damage to the train or the railway infrastructure.

**Recommendations** Six recommendations are made

**RECOMMENDATION****1****Status: Amber = Open**

Network Rail should investigate whether it is reasonably practicable to install a predictor miniature stop light warning system, capable of warning users of the approach of fast trains and if a second train is coming, at this location, and whether safety benefits would be gained from such an installation.

**Comment**

Network Rail to carry out a risk benefit analysis in response to this recommendation.

**RECOMMENDATION****2****Status: Amber = Open**

Network Rail should issue an updated policy or standard to improve the control of fencing at unprotected crossings, such that decision points are not forced to the minimum dimension or sighting distances unnecessarily compromised.

**Comment**

Network Rail is proposing to amend its fencing standard in response to this recommendation.

**RECOMMENDATION****3****Status: Amber = Open**

Network Rail should, at unprotected crossings where the location of the decision point is between the instruction sign and the track and therefore potentially counter-intuitive, propose measures to clearly mark the point at which the final decision to cross should be made for acceptance by the ORR. This is for the benefit of crossing users and for the guidance of persons making inspections of the crossing.

**Comment**

Network Rail is proposing to take no action in response to this recommendation. This is the subject of ongoing discussions involving ORR, RSSB, RAIB and Network Rail.

**RECOMMENDATION****4****Status: Green 1 = Closed**

Network Rail should incorporate in their procedures:

- arrangements to routinely pass the findings of level crossing assessments and inspections between operations and maintenance departments, so that the organisation achieves a co-ordinated view of the condition of those assets; and
- an audit process to identify errors, inconsistencies or the application of inappropriate mitigation measures in crossing inspection reports.

**Comment**

Network Rail has stated that its processes address the intent of this recommendation. ORR has closed the recommendation.

## 1

## National Network(s)

RECOMMENDATION	5	Status: Green 1 = Closed
Network Rail should review their methods for assessing warning times, as the current arrangements which rely on calculations and the measurement of distances using optical equipment have been shown to be unreliable, particularly on curved track. This should include consideration of permanently identifying the sighting distances to be achieved, so that visibility can be positively verified from each decision point when crossings are inspected to improve the objectivity of these assessments.		
<b>Comment</b>		
Network Rail is proposing actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	6	Status: Green 1 = Closed
Network Rail should consider providing a permanent solution to the restricted visibility from the down side of Tackley crossing by profiling the embankment to the south-west of the crossing and removing surplus material.		
<b>Comment</b>		
Network Rail has reported taking actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive	Foreign Ore Branch Junction, near Scunthorpe	10:53	25 January 2008	Freight train derailment
<b>RAIB Report No:</b>	10/2009	<b>Published:</b>	30 April 2009	

Summary	
At about 10:48 hrs on Friday 25 January 2008, the tenth wagon of freight train 6M49, the 09:02 hrs service from Immingham Docks to Rugeley Power Station, derailed on plain line at Santon, which is on the double track section of railway line between Wrawby Junction and Foreign Ore Branch Junction, Scunthorpe. The wagon, number 370 157, was loaded with coal. During the derailment, all wheels of the wagon's leading bogie left the rails and the train continued for just over a mile before stopping. No one was injured in this accident. However, there was considerable damage to the railway infrastructure resulting in the closure of the line for over a week.	
<b>Recommendations</b>	<b>Nine recommendations are made</b>

RECOMMENDATION	1	Status: Amber = Open
Network Rail should provide further guidance in the track inspection handbook associated with work instruction NR/WI/TRK/001 on the actions to be taken when there are track geometry irregularities close to each other that can combine to increase the derailment risk. In particular, Network Rail should review the minimum action requirements in table 8 of NR/SP/TRK/001 for lateral alignment irregularities, and if appropriate, revise it to state the measures to be taken on discovery of severe lateral alignment irregularities close to other track geometry irregularities, with timescales for action.		
<b>Comment</b>		
Network Rail see no case for implementing the recommendation but will issue a briefing note to cover these issues.		

RECOMMENDATION	2	Status: Amber = Open
Network Rail should revise NR/SP/TRK/001 to give guidance on appropriate measures to be taken on discovery of excessive cant with timescales for action.		
<b>Comment</b>		
Network Rail is proposing to examine a means of alerting staff to excess cant by means of track recording vehicle printouts.		

<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Green 1 = Closed</b>
Network Rail should investigate the reason why there is water underneath the down line's trackbed at Santon and implement an engineering solution to prevent the water from entering the track formation to an extent which can lead to a deterioration in track geometry.		
<b>Comment</b>		
Network Rail has identified actions it will take in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Amber = Open</b>
Network Rail should develop appropriate tools to analyse trends in track geometry recording systems in order to identify rapid deterioration in track geometry, with the information output from these tools provided to the local maintenance teams.		
<b>Comment</b>		
Network Rail has identified actions it will take in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Amber = Open</b>
Network Rail should provide their inspection and maintenance staff with a single source of information that allows the identification of localised areas where track quality is poor, and is repeatedly deteriorating, due to discrete track geometry faults. In particular, information about the detection, measurement, repair and post-repair inspection of discrete track geometry faults should be recorded, together with references to related work orders that are recorded on Ellipse.		
<b>Comment</b>		
Network Rail is considering a Geometry Fault Management System in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Amber = Open</b>
Network Rail should take measures to improve the accuracy of location information for track geometry faults recorded by all track geometry recording runs and inspection staff, and provide maintenance staff with the ability to use this information to precisely locate the identified faults.		
<b>Comment</b>		
Network Rail consider their existing system to be adequate.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Amber = Open</b>
Network Rail should implement processes to investigate and monitor the effectiveness of repairs to repetitive track geometry faults, so that when a track geometry fault recurs, the reason for it coming back can be established, an appropriate repair method can be chosen and monitoring can be carried out to determine whether the second attempt to repair it has been successful.		
<b>Comment</b>		
Network Rail is proposing a review in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Amber = Open</b>
Network Rail should brief out to existing permanent way staff, and include within the training syllabus for new permanent way staff, information which highlights the significance of water close to the track, or within the trackbed, and the importance of reporting this information.		
<b>Comment</b>		
Network Rail is proposing to take actions in response to this recommendation.		

## 1

## National Network(s)

RECOMMENDATION	9	Status: Amber = Open
Freightliner should assess the permissible level of offset load before the derailment risk criteria in the Railway Group Standard GM/RT2141, Resistance of Railway Vehicles to Derailment and Roll-Over, is exceeded, and should put processes in place to ensure that any bogie hopper wagon, such as the HHA wagon, with an offset exceeding the permissible level does not enter into traffic.		
<b>Comment</b>		
Freightliner does not support recommendation as written but is promoting research by the RSSB to assess the inherent norm and deviation of lateral offset in UK train loading.		

Equipment Type	Place	Time	Date	Incident
National Network(s): On-track plant / machinery	Brentwood & Snow Hill	10:12 & 02:30	4 November 2007 & 31 October 2007	Runaway incidents
<b>RAIB Report No:</b>	11/2009	<b>Published:</b>	27 May 2009	

Summary	
Joint investigation as similarities between the two incidents – the vehicle types, operations taking place and parties involved – highlighted the likelihood of common safety learning.	
<b>Brentwood incident:</b>	
At around 10:12 hrs on 4 November 2007 an operator and machine controller were putting a Basket 14 RRV, a mobile elevating work platform (MEWP) type of RRV made by Basket srl, on the track near Brentwood station (18 miles 16 chains) when it ran away westward towards Romford and London. The operator and machine controller were unable to stop the Basket 14 RRV before it gathered speed. After travelling some four miles, the machine left the possession arranged for its protection and the operator, who was in the work basket, jumped clear. The machine ran for a further three miles before Network Rail staff were able to stop it west of Romford station. The operator was injured and required hospital treatment.	
<b>Birmingham Snow Hill Incident:</b>	
At around 02:30 hrs on 31 October 2007, a TD-18 RRV, another MEWP type of RRV, was being removed from the track near Birmingham Snow Hill station when it ran away. It then collided with a Basket 14 RRV parked 10-15 metres away. There were two persons in the work basket of the Basket 14 RRV and another was in the driving cab of the TD-18 RRV. All moved clear, and no-one was injured.	
<b>Recommendations</b>	<b>Six recommendations are made</b>

RECOMMENDATION	1	Status: Amber = Open
Network Rail should require all organisations that are permitted to use high ride RRVs on its infrastructure to identify those machines that require the operator to be assisted by another person(s) during on/off-tracking, and to enhance their procedures so that: <ul style="list-style-type: none"> <li>for each machine, the operator is made aware that he needs assistance before he starts working with the machine; and</li> <li>operators are aware of the need to come to a clear understanding with the person(s) assisting them before starting to on/off-track; this understanding should include, but not necessarily be limited to, the steps to be gone through, who is responsible for each step, and the clear and unambiguous communication that is to be used so that the RRV can be safely on/off-tracked.</li> </ul>		
<b>Comment</b>		
Network Rail has reported that it has a programme to implement actions in response to this recommendation.		

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Amber = Open</b>
<p>Network Rail should require all organisations that are permitted to use high ride RRVs on its infrastructure to review their procedures for on/off-tracking and also the supporting training given to their operators. If necessary, organisations should enhance their procedures and training so that:</p> <ul style="list-style-type: none"> <li>the defined steps their operators need to go through during on/off-tracking result in a brake force sufficient to prevent the RRV running away on the maximum gradient permitted for on/off-tracking, and that this force is consistently applied at the holding end of the RRV (the end of the RRV that is opposite to the end at which the rail gear is being lowered (or raised));</li> <li>the operator understands his responsibilities for following these defined steps and how the steps assure the braking condition described above; and that if assistance is required: <ul style="list-style-type: none"> <li>the respective roles of the operator and the person(s) assisting (machine controller or otherwise) are identified for each step; and</li> <li>any special training and competency requirements for the person(s) assisting are identified and implemented, and that the operator understands his responsibilities for checking such competencies.</li> </ul> </li> </ul>		
<b>Comment</b>		
Network Rail has reported that it has a programme to implement actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Amber = Open</b>
<p>Network Rail should enhance the relevant modules of the Sentinel training so that machine controllers:</p> <ul style="list-style-type: none"> <li>are aware that operators need to come to an understanding with any person assisting them with on/off-tracking; and</li> <li>understand the control measures that prevent an unbraked condition occurring during on/off-tracking.</li> </ul>		
<b>Comment</b>		
Network Rail has reported that it has a programme to implement actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 1 = Closed</b>
<p>Network Rail should enhance the relevant modules of training given as part of the Sentinel machine controller competency scheme so that those persons holding this Sentinel competency are aware of the specific duties they should be competent to perform and any specific tasks, for example assisting<sup>15</sup> the operator with on/off-tracking, that this competency does not cover.</p>		
<b>Comment</b>		
Network Rail has reported that it has a programme to implement actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 1 = Closed</b>
<p>Network Rail should enhance the relevant modules of Sentinel training for machine controllers to give guidance and practical training on the actions to be taken in the event of a runaway.</p>		
<b>Comment</b>		
Network Rail has reported that it has a programme to implement actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 2 = Complete</b>
<p>Network Rail should review the MEWPs that were not modified as a result of the ORR Improvement Notice issued following the incident at Copenhagen Tunnel on 15 October 2006. If necessary, Network Rail should require that enhancements are made to these MEWPs so that they are not at risk of being in an unbraked condition during on/off-tracking.</p>		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		



## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 56 Locomotive & Class 86 Locomotives x2	Hardendale & Cheddington	02:24 & 03:15	1 March 2008	Unsafe loads
<b>RAIB Report No:</b>	12/2009		<b>Published:</b>	27 May 2009

**Summary**

On 1 March 2008, at approximately 02:24 hrs, two empty containers were blown off freight train 4E90, the 00:07 hrs Isle of Grain to Doncaster, while it was travelling on the Down Fast line of the West Coast Main Line (WCML) at Cheddington, near Leighton Buzzard. The freight train consisted of a Class 56 locomotive hauling 20 FEA-B type flat wagons and was running at approximately 75 mph (121 km/h). The detached containers blocked the running lines and caused damage to overhead line equipment (OLE) and to the track.

On the same morning, at approximately 03:15 hrs, five empty containers were blown from freight train 4S83, the 18:28 hrs Tilbury to Coatbridge, on the down line of the WCML adjacent to Hardendale Quarry, between Tebay and Penrith. The train consisted of two Class 86 locomotives hauling 20 container flat wagons of mixed types, including ten FEA-B wagons, and was running at approximately 75 mph (121 km/h). The detached containers consisted of three 20 ft, one 40 ft and one 20 foot tank container and were blown from the rearmost four FEA-B wagons of the train. They blocked running lines and caused damage to the OLE and track.

<b>Recommendations</b>	<b>Ten recommendations are made</b>
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**RECOMMENDATION****1****Status: Green 2 = Complete**

Freight Operating Companies running wagons fitted with non-compliant UIC spigots, should review the threshold speeds in NIR 2350 above which special measures are taken when conveying empty or lightweight containers in windy conditions and check that the following factors are taken into account:

- o local wind acceleration effects due to topography, on routes they cover;
- o minimum container weights and container sizes being transported; and;
- o design of the wagons used (e.g. conventional or spine type underframe).

**Comment**

Freight Operating Companies have taken actions in response to this recommendation. ORR is considering whether to close the recommendation.

**RECOMMENDATION****2****Status: Green 2 = Complete**

Freight Operating Companies running wagons fitted with UIC spigots should check that the spigots comply with UIC 571-4 and ensure non-compliant wagons are identified for special operational measures when carrying empty or lightweight containers in windy conditions. Particular attention should be given to the lateral spacing and the inward angular rotation of the spigots.

**Comment**

Freight Operating Companies have taken actions in response to this recommendation, and has completed this review of its fleet. ORR is considering whether to close the recommendation.

**RECOMMENDATION****3****Status: Amber = Open**

Freight Operating Companies running wagons fitted with non-compliant UIC spigots, should develop and implement solutions to reliably retain empty or lightweight containers in windy conditions, in order to eliminate the need for special measures in the long term.

**Comment**

Freight Operating Companies have taken actions in response to this recommendation. Some propose operational risk mitigation measures.

<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Amber = Open</b>
Freight Operating Companies running wagons fitted with UIC spigots should review and, where necessary, amend their maintenance instructions for spigots to comply with the service checks specified in UIC 571-4 appendix C.		
<b>Comment</b>		
Freight Operating Companies have taken actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 1 = Closed</b>
The Office of Rail Regulation should make a proposal to the European Rail Agency to clarify the section on spigots in the freight vehicle TSI so that wagon designers are made aware of the function and operating principles of UIC spigots, and explicit warning is given about the dangers of fold-down spigots with inboard hinges.		
<b>Comment</b>		
ORR has made proposal to ERA in response to this recommendation and closed the recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 2 = Complete</b>
RSSB should make a proposal, in accordance with Railway Group Standards Code, to introduce a requirement for load retention devices so that such devices are checked against their original specification, whether to RGS or not, as part of the vehicle certification process. For the specific case of UIC spigots, explanatory guidance should be provided about the function and operating principle of UIC spigots and the dangers of fold-down spigots with inboard hinges.		
<b>Comment</b>		
RSSB has drafted guidance in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Amber = Open</b>
RSSB should make a proposal to its stakeholders to review whether the implementation of the vehicle certification process in the UK adequately addresses risk introduced by new or refurbished vehicles. This review should include the scrutiny of safety critical equipment designed and built to non-Railway Group Standards (e.g. UIC codes). If necessary, RSSB should propose changes in accordance with Railway Group Standards Code to cover any identified gaps and provide guidance to the UK rail industry on retrospective review.		
<b>Comment</b>		
RSSB are proposing no action in response to this recommendation. RAIB has expressed concerns about RSSBs proposed response.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 2 = Complete</b>
Network Rail should review the compatibility of the wind trigger speeds and durations at which mitigating action is taken on the network, with the overturning wind speed limits specified in Railway Group Standard GM/RT2142, taking account of local wind acceleration effects due to topography, such as embankments.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>9</b>	<b>Status: Amber - Open</b>
RSSB should review whether the current minimum container weight of 1.6 tonnes specified in the Railway Group Standard GO/RM3056 section J, adequately accounts for container size with respect to operations in windy conditions, and make a proposal in accordance with the Railway Group Standards Code to make any necessary changes to this or other standards or guidance on freight train operation.		
<b>Comment</b>		
RSSB is proposing to review the feasibility of providing guidance.		

## 1

## National Network(s)

RECOMMENDATION	10	Status: Amber = Open
Freight Operating Companies running FEA-B wagons, should review the status of compliance of these wagons against the whole vehicle overturning requirement of Railway Group Standard GM/RT2142 for all relevant container sizes and, if necessary, take appropriate steps to change their operations with these wagons in windy conditions.		
<b>Comment</b>		
Freight Operating Companies have reported that they are taking actions in response to this recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 91 Locomotive	Risk review of UWCs (Class Investigation)	14:34	30 August 2006	Level crossing near miss
<b>RAIB Report No:</b>	13/2009	<b>Published:</b>	3 June 2009	

Summary	
Most incidents at UWCs are caused by user error/violation. Extensive research into the reasons for this has been done. More could be done to improve the management of UWCs, the signs presented to users, and the legal framework.	
<b>Recommendations</b>	<b>Eight recommendations are made</b>

RECOMMENDATION	1	Status: Amber = Open
Network Rail should invite the authorised user or other invitees (such as persons having business on the land) to participate in the preparation of comprehensive site specific risk assessments for UWCs in all cases. The intention of this recommendation is that all factors affecting the use of the crossing should be considered when risk assessments are carried out, and that this should be done at all crossings, instead of just at those which have been assessed as higher risk.		
<b>Comment</b>		
Network Rail is proposing actions in response to this recommendation but consider that it may not be reasonably practicable in all cases.		

RECOMMENDATION	2	Status: Amber = Open
Network Rail should include in the risk assessments that it carries out for UWCs that are not equipped with telephones or lights an evaluation of whether there is sufficient information for users on where they should make a decision on whether it is safe to cross, based on the best sighting of approaching trains. Where deficiencies are identified consideration should be given to: <ul style="list-style-type: none"> <li>enhancement of sighting by the removal of obstructions (including improved management of vegetation), so removing the need for additional guidance to users;</li> <li>the moving and/or adaptation of existing signs, gates or barriers;</li> <li>the provision of an additional sign or visual feature to mark a point where users can wait in safety, clear of the line, and have sufficient sighting of approaching trains (ie at the final decision point); or</li> <li>the upgrading of the crossing to an enhanced level of protection, using telephones or warning lights as appropriate to the location.</li> </ul> The intention of this recommendation is that, as a result of risk assessment, users should be given sufficient information or protection to enable them to use the crossing safely.		
<b>Comment</b>		
Network Rail consider that existing measures address the 1st, 2nd & 4th bullet. Network Rail proposes no action in response to the 3rd bullet.		

RECOMMENDATION	3	Status: Amber = Open
<p>Network Rail should initiate research into reasonably practicable methods of marking the final decision point at those UWCs where such a solution is assessed as being appropriate. This scope of this research should include:</p> <ul style="list-style-type: none"> <li>the requirement to reconcile the needs of various types of user (eg drivers of vehicles, pedestrians, cyclists and equestrians);</li> <li>the various categories of UWC (including those which also include public footpaths and bridleways);</li> <li>an analysis of where to locate such signs or visual features in relation to the track; and</li> <li>the need to protect the railway from vehicle incursions.</li> </ul>		
<b>Comment</b>		
<p>Network Rail has stated that it is not reasonably practicable to mark the final decision point. RAIB is in discussion with ORR, Network Rail and RSSB about the possibility of further research into marking of the final decision point.</p>		
RECOMMENDATION	4	Status: Green 2 = Complete
<p>Network Rail should, taking into account the results of the current trials with new technology, consider how the protection of UWCs which at present are without telephones or lights, can be improved to give the user reliable, consistent and timely warning of the approach of trains, and implement a programme to upgrade the crossings which would benefit from this protection.</p>		
<b>Comment</b>		
<p>Network Rail has stated that it has programs of work in place which meets the intent of this recommendation. ORR is considering whether to close the recommendation.</p>		
RECOMMENDATION	5	Status: Green 2 = Complete
<p>Network Rail should carry out an assessment of the risks and benefits of removing the need for the crossing user to open gates or barriers, in conjunction with the protection of the crossing by road traffic signs or lights of an appropriate type. The results of this assessment should be used to inform Network Rail's policy on the upgrading of user worked crossings.</p>		
<b>Comment</b>		
<p>Network Rail considers that its existing measures &amp; initiatives meet the intent of this recommendation. ORR is considering whether to close the recommendation.</p>		
RECOMMENDATION	6	Status: White = Awaiting Response
<p>Northern Ireland Railways should take note of the findings of this report and review their risk assessment and crossing management arrangements accordingly.</p>		
<b>Comment</b>		
<p>No information available.</p>		
RECOMMENDATION	7	Status: Green 1 = Closed
<p>The Heritage Railway Association should draw its members' attention to this report so that individual heritage railways can note the findings and review their risk assessment and crossing management arrangements.</p>		
<b>Comment</b>		
<p>The Heritage Railway Association has taken actions in response to this recommendation. ORR has closed the recommendation.</p>		

## 1

## National Network(s)

RECOMMENDATION	8	Status: White = Awaiting Response
The Department for Transport, in consultation with the Office of Rail Regulation, should review the requirements for signs prescribed by law for use at private crossings, and revise them as necessary, taking into account the need to convey information and instructions clearly and unambiguously to diverse users.		
<b>Comment</b>		
No information available.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 158 DMU	Poplar Farm level crossing	16:10	1 July 2008	Level crossing near miss
<b>RAIB Report No:</b>	14/2009	<b>Published:</b>	11 June 2009	

Summary	
At about 16:13 hrs on 1 July 2008, a mobility scooter was driven onto Poplar Farm level crossing, Attleborough, Norfolk, into the path of the approaching train 1M30, the 15:52 hrs from Norwich to Liverpool Lime Street. The train driver saw the mobility scooter but was unable to stop the train before it reached the crossing. The mobility scooter moved clear of the crossing before the train arrived, and there were no injuries or damage. The crossing gates had been opened by a crossing keeper located at the crossing so that road vehicles, including the mobility scooter, could cross the railway.	
<b>Recommendations</b>	Two recommendations are made

RECOMMENDATION	1	Status: Green 2 = Complete
Network Rail should review its procedures for the operation of Poplar Farm crossing with the aim of identifying improvements that would reduce the possibility of errors being made in the operation of the crossing. This review should include consideration of: <ul style="list-style-type: none"> <li>current and future road and rail traffic levels; and</li> <li>measures to reduce the likelihood of crossing keepers mistaking the location of trains indicated by 'train in section'.</li> </ul> All reasonably practicable improvements should be implemented.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		

RECOMMENDATION	2	Status: Green 2 = Complete
Network Rail should revise its current method of crossing inspections to take account of: <ul style="list-style-type: none"> <li>local factors relating to the method of operation of crossings; and</li> <li>changes in traffic levels.</li> </ul> Crossing risk assessors should be advised through the process referred to above of any identified changes that are likely to increase crossing risk.		
<b>Comment</b>		
Network Rail considers that its existing measures & initiatives meet the intent of the recommendation. ORR is considering whether to close the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 165 DMU	Acton West	01:10	24 June 2008	Collision with other object
<b>RAIB Report No:</b>	15/2009		<b>Published:</b>	18 June 2009

**Summary**

At around 01:00 hrs on the morning of 24 June 2008, three members of a rail grinding team were waiting with two rail-mounted grinding machines on the up relief line east of the crossovers at Acton West Junction, waiting permission to push the machines towards Ealing Broadway station.

Train 2P01, the 00:15 hrs service from Reading to London Paddington, ran through the crossovers at Acton West onto the up relief line and struck the machines. The three members of the grinding team scattered as the train approached. Nobody was injured in the accident, but the train suffered damage to braking equipment and a punctured fuel tank on the leading coach. The 25 passengers on the train were evacuated safely.

<b>Recommendations</b>	<b>Eight recommendations are made</b>
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**RECOMMENDATION****1****Status: Amber = Open**

*The intention of this recommendation is to reinforce existing arrangements within Network Rail for COSS packs to be prepared and implemented by staff with adequate geographical knowledge of the locality.*

Network Rail should:

- re-brief the requirements (now in standard NR/L2/OHS/019) for the COSS pack to be prepared and checked by individuals who have geographical knowledge of the relevant area and for COSSs to have geographical knowledge of the area in which they are to work;
- take steps to achieve compliance with the requirements defined in 1a; and
- conduct a compliance audit after a suitable period of time to confirm that these requirements defined in 1a are being implemented satisfactorily.

**Comment**

Network Rail is proposing actions in response to this recommendation.

**RECOMMENDATION****2****Status: Green 1 = Closed**

*The intention of this recommendation is to:*

- *promote the involvement of the 'end-user' in designing the paperwork that they use on site;*
- *secure the COSS's involvement in the planning of the safe system of work that they will implement on site; and*
- *achieve a consistent and user-friendly appearance for the COSS pack (including the RT9909 form).*

Network Rail should, in its current project to overhaul the RIMINI planning process:

- involve those who will use the information on site in developing a revised format for the COSS pack (and the RT9909 form);
- include a role for the COSS in the planning of their safe system of work; and
- improve the format of the COSS pack (and the RT9909 form), with particular emphasis on the clarity and consistency of information presented, including, but not limited to:
  - consistency in the method for identifying key locations such as the site of work, limits of possession and access points;
  - clarity over the information that is required in each section of the new forms;
  - the option of identifying in the COSS pack where access to site can be achieved by walking lineside as opposed to on or near the line; and
  - the use of diagrams and maps to show key locations and their relationship with each other.

**Comment**

Network Rail has proposed an action plan in response to this recommendation.  
ORR has closed the recommendation.



## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Amber = Open</b>
<p><i>The intention of this recommendation is to encourage Network Rail to expedite the provision of track layout signage at access points.</i></p> <p>Network Rail should develop and implement a programme for the provision of track layout information signage at all railway access points, showing mileages, line names and directions and other key items of local railway information, as appropriate.</p>		
<b>Comment</b>		
Network Rail is assessing the reasonably practicality of installing such signs.		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Amber = Open</b>
<p><i>The intention of this recommendation is to reinforce existing requirements on the content of PICOP's briefing meetings within the London delivery unit of Network Rail's Western route.</i></p> <p>Network Rail should modify the format and content of the PICOP's briefing meeting held in the London delivery unit of Western route to conform with the requirements of NR/L2/MTC/PL0056 and in particular, arrange for the PICOP, Engineering Supervisor and direct representatives of those who are to be involved in the following week's possessions to be present.</p>		
<b>Comment</b>		
Network Rail has reported taking actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Amber = Open</b>
<p><i>The intention of this recommendation is for Network Rail to review the extent to which existing requirements on the contents of PICOP's briefing meetings are being respected nationally and take action to promote compliance with the contents of standard NR/L2/MTC/PL0056.</i></p> <p>Network Rail should:</p> <ol style="list-style-type: none"> <li>investigate the extent to which PICOP's briefing meetings comply with the requirements of NR/L2/MTC/PL0056 nationally, taking steps to achieve wider compliance, as necessary; and</li> <li>consider the development of standard forms to assist those leading meetings referred to in NR/L2/MTC/PL0056 to cover all of the items on the agenda.</li> </ol>		
<b>Comment</b>		
Network Rail has reported taking actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Amber = Open</b>
<p><i>The intention of this recommendation is for Network Rail to review the adequacy of its audit arrangements in view of the longstanding non-compliance of the London area of Western territory with NR/PRC/MTC/PL0056, and make improvements as necessary.</i></p> <p>Network Rail should conduct a review of its audit arrangements as applied to possession planning to establish how it was possible for the PICOP's briefing meeting at Paddington to have been non-compliant with the requirements of NR/PRC/MTC/PL0056 for an extended period of time, making changes, as necessary, for adequate scrutiny of possession planning arrangements nationally.</p>		
<b>Comment</b>		
Network Rail is proposing an audit on possession management in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Amber = Open</b>
<p><i>The intention of this recommendation is for Network Rail to promote an equitable balance of work between safety-critical staff in work sites and possessions including development of specific guidance on how to keep work sites as short as possible.</i></p> <p>Network Rail should issue guidance to routes on how to achieve an equitable balance of work between safety-critical staff within possessions and how to avoid the workload of any individual being excessive (including, but not limited to, complying with the rule book requirement to keep work sites as short as possible and briefing the guidance in Module 14 of standard NR/L3/MTC/PL0175).</p>		
<b>Comment</b>		
Network Rail is proposing that the management of this issue be incorporated into Planners Training.		



<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Amber = Open</b>
<p><i>The intention of this recommendation is for Network Rail to consider whether its current arrangements for assessment in the line are being properly implemented in Western route.</i></p> <p>Network Rail should conduct a review of arrangements within Western route for assuring that those employees undertaking assessments in the line are being monitored in accordance with the requirements identified in Network Rail's own procedures and take steps to rectify any deficiencies found.</p>		
<b>Comment</b>		
Network Rail has reported taking actions in response to this recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 43 HST Power Car	New Southgate	11:20	27 July 2008	Train door incidents
<b>RAIB Report No:</b>	17/2009	<b>Published:</b>	24 June 2009	

<b>Summary</b>	
<p>At approximately 11:20 hrs on Sunday 27 July 2008, a luggage van sliding door on train 1S13, the 11:00 hrs King's Cross to Aberdeen, became detached and struck train 1A16, the 08:24 hrs Leeds to King's Cross. This happened in the vicinity of New Southgate, around 6¾ miles (10.8 km) north of King's Cross, at a closing speed of approximately 196 mph (314 km/h). The side of train 1A16 suffered significant damage, although the passenger compartment was not penetrated. All doors and windows remained intact. A number of passengers and crew were shaken and one passenger reported suffering a minor eye injury as a result of glass-fibre particles entering a vestibule through a part open window.</p>	
<b>Recommendations</b>	<b>Five recommendations are made</b>

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: Amber = Open</b>
<p>HST owners, National Express East Coast and other HST operators should re-examine the set-up and maintenance requirements for HST luggage van doors to promote safer operation. They should include consideration of previous incidents, original design drawings and maintenance experience. As a result they should amend their procedures as necessary, paying particular attention to:</p> <ul style="list-style-type: none"> <li>○ inspection of the centre trolleys, pins and rollers;</li> <li>○ set-up and attachment of cam blocks;</li> <li>○ checking main lock spring rates; and</li> <li>○ correct set-up of main lock engagement with the striker plate.</li> </ul>		
<b>Comment</b>		
HST owners, National Express East Coast and other HST operators have reported taking actions in response to this recommendation.		

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Amber = Open</b>
<p>HST owners and operators should consider whether peened centre pins should be replaced by a more reliably fixed pin. If the use of peened pins is continued, consideration should be given to positioning the pins' heads towards the door and the peening towards the luggage van.</p>		
<b>Comment</b>		
HST owners and operators have carried out reviews in response to this recommendation.		

## 1

## National Network(s)

RECOMMENDATION	3	Status: Amber = Open
National Express East Coast should put in place procedures mandating the monitoring of the frequency of luggage van doors being found open in traffic and the factors that may be causing this. The procedures should also require that corrective actions should be identified and put in place.		
<b>Comment</b>		
National Express East Coast have stated that they have arrangements in place to monitor luggage van doors open in traffic.		

RECOMMENDATION	4	Status: Amber = Open
National Express East Coast should modify their Defective On-Train Equipment Contingency Plan to define Bounds Green as a servicing depot for HSTs. They should consider in detail, what safety precautions should be put in place before a train can enter service from such a depot with unrepaired defective on-train equipment and generate procedures to enable staff to put such precautions in place. Such procedures should include a reliable method of securing HST luggage van doors out of service and clearly differentiate between passenger and non-passenger doors.		
<b>Comment</b>		
National Express East Coast reported taking actions in response to this recommendation.		

RECOMMENDATION	5	Status: Amber = Open
HST owners and operators of rolling stock with similar designs of luggage van door (in particular Mk 3 and Mk 4 Driving Van Trailers) should consider the applicability of Recommendations 1, 2 and 3 to their operations and act upon them where applicable.		
<b>Comment</b>		
HST owners and operators reported taking actions in response to this recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 375 EMU	Grosvenor Bridge, Victoria	14:05	13 November 2007	Staff hit by train (Injury/near miss)
<b>RAIB Report No:</b>	19/2009	<b>Published:</b>	16 July 2009	

Summary	
At 14:00 hrs on 13 November 2007, a track worker engaged in a planned track inspection was struck by a passing train on Grosvenor Bridge, south of London Victoria station. He suffered serious injuries.	
<b>Recommendations</b>	<b>Nine recommendations are made</b>

RECOMMENDATION	1	Status: Amber = Open
Network Rail should propose a change to the Rule Book, in accordance with the Group Standards code, so that all members of a work group have the responsibility to ensure that they receive a full briefing prior to signing the COSS form.		
<b>Comment</b>		
Network Rail have stated that their existing processes already required staff to confirm their understanding of the safety brief.		

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Amber = Open</b>
In order to reduce the risk to track workers, Network Rail should review their programme for provision of automatic warning systems for red zone track inspections and if practicable should implement a programme to accelerate the introduction of appropriate systems for multi-track areas.		
<b>Comment</b>		
Network Rail has a programme in place for the implementation of LOWS equipment. RAIB considers that this has not met the intent of the recommendation.		
<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Amber = Open</b>
Network Rail should review the derogation that safety helmets need not be worn at all times during basic visual track inspection.		
<b>Comment</b>		
Network Rail have reported they are consulting on a new instruction.		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 2 = Complete</b>
In order to verify their effectiveness, Network Rail should monitor recently introduced processes that will show whether an individual's on-the-job performance routinely achieves the prescribed level with regard to safety. If necessary these processes should be enhanced.		
<b>Comment</b>		
Network Rail has reported taking actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Amber = Open</b>
In order to reduce the risk to track inspection staff, Network Rail should propose a change to the Rule Book and the COSS Handbook, in accordance with the Group Standards code, that amends the procedures for red zone working with lookout protection in a multi-track area to:		
<ul style="list-style-type: none"> <li>o Clearly define an approaching train.</li> <li>o Clarify the criteria for setting up a safe system of work, including the circumstances that require pre-planning. Consideration should include: <ul style="list-style-type: none"> <li>a) the practical capabilities of lookouts;</li> <li>b) the possibilities for human error and its consequences;</li> <li>c) the ability to identify the track a particular train is using;</li> <li>d) the likelihood of multiple train movements;</li> <li>e) the complexity of track layout;</li> <li>f) the nature of the work being undertaken; and</li> <li>g) the size and disposition of the work group for continued observation by the lookout.</li> </ul> </li> </ul>		
<b>Comment</b>		
Network Rail are proposing a review of the rule book (see also Recommendation 6).		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Amber = Open</b>
In advance of any change to the Rule Book and COSS Handbook under Recommendation 5 and to provide clear and unambiguous safety instructions and/or guidance, Network Rail should either eliminate the current practices used in relation to staff not moving to a position of safety but remaining in a location where they do not believe they are in danger from a train moving towards their site of work, or should introduce formally risk assessed alternatives for setting up a safe system of work in a multi-track area. The risk assessment should consider the topics listed in Recommendation 5.		
<b>Comment</b>		
Network Rail has held a crossfunctional workshop to inform its response to Recommendations 5 & 6.		

## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Amber = Open</b>
Network Rail should validate the process and systems used to provide safety information for the COSS pack to show that its output is correct and complete.		
<b>Comment</b>		
Network Rail has stated that it has a plan to address this recommendation.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 1 = Closed</b>
Network Rail should identify and correct the apparent inconsistencies within the Sectional Appendix relating to maximum permitted train speeds on the approaches to Victoria station.		
<b>Comment</b>		
Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>9</b>	<b>Status: Green 2 = Complete</b>
In order to ensure that staff allow an appropriate time to reach a position of safety, Network Rail should arrange to rebrief appropriate staff working on the railway so that they are reminded of the risks posed by areas of limited clearance such as the raised bridge parapets on the lines over the Grosvenor Road Bridge.		
<b>Comment</b>		
Network Rail has identified that the non-fitment of limited clearance plates was unique to this bridge. It considers that its existing arrangements are adequate. ORR is considering whether to close the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 158 DMU	Llanbadarn ABCL	11:25	21 October 2008	Level Crossing near miss
<b>RAIB Report No:</b>	20/2009	<b>Published:</b>	28 July 2009	

<b>Summary</b>	
At 11:13 hrs on Tuesday 21 October 2008, a passenger train ran across Llanbadarn level crossing, near Aberystwyth, while the barriers of the crossing were open to road traffic. A collision with a tanker lorry carrying liquefied petroleum gas was avoided by less than two metres. No injuries resulted from the incident.	
<b>Recommendations</b>	<b>Eight recommendations are made</b>

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: Green 2 = Complete</b>
Network Rail should complete its reviews of Llanbadarn ABCL and implement any actions that it deems reasonably practicable to improve the safety of the crossing.		
<b>Comment</b>		
Network Rail has reported taking actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Amber = Open</b>
Network Rail should amend the timings of Forden crossing so that it is possible for drivers to observe a flashing white aspect on the driver's crossing indicator when passing the special speed restriction board.		
<b>Comment</b>		
Network Rail have stated that this crossing will be included within the review and risk assessments carried out in response to Recommendations 6 & 7. The review has shown the amendment of the timings at Forden crossing to be reasonably practicable.		

<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Amber = Open</b>
The Rail Safety and Standards Board should make a proposal, in accordance with the Railway Group Standards Code, to amend paragraph 4.2 of module TW8 of the Rule Book so as to make explicit that a driver should start to control his speed at once if he observes a flashing red aspect when passing the special speed restriction board of a locally monitored automatic crossing.		
<b>Comment</b>		
This was the subject of a proposal to the Traffic Operations & Management Standards Committee. The proposal was not supported by the committee. RAIB is concerned that the risk identified in the report has not been addressed.		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Amber = Open</b>
Arriva Trains Wales should review its training (and training material) for drivers who have to drive over locally monitored automatic crossings to make clear the meaning of the position of the special speed restriction board, and the need to control the speed of the train if the driver's crossing indicator is not showing a flashing white aspect when a driver passes it.		
<b>Comment</b>		
Arriva Trains propose no action (given the position of the RSSB Recommendation 3).		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Amber = Open</b>
Network Rail should review the ALCRM assessment for Llanbadarn ABCL to take into account the risk of a Vale of Rheidol Railway train causing a flashing red aspect of the driver's crossing indicator to display when a train arrives on the Network Rail line, and the short sighting time to the down direction special speed restriction board, and, if appropriate, take any actions identified as reasonably practicable.		
<b>Comment</b>		
Network Rail carried out a review and concluded that ALCRM cannot model potential driver error.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 2 = Complete</b>
Network Rail should complete its assessment of the other locally monitored automatic crossings on its network.		
<b>Comment</b>		
Network Rail has completed its review of AOCL. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 2 = Complete</b>
Network Rail should, if required in the light of Recommendation 6, amend crossing timings so that it is possible for drivers to observe the white flashing aspect on the driver's crossing indicator before they reach the special speed restriction board.		
<b>Comment</b>		
Network Rail concluded that it will amend the timings of one crossing.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 2 = Complete</b>
Network Rail should implement monitoring of the compliance by signalling maintenance staff on the Cambrian Lines with the requirement in RT/SMS/Test/071 to contact the signaller before working on locally controlled automatic crossings, so as to be able to take steps to address any deficiencies identified.		
<b>Comment</b>		
Network Rail has reported taking actions in response to this recommendation. ORR is considering whether to close the recommendation.		

## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive	Basingstoke Station	10:13	19 December 2008	Unsafe loads
<b>RAIB Report No:</b>	21/2009		<b>Published:</b>	12 August 2009

**Summary**

At 10:13 hrs on 19 December 2008, a shipping container which was loaded on a freight train travelling from Wakefield Europort to Eastleigh, struck the canopy above platform one at Basingstoke station as the train passed through at about 25 mph (40 km/h). The canopy was damaged over a length of 130 m, and pieces of wood were scattered along the platform. No-one was hurt.

**Recommendations**

**Three recommendations are made**

**RECOMMENDATION**

**1**

**Status: Amber = Open**

DB Schenker should carry out a review of the activities at its terminals, and introduce systems to minimise the incidence of out of gauge loads. This review and the subsequent actions taken should address, in particular:

- the arrangements for monitoring the performance of staff;
- the training and assessment of staff;
- methods of verifying the gauge compliance of trains leaving terminals;
- interfaces between the different systems used to manage container traffic; and
- the procedures used for processing information relating to dangerous goods traffic.

**Comment**

DB Schenker has reported taking actions in response to this recommendation.

**RECOMMENDATION**

**2**

**Status: Green 1 = Closed**

DB Schenker should examine the feasibility of revising the container storage and handling arrangements at Wakefield Europort to reduce the likelihood of confusion between different box sizes, and implement any appropriate changes which are identified.

**Comment**

DB Schenker has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION**

**3**

**Status: Green 2 = Complete**

DB Schenker should, in co-operation with other system users as appropriate, request that the ERIC system be revised to highlight alert messages that may be safety critical.

**Comment**

DB Schenker has reported taking actions in response to this recommendation.  
ORR is considering whether to close the recommendation.

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 321 EMU	Bridge GE19, near Liverpool Street	19:24	28 May 2008	Collision with other object
<b>RAIB Report No:</b>	22/2009	<b>Published:</b>		20 August 2009

**Summary**

At 19:17 hrs on Wednesday 28 May 2008, train 1K12, the 19:15 hrs London Liverpool Street to Southend Victoria service, struck debris on the track. The debris had fallen from a new rail bridge under construction, spanning the mainline railway close to Liverpool Street station. The train suffered minor damage and there were no injuries.

**Recommendations**

**Seven recommendations are made**

**RECOMMENDATION**

**1**

**Status: Amber = Open**

Network Rail should review its Safety Management System, and procedures, to satisfy itself that the following points are covered before approving construction work, particularly by third-parties, on or over the operational railway:

- The requirement for an approved design, method statement and risk assessment for any remedial activity involving load-bearing temporary works. This should include consideration of a range of failure modes, and inspection against known parameters after the structure or temporary works have been knowingly disturbed.
- The means of safely adjusting the horizontal position of a structure should this become necessary.
- The requirement to specifically consider the risks arising from the use of unrestrained low-friction surfaces, such as PTFE, which may be subjected to unpredicted lateral loads and disturbing forces during construction activity. This should include the reduction in the coefficient of friction which can occur when a sustained horizontal force is applied.
- The means of securing permanent formwork and other construction materials, to protect against sudden or unplanned structural movement.
- The need for method statements to contain accurate information on all construction stages, and to consider the effects of thermal movement where structures are supported on bearings.
- The need for contractor's risk assessments to include consideration of low probability high impact risks associated with temporary works.
- The need for independence in the routine inspection of complex temporary works, which should not be delegated to the organisation responsible for providing them.
- The means to prevent rain water collecting directly above 25 kV electrification equipment due to the risk of flash-over if the water is released in an uncontrolled manner.
- The requirement for the intermediate certification of structures, including temporary works, for which the existing Form E process may be inadequate.
- The benefit to all parties on major projects of adopting a common categorisation for risk assessments, to enable a coherent risk profile to be generated and to avoid the risk of confusion.

**Comment**

Network Rail is proposing to carry out a review to identify the actions it will take in response to this recommendation.

**RECOMMENDATION**

**2**

**Status: Amber = Open**

London Underground Limited, Rail for London, the Heritage Rail Association, the Light Rail Engineering Group and Northern Ireland Railways should establish processes so that information is available to any potential suppliers of similar projects or assets regarding the issues raised within this report.

**Comment**

London Underground Limited, Rail for London, the Heritage Rail Association, the Light Rail Engineering Group and Northern Ireland Railways have taken actions in response to this recommendation.



## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Green 1 = Closed</b>
<p>Network Rail should establish procedures so that information is available to operations staff where construction activities could reasonably affect the safety of the railway. These should include, in particular:</p> <ul style="list-style-type: none"> <li>a. the provision of emergency contact details for identified project representatives out-of-hours; and</li> <li>b. information on the location of each site, and the signal numbers necessary to protect the line.</li> </ul>		
<b>Comment</b>		
<p>Network Rail has taken actions in response to this recommendation. ORR has closed the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Amber = Open</b>
<p>Network Rail should expand NR/L2/OCS/250, the National Emergency Plan to:</p> <ul style="list-style-type: none"> <li>a. make provision for maintaining or extending the command structure in place following the exit of the emergency services from the site to ensure that post-incident activities are managed properly;</li> <li>b. reinforce arrangements for managing non-railway organisations during the incident recovery phase and prevent persons being exposed to risk due to a lack of site coordination; and</li> <li>c. require route controllers to positively confirm what trains are involved in an incident, establish the location and ensure communication with all trains requiring assistance.</li> </ul>		
<b>Comment</b>		
<p>Network Rail stated that its arrangements, if correctly applied, cover the intent of the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 2 = Complete</b>
<p>Network Rail should enhance the incident management training given to operations staff to reflect the requirements of Recommendation 4.</p>		
<b>Comment</b>		
<p>Network Rail has reported taking actions in response to this recommendation. ORR is considering whether to close the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: White = Awaiting Response</b>
<p>The Health and Safety Executive should:</p> <ul style="list-style-type: none"> <li>a. draw the attention of the Standing Committee on Structural Safety (SCOSS) to the issues identified in this report regarding the safe use of PTFE in construction to ensure a wider promulgation amongst the civil engineering community; and</li> <li>b. approach companies known to be involved in moving large loads using PTFE to check they have appropriate guidance and internal procedures to address the safe use of PTFE.</li> </ul>		
<b>Comment</b>		
<p>Awaiting comment from the Health and Safety Executive.</p>		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 2 = Complete</b>
<p>National Express East Anglia should review their procedures relating to the appointment of a TOLO, or other site representative, in response to major railway incidents involving passengers.</p>		
<b>Comment</b>		
<p>National Express East Anglia has reported taking actions in response to this recommendation. ORR is considering whether to close the recommendation.</p>		

Equipment Type	Place	Time	Date	Incident
National Network(s): PELH Passenger Train	Stevenage	17:35	7 December 2008	Staff hit by train (Injury/near miss)
<b>RAIB Report No:</b>	23/2009	<b>Published:</b>		27 August 2009

**Summary**

At about 17:35 hrs on 7 December 2008 a trackworker came into contact with a train passing a site at which track relaying was taking place at Stevenage in Hertfordshire. The trackworker was taken to hospital for treatment of his injuries which were not life threatening. The relaying was temporarily suspended for the Safe Systems of Work in place to be reviewed, leading to a delay in the re-opening to rail traffic of the line being repaired.

**Recommendations** Six recommendations are made

**RECOMMENDATION****1****Status: Amber = Open**

Jarvis Rail should enhance its management systems so that the systems of work intended to be implemented by Controllers of Site Safety within work sites are pre-planned by a competent person. The method of protection should be clearly indicated on the Task Briefing Sheets and on COSS Forms.

**Comment**

Jarvis Rail has reported taking actions in response to this recommendation.

**RECOMMENDATION****2****Status: Amber = Open**

Jarvis Rail should enhance its risk assessments to include Trac Rail Transposers and the inclusion of any risk mitigation measures in documented working arrangements (this should include an assessment of the exclusion zone around the machines and its enforcement). Jarvis Rail should subsequently brief all relevant staff (and in particular Engineering Supervisors and Controllers of Site Safety) on the hazards identified and the nature of the exclusion zone.

**Comment**

Jarvis Rail has reported taking actions in response to this recommendation.

**RECOMMENDATION****3****Status: Amber = Open**

Jarvis Rail should enhance its management systems to deliver clear communications at all work sites so that all Controllers of Site Safety are made aware of work to take place at that site, when it will occur and the implications for their system of work.

**Comment**

Jarvis Rail has reported taking actions in response to this recommendation.

**RECOMMENDATION****4****Status: Amber = Open**

Network Rail should review the conditions permitting the installation of fences next to tracks open to traffic at normal line speed in order to facilitate their greater provision adjacent to work sites.

**Comment**

Network Rail propose to take no action in response to this recommendation.  
RAIB is concerned that the issue raised in the report has not been addressed.

**RECOMMENDATION****5****Status: Amber = Open**

Jarvis Rail, in consultation with Network Rail, should investigate the provision of lighting which can be installed with sufficient stability adjacent to lines open to traffic.

**Comment**

Jarvis Rail has reported taking actions in response to this recommendation.

## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Amber = Open</b>
Network Rail, in consultation with the users of Trac Rail Transposers, should review the conditions of their operation, when they work in close proximity to lines that are open to traffic, with particular reference to the effect of the exclusion zone on the safe passage of trains.		
<b>Comment</b>		
Network Rail has proposed to carry out a review in response to this recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 66 Locomotive	Between Leigh-on-Sea & Chalkwell	07:02	26 April 2008	Collision with other train
<b>RAIB Report No:</b>	24/2009	<b>Published:</b>	14 September 2009	

<b>Summary</b>	
At about 06:27 hrs on Saturday 26 April 2008 locomotive 66719 working engineer's train 6T64, collided with the rear of train 6T63 between Leigh-on-Sea and Chalkwell within a work site between Pitsea Junction and Shoeburyness. Two wagons on train 6T64 were severely damaged. Both lines were closed to normal traffic at the time of the collision.	
<b>Recommendations</b>	<b>Seven recommendations are made</b>

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: White = Awaiting Response</b>
Network Rail should introduce a procedure that will provide a written record of instructions between the Engineering Supervisor, train driver and 'competent person' with verbal read back to confirm an understanding of the planned movement.		
<b>Comment</b>		
Awaiting response.		

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: White = Awaiting Response</b>
Network Rail should incorporate a challenge stage within the planning process so that possession and work site length are minimised and that planned train movements are operationally risk assessed.		
<b>Comment</b>		
Awaiting response.		

<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: White = Awaiting Response</b>
Network Rail should modify procedures so that, if a specific risk is identified from the risk assessment (Recommendation 2), such as train movements over long distances within a work site, the risk is documented in the hazard list within the PICOP pack.		
<b>Comment</b>		
Awaiting response.		

<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Amber = Open</b>
Balfour Beatty should introduce a process so that staff involved with train movements within the work site have accurate knowledge of train positions.		
<b>Comment</b>		
Balfour Beatty is proposing to take actions in response to this recommendation.		

<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: White = Awaiting Response</b>
Network Rail should modify the Engineering Supervisors Training Manual to accurately reflect the specification within its company standard relating to the requirement on the Engineering Supervisor to give precise and explicit instructions to drivers or a 'competent person'.		
<b>Comment</b>		
Awaiting response.		

<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 1 = Closed</b>
Rail Safety and Standards Board should make a proposal, in accordance with the Railway Group Standards code, to introduce a requirement to modify the modules within the Rule Book relating to the requirement on the Engineering Supervisor so as to require him to give precise and explicit instructions to the driver or 'competent person' as shown in the Network Rail company standard NR/SP/CTM/021.		
<b>Comment</b>		
RSSB has made a proposal in response to this recommendation. ORR has closed the recommendation.		

<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 1 = Closed</b>
Network Rail in conjunction with Rail Safety and Standards Board should make a proposal, in accordance with the Railway Group Standards code, to define the competence and limitations of the role of a 'competent person' authorised by the Engineering Supervisor, so that this role can only pass on the instruction to the driver given by the Engineering Supervisor on the movement of trains within a work site but cannot guide or manage such movements.		
<b>Comment</b>		
Network Rail and RSSB have taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 158 DMU	Wraysholme AOCL	12:45	3 November 2008	Level crossing fatality
<b>RAIB Report No:</b>	26/2009	<b>Published:</b>	7 October 2009	

<b>Summary</b>	
At 12:30 hrs on Monday 3 November 2008, the 09:27 hrs service from Carlisle to Lancaster struck a car on Wraysholme level crossing, Flookburgh, Cumbria. The car driver was fatally injured.	
<b>Recommendations</b>	<b>Five recommendations are made</b>

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: White = Awaiting Response</b>
The intention of this recommendation is to ensure that road users are able to discern the aspects of road traffic signals that protect automatic level crossings in all foreseeable conditions. Network Rail should: <ul style="list-style-type: none"> <li>a. revise its method of automatic level crossing inspection and assessment so that it identifies road traffic signals that are difficult to discern because of the effect of sunlight, lamp unit performance and alignment; and</li> <li>b. draw up and implement a programme to improve the identified crossings, with those presenting the highest risk improved ahead of those of lower risk.</li> </ul>		
<b>Comment</b>		
Awaiting response.		

## 1

## National Network(s)

RECOMMENDATION	2	Status: White = Awaiting Response
<p><i>The intention of this recommendation is to ensure that Network Rail complies with industry standards, recommendations and its own processes and procedures for level crossing inspection and assessment, so far as is reasonably practicable.</i></p> <p>Network Rail should review and revise its management systems to confirm that it carries out its level crossing inspections and assessments correctly and completely. It should pay particular attention to making certain that it:</p> <ol style="list-style-type: none"> <li>issues its staff with the appropriate versions of the standards, documents and procedures they require;</li> <li>upgrades crossings when required to do so, and considers upgrade or closure when the opportunity arises;</li> <li>identifies high risk crossings where the required site visits have not taken place;</li> <li>carries out the site visits arising from 2(c) to identify and assess measures to reduce risk; and</li> <li>implements those measures that are approved, improving the crossings presenting the highest risk ahead of those of lower risk.</li> </ol>		
<b>Comment</b>		
Awaiting response.		
RECOMMENDATION	3	Status: White = Awaiting Response
<p><i>The intention of this recommendation is to provide clear instruction to road users that they should continue normally over Wraysholme crossing, and only stop when the road traffic signals show.</i></p> <p>Cumbria County Council should have the 'STOP' road markings entirely removed from the road surfaces adjacent to the crossing's north and south approaches.</p>		
<b>Comment</b>		
Awaiting response.		
RECOMMENDATION	4	Status: White = Awaiting Response
<p><i>The intention of this recommendation is to ensure that northbound road users of Wraysholme crossing are made aware of the approach of another train in all foreseeable conditions.</i></p> <p>Network Rail should replace the south facing 'ANOTHER TRAIN COMING' signal at Wraysholme crossing with an improved signal or other method that is discernible by users in all foreseeable conditions.</p>		
<b>Comment</b>		
Awaiting response.		
RECOMMENDATION	5	Status: White = Awaiting Response
<p><i>The intention of this recommendation is to ensure that train speed is appropriate for foreseeable road vehicle use at automatic open locally monitored level crossings.</i></p> <p>The Office of Rail Regulation should revise its guidance on automatic open locally monitored level crossings to:</p> <ol style="list-style-type: none"> <li>recognise that local and seasonal events may result in temporarily increased road vehicle use; and</li> <li>advise on how any such increased road vehicle use should be considered when calculating maximum train speed.</li> </ol>		
<b>Comment</b>		
Awaiting response.		

Equipment Type	Place	Time	Date	Incident
National Network(s): On-track plant / machinery	RRV class investigation	05:43	23 May 2008	Runaway incident
<b>RAIB Report No:</b>	27/2009	<b>Published:</b>		29 October 2009

**Summary**

An investigation carried out by the Rail Accident Investigation Branch (RAIB) into runaways and collisions involving road-rail vehicles (RRVs) and trailers that couple to them. The RAIB was concerned by the number of these events occurring on the main line railway operated by Network Rail and therefore decided to carry out this class investigation.

**Recommendations**

Three recommendations are made

**RECOMMENDATION**

1

Status: White = Awaiting Response

*The intention of this recommendation is that Network Rail should manage the specification, design, operation and maintenance of RRVs acquired after the issue of this report using a systems engineering process, incorporating formal safety analysis methods.*

Network Rail should implement a process that manages the specification, design, operation and maintenance of RRVs on its network throughout their system lifecycle. The process should include the following elements:

- a) a high level requirements specification of the task;
- b) a safety requirement specification, including the application of safety analysis techniques such as Hazops, FMEA and FTA;
- c) specifications relating to the plant, the relevant personnel and the applicable procedures;
- d) RRV configuration management systems;
- e) verification and validation requirements;
- f) site inspections and audits of the arrangements; and
- g) a change control process.

**Comment**

Awaiting response.

## 1

## National Network(s)

RECOMMENDATION	2	Status: Amber = Open
<p><i>The intention of this recommendation is that Network Rail should carry out a structured assessment of the safety of operation of existing RRVs and trailers with the objective of reducing the risk of runaways and collisions arising from their operation. The assessment should take account of identified factors arising from the RAIB's analysis of previous runaway events.</i></p> <p>Network Rail should assess the operation of existing RRVs and trailers to satisfy itself, on the basis of a process of structured safety analysis, that there are adequate technical and operational controls to prevent RRVs running away.</p> <p>The assessment should take account of the factors listed below and consider the reliability of the primary controls identified. It should identify any realistically possible failures of the primary controls, and where these are identified, what emergency control measures (which may be implemented through operator training) should be put in place.</p> <p>Network Rail should amend their processes as appropriate to implement any improved controls identified. The factors for consideration should include:</p> <ul style="list-style-type: none"> <li>a) the use of trailers that are not fitted with service brakes (paragraph 203);</li> <li>b) for each type of RRV, a specific procedure covering the method of on- and off-tracking (paragraph 205);</li> <li>c) the operation of RRVs without braked rail wheels (paragraph 206);</li> <li>d) the operation of RRVs which rely on an interface between rubber and steel for traction and braking giving rise to extended and unknown braking distances in wet/contaminated conditions and on gradients (paragraph 208);</li> <li>e) the content of operator and machine controller training courses as they relate to: <ul style="list-style-type: none"> <li>• driving on wet and/or contaminated railway lines;</li> <li>• the use of the emergency stop button;</li> <li>• the awareness of any gradient hazard and its effect on machine operation;</li> <li>• the recovery from runaway events; and</li> <li>• the measures required to ensure that travel movements are carried out safely (paragraphs 209, 210, 214 and 215).</li> </ul> </li> <li>f) the adequacy of maintenance documentation in relation to the maintenance of the rubber and steel interface, including tyre condition, tyre pressure and the correct adjustment of the rail gear (paragraph 213);</li> <li>g) whether brake lights would reduce the likelihood of collision when RRVs undertake multiple transits in a work site (paragraph 216);</li> <li>h) the location of RRAPs, the arrangements for possessions and work sites and their effect on RRV travel distances (paragraph 217);</li> <li>i) the adequacy and the practicality of the system of pre-use checks of RRVs and trailers (paragraph 218);</li> <li>j) the adequacy of planning processes which should assess the risk of RRV operation on wet and/or contaminated rails, as well as gradients, and include specifically notifying its contractors and suppliers of the possible effect on machine operation and the specific mitigation measures that may be required (paragraph 219);</li> <li>k) the briefing of machine controllers so that they can brief operators about the gradients that RRVs will be working on, the likely effect on machine operation and any required mitigation measures (paragraph 220); and</li> <li>l) the absence of signage at RRAPs and inclusion of information in the sectional appendix stating the gradient of the railway (paragraph 221).</li> </ul>		
<p><b>Comment</b></p> <p>Network Rail has reported taking some actions in response to this recommendation. A more general response is awaited (related to training and competence).</p>		



<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: White = Awaiting Response</b>
<p><i>The intention of this recommendation is that Network Rail should reduce the amount of under-reporting of accidents and incidents involving RRVs and their trailers.</i></p> <p>Network Rail should review the system of reporting accidents and incidents involving RRVs and trailers, and make any changes that would reduce the amount of under-reporting.</p>		
<b>Comment</b>		
Awaiting response.		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 59 Locomotive	East Somerset Junction	02:40	10 November 2008	Freight train derailment
<b>RAIB Report No:</b>	28/2009	<b>Published:</b>	10 November 2009	

<b>Summary</b>
At approximately 02:40 hrs on Monday 10 November 2008, the two locomotives hauling train 7A91, the delayed 22:31 hrs (Sunday) service from Merehead Quarry to Acton Yard, derailed on trap points at East Somerset Junction. Nobody was injured in the accident. The derailment caused damage to the track in the vicinity of the points. The position of the two locomotives made re-railing them difficult and it was not accomplished until 06:12 hrs on Tuesday 11 November 2008. The Merehead branch was reopened at 12:40 hrs the same day.
<b>Recommendations</b>
<b>Eleven recommendations are made</b>

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: White = Awaiting Response</b>
<p><i>The purpose of this recommendation is for Network Rail to introduce a 'self-checking' procedure for staff working on their own, to be used when they are required to implement procedures to deal with specified types of equipment failure.</i></p> <p>Network Rail should consider how signallers working on their own can affirm that they have taken the correct actions when implementing procedures to cope with equipment failures that result in a degraded level of safety, and issue requirements to the routes on this subject. The guidance should identify whether there are any circumstances under which it will be mandatory for signallers to obtain verification of their actions by a second competent person, taking into account risk associated with speeds, frequency of movements and traffic type and include consideration of human factors.</p>		
<b>Comment</b>		
Awaiting response		

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: White = Awaiting Response</b>
<p><i>The purpose of this recommendation is for Network Rail to improve the current rostering arrangements for signallers at Westbury by reducing or eliminating twelve-hour night shifts.</i></p> <p>Network Rail, Western Route should review the current roster pattern at Westbury Power Signal Box to reduce the duration of, or eliminate, twelve-hour night shifts and make changes to the roster as appropriate.</p>		
<b>Comment</b>		
Awaiting response		

## 1

## National Network(s)

RECOMMENDATION	3	Status: White = Awaiting Response
<p><i>The purpose of this recommendation is for Network Rail to extend the use of the Fatigue and Risk Index or apply other suitable assessment tools to proposed or amended rosters for signallers and other safety-critical staff.</i></p> <p>Network Rail should develop criteria to determine the circumstances under which proposed or amended rosters to be worked by signallers and other safety-critical staff should be evaluated using the Fatigue and Risk Index or other suitable assessment tools (with the aim of ensuring that defined thresholds are not exceeded) and provide guidance to the routes on this subject.</p>		
<b>Comment</b>		
Awaiting response		

RECOMMENDATION	4	Status: White = Awaiting Response
<p><i>The purpose of this recommendation is for Network Rail to enhance company standard NR/SP/ERG/003 by widening its focus to incorporate an extended set of limits on working time.</i></p> <p>Network Rail should amend its company standard NR/SP/ERG/003 to include an extended set of limits on working time for safety-critical staff, considering the scope and range of parameters applied to air traffic controllers, the guidance contained in the ROGS regulations, use of both the fatigue and risk elements of the Fatigue and Risk Index and advice from their human factors department.</p>		
<b>Comment</b>		
Awaiting response		

RECOMMENDATION	5	Status: White = Awaiting Response
<p><i>The purpose of this recommendation is for ORR to ensure that Network Rail is making timely and adequate progress in implementing Recommendation 4 and to take suitable action if they are not satisfied.</i></p> <p>The ORR should agree with Network Rail appropriate timescales for the implementation of Recommendation 4 and devise a programme of intervention to ensure that Network Rail develops and implements adequate measures, as described in Recommendation 4, to address the risk arising from fatigue within those timescales. If the ORR is not satisfied that Network Rail's proposals to change standard NR/SP/ERG/003 address the risk, or consider that insufficient progress is being made, the ORR should consider devising and implementing its own set of working time limits to be applied to Network Rail's safety-critical staff.</p>		
<b>Comment</b>		
Awaiting response		

RECOMMENDATION	6	Status: White = Awaiting Response
<p><i>The purpose of this recommendation is for Network Rail to ensure that there is adequate human factors' input to decisions taken at Recommendations Review Panels.</i></p> <p>Network Rail should include on its Recommendations Review Panels a representative from the human factors department with full membership status.</p>		
<b>Comment</b>		
Awaiting response		

RECOMMENDATION	7	Status: White = Awaiting Response
<p><i>The purpose of this recommendation is for Network Rail to improve its processes for monitoring causes of previous accidents and incidents and for reviewing the effectiveness of recommendations previously made.</i></p> <p>Network Rail should develop and implement a monitoring system that will enable its Recommendations Review Panels to identify recurring causes in all investigations into accidents and incidents on, or relevant to, its network and to enable them to identify whether previous responses to relevant recommendations have been effective.</p>		
<b>Comment</b>		
Awaiting response		

<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: White = Awaiting Response</b>
<p><i>The purpose of this recommendation is for Network Rail, Western Route to make greater use of simulators to help signallers to maintain their competence.</i></p> <p>Network Rail, Western Route should arrange for signallers to practise a range of infrequently encountered situations (such as the introduction of pilot working) on a simulator at regular intervals within the three-year competence cycle.</p>		
<b>Comment</b>		
Awaiting response		
<b>RECOMMENDATION</b>	<b>9</b>	<b>Status: White = Awaiting Response</b>
<p><i>The purpose of this recommendation is for Network Rail to make greater use of simulation techniques to help controllers maintain their competence in responding to emergency incidents.</i></p> <p>Network Rail should introduce simulated emergency exercises for all controllers who have not experienced handling NRN emergency messages during the three-year competence cycle.</p>		
<b>Comment</b>		
Awaiting response		
<b>RECOMMENDATION</b>	<b>10</b>	<b>Status: White = Awaiting Response</b>
<p><i>The purpose of this recommendation is for Network Rail to enhance its standards, training and reference material for controllers to assist them when they are notified of an accident.</i></p> <p>Network Rail should amend company standard NR/L3/OCS/043/2.1 to identify key information to be gathered by controllers when receiving an NRN emergency call, or when they are advised of an accident having made a NRN emergency call, and ensure that training and reference material for controllers encompasses this change.</p>		
<b>Comment</b>		
Awaiting response		
<b>RECOMMENDATION</b>	<b>11</b>	<b>Status: White = Awaiting Response</b>
<p><i>The purpose of this recommendation is to provide Network Rail managers with greater clarity over the circumstances under which it is necessary to arrange relief for signallers who have been involved in an accident or incident.</i></p> <p>Network Rail should enhance guidance contained in Procedure 2-05 of the Operations Manual to define the factors that should be taken into account when deciding whether a signaller who has been involved in a serious accident should be allowed to remain on duty. This guidance should include reference to volume of train movement expected, consideration of whether the signaller is working on his/her own and the maximum time that they can be permitted to continue working.</p>		
<b>Comment</b>		
Awaiting response		

## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 165 DMU	Kennington Junction	21:49	23 May 2008	Staff hit by train (Injury / near miss)
<b>RAIB Report No:</b>	29/2009	<b>Published:</b>		12 November 2009

**Summary**

At 21:47 hrs on 23 May 2008, a passenger train travelling from Paddington to Oxford struck and seriously injured a signalling technician who was working on a set of points at Kennington Junction, Oxfordshire. As a result of the injuries received, the technician later had one leg amputated. There was no damage to the train or railway infrastructure.

**Recommendations**

Three recommendations are made

**RECOMMENDATION**

**1**

**Status: White = Awaiting Response**

*The intention of this recommendation is to develop and adopt suitable work methods to protect people from being struck by trains and which do not affect the safety of trains.*

Network Rail should investigate the development and subsequent adoption of practical alternative working methods that will provide protection of staff when undertaking regular specific maintenance activities such as work on switches and crossings, and that will provide for the safety of trains. If practicable it should introduce these alternative working methods.

**Comment**

Awaiting response

**RECOMMENDATION**

**2**

**Status: White = Awaiting Response**

*The intention of this recommendation is to enable staff undertaking a specific maintenance activity to be clear about whether a particular form of protection that they wish to use provides for the safety of staff and trains. In particular it addresses the need to promote a better understanding of when T2 and T12 protection may be used and the restrictions imposed by the Rule Book and Network Rail instructions. It should encompass all forms of protection and regular maintenance activities including facing point lock tests and should clarify any issues relating to the 'safety of the track' and the 'safety of trains'.*

Network Rail should introduce a system whereby staff undertaking a specific maintenance activity can obtain clear guidance that a particular form of protection is suitable and provides for the safety of staff and trains. It should include clear guidance on when T2 and T12 protection may and may not be used and their applicability to specific types of work which may affect the 'safety of the track' and the 'safety of trains'.

**Comment**

Awaiting response

**RECOMMENDATION**

**3**

**Status: White = Awaiting Response**

*The intention of this recommendation is to avoid doubt for those applying the requirements of the Rule Book.*

Network Rail, in conjunction with the RSSB, should clearly define, as a minimum, what is meant by:

- 'affect the safety of the line';
- 'affect the safety of trains';
- 'affect the safety of train working'; and
- 'affect the normal passage of trains'.

**Comment**

Awaiting response

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 313 25kv EMU	Dalston Junction	13:05	30 March 2009	Staff hit by train (Injury / near miss)
<b>RAIB Report No:</b>	30/2009	<b>Published:</b>		19 November 2009

**Summary**

At 12:43 hrs on 30 March 2009 a passenger train from Richmond to Stratford, travelling at about 15 mph (25 km/h), struck a railway worker on the track at Dalston Junction, north London. The worker's role was to look out for approaching trains, and warn the rest of the group that he was working with. The track worker was struck on the head and thrown to the ground. He was taken to hospital, but was not seriously injured and has since made a full recovery.

<b>Recommendations</b>	Three recommendations are made
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**RECOMMENDATION****1****Status: White = Awaiting Response**

Carillion Construction Ltd, through its Carillion Rail business unit, should review its processes for mobilisation of projects following contract award, so that these processes include arrangements for staff to become familiar with the areas in which they will work, and the provision of suitable and sufficient resources to facilitate this.

**Comment**

Awaiting response

**RECOMMENDATION****2****Status: White = Awaiting Response**

Carillion Construction Ltd, through its SkyBlue Rail business unit, should revise its operating procedures to include processes to enable people supplied to work in safety critical roles to be familiar with the locations where they are to work, either by previous experience or, where this is not the case, with familiarisation by an appropriate means provided by the client.

**Comment**

Awaiting response

**RECOMMENDATION****3****Status: White = Awaiting Response**

Carillion Construction Ltd, through its Carillion Rail business unit, should review its safety management policies and procedures relevant to the protection of people on or near the line that are used in the North London Railway Infrastructure Project and revise them where necessary, so that they are complete and coherent and describe a safety management system that is suitable and effective for the protection of the people who are working on or affected by the project.

**Comment**

Awaiting response

## 1

## National Network(s)

Equipment Type	Place	Time	Date	Incident
National Network(s): 28 curtain-sided containers	Eden Valley Loop	16:15	4 July 2009	Train door incidents
<b>RAIB Report No:</b>	31/2009	<b>Published:</b>		19 November 2009

**Summary**

On 4 July 2009 train 4M16 was travelling from Scotland to Daventry, when two freight container doors came open, probably as a result of criminal action. They struck three passenger trains on the West Coast Main Line, a TransPennine Express class 185 at 16:02 hrs as train 4M16 passed through Penrith station, a Virgin trains class 390 Pendolino at 16:18 hrs and a Virgin Trains class 221 Super Voyager at 16:27 hrs, both while train 4M16 was stationary at Eden Valley loop. There were no casualties as a result of the collisions; however the container doors and the passenger trains were all damaged.

**Recommendations** Three recommendations are made

**RECOMMENDATION****1****Status: White = Awaiting Response**

*The intention of this recommendation is to reduce the risk of container doors being opened by criminal attack.*  
Direct Rail Services and DB Schenker should review their existing control measures to secure container doors, and consider whether stronger seals, such as heavy-duty security seals, would reduce the risk of doors being vandalised and coming open outside of the loading gauge.

**Comment**

Awaiting response

**RECOMMENDATION****2****Status: White = Awaiting Response**

*The intention of this recommendation is to reduce the risk of open container doors being carried on existing wagons striking trains on adjacent lines, or striking passengers on stations or staff on track.*  
Freight Operating Companies should investigate, and, where reasonably practicable, implement, measures so that open container doors cannot swing outside the loading gauge.

**Comment**

Awaiting response

**RECOMMENDATION****3****Status: White = Awaiting Response**

*The intention of this recommendation is to minimise the risk of open container doors being carried on future wagons striking trains on adjacent lines, or striking passengers on stations or staff on track.*  
Freight Operating Companies should amend their specifications for future builds of container wagons to include measures that prevent open container doors swinging outside the loading gauge.

**Comment**

Awaiting response

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 158 DMU	Bayles and Wylies FPC, Nottingham	18:40	22 November 2008	Level crossing fatalities
<b>RAIB Report No:</b>	32/2009		<b>Published:</b>	19 November 2009

**Summary**

At about 18:38 hrs on 22 November 2008 a train struck and killed a woman and child who were using Bayles and Wylies footpath level crossing.

**Recommendations** Eight recommendations are made

**RECOMMENDATION****1****Status: White = Awaiting Response**

*The purpose of this recommendation is to address the unique risks of Bayles and Wylies crossing.*

Network Rail and Nottingham Express Transit should install signs at the outer extremes of the Bayles and Wylies level crossing, and at the exits from the central refuge, warning pedestrians who are about to cross the lines that trains and trams can approach in either direction at any time on both the railway and the tramway.

**Comment**

Awaiting response

**RECOMMENDATION****2****Status: White = Awaiting Response**

*The purpose of this recommendation is to improve the safety of Bayles and Wylies crossing by adjusting the illumination to optimise:*

- *the visibility of the crossing deck for pedestrians, including discerning the edges of the crossing surface;*
- *the visibility of pedestrians for train drivers;*
- *the visibility of train headlights for pedestrians; and*
- *the minimisation of dazzle in the vision of train drivers.*

Network Rail and Nottinghamshire County Council should jointly assess the lighting of Bayles and Wylies level crossing, and if necessary alter it so that it is adequate for pedestrians to clearly see where they are walking when crossing the line.

**Comment**

Awaiting response

**RECOMMENDATION****3****Status: White = Awaiting Response**

*The purpose of this recommendation is to reduce the unique risks of Bayles and Wylies crossing to as low as reasonably practicable.*

Network Rail, together with NET, should re-assess Bayles and Wylies crossing and establish if the installation of additional protective measures, such as a miniature warning light system, are required.

**Comment**

Awaiting response



## 1

## National Network(s)

<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: White = Awaiting Response</b>
<p><i>The purpose of this recommendation is to allow for differing conditions at level crossings in hours of darkness.</i></p> <p>Network Rail should revise their procedures for assessing and inspecting level crossings so that they allow for differing conditions in hours of darkness, allowing for the variable levels of luminous intensity from train night-time headlights, the variable duration of train horns and their sound levels relative to ambient noise and for the period when drivers do not sound their horns.</p>		
<b>Comment</b>		
Awaiting response		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: White = Awaiting Response</b>
<p><i>The purpose of this recommendation is to ensure crossings are reviewed to maintain their risk as low as is reasonably practicable.</i></p> <p>Network Rail should amend their processes to re-assess crossings when circumstances at the location have changed to include instances when lines have, or are planned to be, closed.</p>		
<b>Comment</b>		
Awaiting response		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: White = Awaiting Response</b>
<p><i>The purpose of this recommendation is to prevent different sighting distances or other key dimensions being recorded for the same level crossing.</i></p> <p>Network Rail should revise its management processes for inspecting and assessing level crossings to compare previous inspections and assessments, and identify and resolve any substantial variations in the data presented.</p>		
<b>Comment</b>		
Awaiting response		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: White = Awaiting Response</b>
<p><i>The purpose of this recommendation is to establish consistent and adequate levels of luminous intensity from night-time headlights of trains using the Network Rail system.</i></p> <p>The Rail Safety and Standards Board should evaluate the risk from the operation of trains with less luminous intensity from night-time headlights than that required from current railway group standards. If the risk is considered unacceptable the RSSB should propose, in accordance with the group standards code, changes to railway group standards to require all trains operating on the Network Rail system to be brought up to, and maintained at, an acceptable standard of luminous intensity within a defined timescale.</p>		
<b>Comment</b>		
Awaiting response		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: White = Awaiting Response</b>
<p><i>The purpose of this recommendation is to apply the lessons of this accident to other similar crossings.</i></p> <p>Nexus and Network Rail should review the pedestrian level crossings at South Drive and Benton Square jointly and apply any relevant learning points from this investigation to them.</p>		
<b>Comment</b>		
Awaiting response		

Equipment Type	Place	Time	Date	Incident
National Network(s): Class 221 DEMU "Super Voyager"	North Rode, between Macclesfield and Congleton	17:59	18 December 2008	Collision with other object
RAIB Report No:	33/2009		Published:	14 December 2009

**Summary**

At 17:58 hrs on 18 December 2008, southbound passenger train reporting number 2K14, the 17:10 hrs service from Manchester Deansgate to Stoke-on-Trent, was running between Macclesfield and Congleton when it struck an unoccupied car that had rolled from a car park down onto the track. The train derailed before braking to a stop.

**Recommendations** Three recommendations are made

**RECOMMENDATION****1****Status: White = Awaiting Response**

*The intention of Recommendation 1 is to reduce the likelihood and consequences of vehicle incursion from North Rode depot onto the railway.*

Network Rail should advise UPS of the arrangements to inform it immediately a road vehicle enters the railway from the depot.

**Comment**

Awaiting response

**RECOMMENDATION****2****Status: White = Awaiting Response**

*The intention of Recommendation 2 is to reduce the likelihood and consequences of vehicle incursion from North Rode depot onto the railway.*

UPS should assess the risk of vehicle incursion from the depot onto the railway and make arrangements so that:

- a) those risks are eliminated or reduced, by placing a barrier at the railway boundary that is sufficient to prevent vehicle incursion onto the track, or other equally effective measures; and
- b) its emergency procedures require its staff to inform Network Rail immediately a road vehicle enters the railway.

**Comment**

Awaiting response

**RECOMMENDATION****3****Status: White = Awaiting Response**

*The intention of Recommendation 3 is to reduce the risk of incursion from private land onto Network Rail infrastructure.*

Network Rail should:

- a) establish a method for assessing their infrastructure to identify the sites where the risk of incursion from private land is highest; and
- b) liaise with private land controllers, the Health and Safety Executive and local authorities to secure the improvement of the identified sites by those responsible for them.

**Comment**

Awaiting response

## 2 Light Rail

### Recommendations made for Light Rail in 2007 and 2008 with a status of open or complete in the 2008 Annual Report

Equipment Type	Place	Time	Date	Incident
Light Rail: Tram 1011	Long Millgate (Manchester Metrolink)	08:03	22 March 2006	Derailment
<b>RAIB Report No:</b>	08/2007	<b>Published:</b>		17 April 2007

#### Summary

At 08:03 hrs on Wednesday 22 March 2006, two wheelsets of tram 1011, operating the 07:42 hrs Bury to Altrincham service on the Manchester Metrolink system, became derailed as the tram was entering the street running section of the network at Long Millgate, near Victoria Station. The derailed wheels remained close to the track, and the tram stopped 44 m from the point of derailment.

**Recommendations** Four recommendations are made

#### RECOMMENDATION

1

Status: Green 1 = Closed

GMPT (Greater Manchester Passenger Transport Executive) should ensure that a standard for Metrolink grooved rail track, including tolerances and limits for wear and gauge, is developed and implemented, and that there is guidance to inspection staff on appropriate levels and types of intervention corresponding to measured values and observations.

#### Comment

GMPT has taken actions in response to this recommendation. The RAIB's investigation into the derailment at St Peter's Square on 29 June 2008 indicated that safety issues remained despite these actions. ORR has closed the recommendation.

#### RECOMMENDATION

2

Status: Green 1 = Closed

GMPT should ensure that the risk of transitions between flat-bottomed and grooved rail on curves on the system is assessed, and that they are repositioned on to straight track where this is warranted and it is reasonably practicable to do so.

#### Comment

A detailed assessment has been carried out in response to this recommendation. ORR has closed the recommendation.

#### RECOMMENDATION

3

Status: Green 2 = Complete

The infrastructure maintainer of Manchester Metrolink and GMPT should jointly introduce a system for initiating, planning and implementing track renewals on the Metrolink system.

#### Comment

GMPT / Manchester Metrolink have reviewed renewal requirements and undertaken works in the city centre. The RAIB's investigation into the derailment at St Peter's Square on 29 June 2008 indicated that safety issues remained despite these actions. ORR is considering whether to close the recommendation.

#### RECOMMENDATION

4

Status: Green 1 = Closed

GMPT should ensure that the infrastructure design change and quality control procedures for the Metrolink system are reviewed, to ensure the proper control of alterations made to the infrastructure during maintenance.

#### Comment

GMPT / Manchester Metrolink has accepted the recommendation, and is carrying it out. ORR has closed the recommendation.

Equipment Type	Place	Time	Date	Incident
Light Rail: Tram 611	Starr Gate (Blackpool Tramway)	12:00	30 May 2006	Derailment
<b>RAIB Report No:</b>	15/2007	<b>Published:</b>	29 May 2007	

**Summary**

At 12:00 hrs on 30 May 2006, tram 611 was traversing the curve on the loop at Starr Gate when it became derailed. Tram 611 was a prototype design and was undertaking a series of test runs. It was a two car articulated vehicle and had a running gear arrangement under the connecting central articulation module which included an independent rotating wheel design. Independently rotating wheels have been used on trams in service on other tramways; however, the type of running gear used on tram 611 was significantly different to that used on other trams operating in Blackpool. The derailment occurred at low speed and involved only the pair of wheels under the articulation module. They derailed to the centre of the curve. There were no injuries or significant damage.

**Recommendations** Two recommendations are made

**RECOMMENDATION****2****Status: Green 1 = Closed**

Blackpool Borough Council should take measures to control the pattern of wear on the rail gauge face throughout the Blackpool Tramway. This should include the definition of quantitative limits and guidance for the management of rail sidewear in the relevant track maintenance procedures and documentation.

**Comment**

Blackpool Transport Services has taken actions in response to this recommendation.  
ORR has closed the recommendation.

Equipment Type	Place	Time	Date	Incident
Light Rail: Tram 06	Birmingham Snow Hill (Midland Metro)	14:25	29 January 2007	Derailment
<b>RAIB Report No:</b>	38/2007	<b>Published:</b>	24 October 2007	

**Summary**

At 14:25 hrs on Monday 29 January 2007, the centre bogie of tram 06 became derailed at the switch and crossing (S&C) on the approach to Birmingham Snow Hill terminus. Tram 06 was operating the 13:50 hrs service from Wolverhampton to Birmingham at the time of the derailment.

**Recommendations** Four recommendations are made

**RECOMMENDATION****1****Status: Green 1 = Closed**

Travel Midland Metro (TMM) should either employ or provide from elsewhere, personnel competent to specify and approve the inspection, maintenance and repair of switches and crossings.

**Comment**

TMM has taken actions to implement this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****2****Status: Green 1 = Closed**

TMM should develop or adopt and implement standards and procedures for effective switch and crossing inspection, maintenance and repair.

**Comment**

TMM has taken actions in response to this recommendation.  
ORR has closed the recommendation.

## 2 Light Rail

RECOMMENDATION	4	Status: Green 1 = Closed
TMM should verify, by monitoring and auditing, that switch and crossing inspection, maintenance and repair is carried out by them or on their behalf to a standard that achieves safe operation.		
<b>Comment</b>		
TMM has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
Light Rail: Tram 611	Blackpool (Blackpool Tramway)	16:15	24 January 2007	Fire on prototype tram
<b>RAIB Report No:</b>	41/2007	<b>Published:</b>	27 November 2007	

Summary	
On 24 January 2007 at approximately 16:15 hrs, tram 611, a prototype City Class tram, was stationary near Foxhall Square in Blackpool when a fire occurred inside the vehicle near the front (B end) driving position. There were no casualties.	
<b>Recommendations</b>	<b>Two recommendations are made</b>

RECOMMENDATION	1	Status: Green 1 = Closed
Blackpool Transport Services (BTS) should develop vehicle acceptance procedures and integrate these into the "management of change" procedure within the Safety Management System.		
<b>Comment</b>		
BTS has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	2	Status: Amber = Open
Trampower Ltd should carry out an appropriate risk assessment relating to the design, construction and operation of the vehicle with reference to Regulation 3 of the Management of Health and Safety at Work Regulations. Part of this assessment should consider whether components and systems are appropriately constructed and installed in a way that is fit for their intended use. This risk assessment, and related currently-applicable technical documentation, should be provided to the operators of any network where the vehicle is used.		
<b>Comment</b>		
Trampower Ltd has taken actions in response to this recommendation. ORR is considering whether to close the recommendation		

Equipment Type	Place	Time	Date	Incident
Light Rail: T68 Tram	Pomona Station (Manchester Metrolink)	17:14	17 January 2007	Passenger train derailment
<b>RAIB Report No:</b>	09/2008	<b>Published:</b>	24 April 2008	

**Summary**

At 17:14 hrs on Wednesday 17 January 2007 tram 1005, forming the 16:35 hrs service from Eccles to Piccadilly, was approaching Pomona station. The station and its approach tracks are situated on a viaduct and the approach to the station from the Eccles direction involves a 90 degree left-hand curve of 40 m radius. As the tram was negotiating this curve the left-hand leading wheel of the first bogie derailed by dropping into the four-foot. The speed of the tram at the time of derailment was 6.3 mph (10 km/h).

**Recommendations** Five recommendations are made

**RECOMMENDATION****1****Status: Green 1 = Closed**

Greater Manchester Passenger Transport Executive (GMPTE) should put in place procedures to enable them to review the audits carried out by their operating contractor, to satisfy themselves that their contractor's internal audit regime and safety management system are being complied with.

**Comment**

GMPTE has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****2****Status: Green 1 = Closed**

GMPTE should review, and if found necessary amend, their contractual arrangements for the Metrolink operation to ensure that essential repairs cannot be deferred for contractual reasons.

**Comment**

GMPTE has taken actions in response to this recommendation. The subsequent derailment at St Peter's Square on 29 June 2008 indicates that there are still safety concerns related to the management of track assets.  
ORR has closed the recommendation.

**RECOMMENDATION****3****Status: Green 1 = Closed**

Stagecoach Metrolink should review, and if necessary amend, their Safety Management System so as to require formal approval by a professional head of any derogation to a safety critical standard.

**Comment**

Stagecoach Metrolink has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****4****Status: Green 1 = Closed**

GMPTE, jointly with Stagecoach Metrolink, should investigate alternative locations for the safety equipment in Metrolink trams such that it is more accessible when the tram is fully loaded. If it is reasonably practicable, the emergency equipment should be relocated.

**Comment**

An investigation has been carried out in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****5****Status: Green 1 = Closed**

GMPTE, jointly with Stagecoach Metrolink, should investigate, and if reasonably practicable implement, changes to the door operating system to allow the driver to open the front set of doors on either side of the tram.

**Comment**

An investigation has been carried out in response to this recommendation.  
ORR has closed the recommendation.

## 2 Light Rail

### Recommendations made for Light Rail in reports published in 2009

Equipment Type	Place	Time	Date	Incident
Light Rail: CR 4000 Tram	Morden Hall Park footpath crossing (London Tramlink)	14:37	13 September 2008	Level crossing fatality
<b>RAIB Report No:</b>	06/2009		<b>Published:</b>	12 March 2009

#### Summary

At 14:37 hrs on Saturday 13 September 2008, a tram travelling from Wimbledon to New Addington on the London Tramlink system collided with a cyclist at Morden Hall Park footpath crossing, between Morden Road and Phipps Bridge tram stops. The tram was travelling at about 62 km/h (39 mph) at the moment that it struck the cyclist. The cyclist crossed from right to left in front of the tram, and the nearside of the front of the tram struck the rear wheel of the bicycle. The cyclist was thrown to the ground and sustained injuries from which he later died.

**Recommendations** One recommendation is made

#### RECOMMENDATION

1

**Status: Green 1 = Closed**

Tramtrack Croydon Ltd (trading as London Tramlink) should, following its assessment of the risks at footpath crossings on its system, and where it is appropriate and practicable to do so, modify the crossings so that users are influenced to look both ways before crossing, and cyclists are encouraged to slow down sufficiently (by means such as the provision of barriers, signs and/or markings), to give them time to become aware of approaching trams.

#### Comment

Tramtrack Croydon Ltd has taken actions in response to this recommendation.  
ORR has closed the recommendation.

Equipment Type	Place	Time	Date	Incident
Light Rail: T68 Tram	St Peter's Square (Manchester Metrolink)	23:10	29 June 2008	Passenger train derailment
<b>RAIB Report No:</b>	25/2009		<b>Published:</b>	17 September 2009

#### Summary

At 23:10 hrs on 29 June 2008 at St Peter's Square, a Manchester Metrolink tram derailed in Manchester City Centre. The tram, forming the trailing half of a double unit, had just left St Peter's Square stop and was travelling along Mosley Street towards Piccadilly Gardens. The middle bogie of the tram derailed to the left-hand side. The derailed tram travelled 90 metres, hit the kerb and came to rest partially mounting the pavement.

**Recommendations** Five recommendations are made

#### RECOMMENDATION

1

**Status: White = Awaiting Response**

Greater Manchester Passenger Transport Executive (GMPTE) should work with Stagecoach Metrolink (SML) to put in place processes to identify, manage and rectify any section of operational track that becomes noncompliant to the agreed standards. It should put in place arrangements to ensure compliance with the processes. The processes should require time bound plans to renew or repair, as appropriate, and implementation of suitable mitigation measures to manage the derailment risk until the track is brought back within the standards

#### Comment

Awaiting response



<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: White = Awaiting Response</b>
<p>GMPTE should review its Metrolink organisational structure, policy and procedures to confirm that they are sufficient for it to exercise its responsibilities under the Health and Safety at Work Act. Its consideration should include the need for an identified head of safety, documentation describing the arrangements for management of safety (including, but not limited to, identification and management of risk, and audit arrangements to confirm implementation and compliance) and provision of sufficient competent resource.</p>		
<b>Comment</b>		
Awaiting response		
<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Green 1 = Closed</b>
<p>SML shall review its arrangements for managing safety when assets are outside of normal maintenance tolerances. If these require implementation of interim measures, for example removal of the keep, the arrangements should require demonstration that the interim measures are practical and will achieve the required risk mitigation. Additionally, the arrangements should require procedures to be developed to cover the activities, taking consideration of the associated risks. SML should implement any changes identified as necessary.</p>		
<b>Comment</b>		
<p>SML has taken actions in response to this recommendation.            ORR has closed the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 1 = Closed</b>
<p>SML should carry out a review to check whether its Safety Management System (SMS) is suitable and sufficient to manage the risks from its operations and make any necessary changes. Following this, it should ensure that all staff are aware of the SMS arrangements that apply to them, and that the arrangements are complied with.</p>		
<b>Comment</b>		
<p>SML has taken actions in response to this recommendation.            ORR has closed the recommendation.</p>		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Amber = Open</b>
<p>The ORR should review its processes, in light of the findings of this investigation, to satisfy itself that there is sufficient guidance as to the circumstances under which its inspectors should verify the implementation of, and compliance with, a duty holder's submissions.</p>		
<b>Comment</b>		
Under consideration by ORR.		

# 3 Metro

## Recommendations made for Metro in 2007 and 2008 with a status of open or complete in the 2008 Annual Report

Equipment Type	Place	Time	Date	Incident
Metro: Manually-propelled track trolley	Notting Hill Gate (LUL)	01:40	24 May 2006	Runaway incident
<b>RAIB Report No:</b>	12/2007		<b>Published:</b>	2 May 2007

### Summary

At 01:40 hrs on 24 May 2006, a manually propelled track trolley being used in connection with engineering works on the Circle Line of London Underground ran away down a gradient of 1 in 70 and collided with a stationary trolley of a similar type. A warning had been given and all staff were clear of the line. There were no injuries.

**Recommendations**      **Nine recommendations are made**

### RECOMMENDATION

**1**

**Status: Green 1 = Closed**

London Underground Ltd (LUL) should amend site management procedures to record the satisfactory completion of pre-use brake checks. This should consider predelivery and on-site physical inspections recognising that the current tests are only partially effective.

### Comment

LUL has taken actions in response to this recommendation.  
ORR has closed the recommendation.

### RECOMMENDATION

**4**

**Status: Green 1 = Closed**

LUL and Network Rail should conduct studies into trolley design with an objective of improving the ergonomic issues connected with propelling and braking hand trolleys.

### Comment

LUL and Network Rail have taken actions in response to this recommendation.  
ORR has closed the recommendation.

### RECOMMENDATION

**6**

**Status: Green 1 = Closed**

LUL should ensure that the training of Track Trolley Operators includes the provision of appropriate reference material to carry on site.

### Comment

LUL has taken actions in response to this recommendation.  
ORR has closed the recommendation.

### RECOMMENDATION

**7**

**Status: Green 1 = Closed**

LUL should revise the Site Person in Charge training and reference material to ensure that the SPIC's (Site Person in Charge) responsibilities for accident and incident reporting to LUL are defined.

### Comment

LUL has taken actions in response to this recommendation.  
ORR has closed the recommendation.

<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 1 = Closed</b>
LUL, Metronet and Tubelines, if applicable, should ensure that all contracts and subcontracts for work on the national railway network are aligned in respect of legal accident and incident reporting requirements.		
<b>Comment</b>		
LUL has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
Metro: District Line train 73	High Street Kensington (LUL)	23:09	29 April 2006	Unauthorised train movement
<b>RAIB Report No:</b>	19/2007	<b>Published:</b>	21 June 2007	

<b>Summary</b>	
At 23:09 hrs on 29 April, District Line train 73 left Earls Court with approximately 150 passengers on board en route for High Street Kensington. On the approach to High Street Kensington the Train Operator realised that the wrong route had been set and stopped the train. A wrong direction move (WDM) was authorised to reverse the train a short distance so that the route could be reset. After considerable delay, when the train reversed it did not stop at the authorised limit; shortly after it was halted by the discharge of traction current. After several minutes the traction current was recharged; the train was then authorised by the Service Controller to travel to High Street Kensington where it terminated 67 minutes late.	
<b>Recommendations</b>	<b>Fourteen recommendations are made</b>

<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 1 = Closed</b>
LUL should ensure the instructions necessary for undertaking safety critical communications detailed within the new Rule Book are supported by training, familiarisation and a system of regular monitoring to confirm compliance with the instructions.		
<b>Comment</b>		
LUL has taken actions in response to this recommendation. ORR has closed the recommendation.		

<b>RECOMMENDATION</b>	<b>9</b>	<b>Status: Green 1 = Closed</b>
LUL should review the instructions for undertaking WDMs to ensure that it contains no requirements capable of misinterpretation and that the WDM form contains information that will remind staff of key procedures when carrying out the move.		
<b>Comment</b>		
LUL has taken actions in response to this recommendation. ORR has closed the recommendation.		

<b>RECOMMENDATION</b>	<b>13</b>	<b>Status: Green 1 = Closed</b>
LUL should introduce procedures so that serious incidents of radio equipment failure or poor communication links are fully investigated. This should include full functional testing of the equipment involved.		
<b>Comment</b>		
LUL has taken actions in response to this recommendation. ORR has closed the recommendation.		

# 3 Metro

RECOMMENDATION	14	Status: Green 1 = Closed
LUL should review the capability, disciplines and capacity of the Earls Court Control Room for the control of the District Line in times of normal and disrupted operations. The review should include the time necessary for a disciplined application of working procedures.		
<b>Comment</b>		
LUL has taken actions in response to this recommendation. The District Line Control room is to be moved to a new location where it is anticipated that the issues will be addressed. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
Metro: Train 117	Mile End (LUL)	09:02	5 July 2007	Collision with other object
<b>RAIB Report No:</b>	03/2008	<b>Published:</b>	31 January 2008	

Summary
At 09:01 hrs on 5 July 2007 westbound train 117 struck a roll of fire resistant material lying on the track between Mile End and Bethnal Green tube stations on the Central Line of the London Underground Network. In consequence three bogies were derailed. The train operator applied the emergency brake and the train stopped after approximately 148 m (468 ft).
<b>Recommendations</b>
<b>Five recommendations are made</b>

RECOMMENDATION	1	Status: Green 1 = Closed
LUL should amend the requirements on the content of the SPC training to ensure that it contains adequate information on the storage of materials including the effect of wind in cross passages.		
<b>Comment</b>		
LUL has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	2	Status: Green 1 = Closed
Metronet or its successor organisation(s) should ensure that risk assessments related to storage of materials in cross passages are reviewed to ensure that they fully address risks to the operational railway. Where risk assessments that have been mandated or inherited from LUL are found to be deficient then LUL should be made aware of the shortcoming.		
<b>Comment</b>		
LUL and the infracos have taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	3	Status: Green 1 = Closed
LUL should address any advised deficiencies in risk assessments for stored materials which have been mandated or inherited by the Infracos from LUL, consistent with the current contractual responsibilities of LUL and the Infracos.		
<b>Comment</b>		
LUL and the infracos have taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	4	Status: Green 1 = Closed
Metronet or its successor organisation(s) should review and if necessary, amend the instructions on the use of fire-resistant blankets.		
<b>Comment</b>		
Metronet has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	5	Status: Green 1 = Closed
Metronet or its successor organisation(s) should take steps to ensure that appropriate staff, including work planners and SPCs, are made aware of the wind effects that can occur in the deep level tube system.		
<b>Comment</b>		
Metronet has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
Metro: LNOR LUL	Camden Town (LUL)	17:42	10 June 2007	Unauthorised train movement
<b>RAIB Report No:</b>	06/2008	<b>Published:</b>	11 March 2008	

Summary	
<p>On Sunday 10 June 2007 repairs were being carried out to train regulation equipment on the Northern Line of the London Underground (LUL). A service operator, who was unaware of the work being carried out, altered the operating mode of the equipment to an inappropriate, but not unsafe, mode. At approximately 17:35 hrs this caused a northbound train (number 005) destined for Edgware to be wrongly routed towards High Barnet at the Camden Town junctions. This led to an exchange of passengers and train operators between this and the following train (042) while they were standing in the Edgware and High Barnet platforms at Camden Town station. The train operator who went to the train standing in the High Barnet platform (now to be renumbered 042) entered the cab at the south end instead of the north end and drove the train southwards away from Camden Town on the northbound track. After his train entered the tunnel, the train operator of train 042 became aware of a train (043) standing on the track ahead and brought his train to a stand some 108 metres south of the platform headwall and 20 metres away from the approaching train. There were no injuries and no damage to infrastructure or rolling stock.</p>	
<b>Recommendations</b>	<b>Four recommendations are made</b>

RECOMMENDATION	2	Status: Green 1 = Closed
LUL should investigate the possibility of either instructing train operators that when they leave a cab to which another train operator will return imminently and from which the train must be driven, the Traction Brake Controller is not to be placed in the 'stow' position, or the provision of some other method of being assured that they have entered the correct cab.		
<b>Comment</b>		
LUL developed alternative proposals that have been accepted by the safety authority. ORR has closed the recommendation.		

RECOMMENDATION	3	Status: Green 1 = Closed
LUL should introduce a process to ensure service operators are given written notification, and an entry made in the service controller's log book, if a particular mode of operation is required or prohibited during a technical intervention.		
<b>Comment</b>		
LUL has taken actions in response to this recommendation. ORR has closed the recommendation.		

# 3 Metro

RECOMMENDATION	4	Status: Green 1 = Closed
LUL should incorporate a familiarity induction to stations where train operators may be required to change platforms between trains in service into training procedures and ensure that this familiarity is maintained by train operators.		
<b>Comment</b>		
LUL has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
Metro: 1995 Tubestock "Northern Line"	Tooting Broadway (LUL)	14:35	1 November 2007	Train door incidents
<b>RAIB Report No:</b>	17/2008	<b>Published:</b>	28 August 2008	

Summary	
<p>On 1 November 2007, at approximately 14:30 hrs, the hem of a passenger's coat was trapped in the closing doors of a southbound Northern Line train at Tooting Broadway as she left the train. The passenger was not able to release herself from the coat until after the train began to move away. Although she fell to the platform while extracting the coat from the door, the injuries she sustained did not cause her to be detained in hospital. The train was stopped as it left the station following the activation of the PEA by a passenger on the train. On completion of its journey to Morden it was taken out of service for examination.</p>	
<b>Recommendations</b>	<b>One recommendation is made</b>

RECOMMENDATION	1	Status: Green 1 = Closed
<p>London Underground should investigate the reasons for the apparently greater proportion of instances of persons being trapped and dragged by closed doors on the Northern Line when compared with the average for other LUL lines and take any reasonably practicable steps that are identified to reduce the number of incidents. This investigation should include an analysis of the impact of the following factors:</p> <ul style="list-style-type: none"> <li>• passenger flow patterns/densities;</li> <li>• visibility of trains during dispatch;</li> <li>• the interface between train operators, in-cab CCTV and other in-cab equipment during train dispatch;</li> <li>• operating procedures; and</li> <li>• the performance characteristics of train doors.</li> </ul>		
<b>Comment</b>		
<p>London Underground has initiated a review covering the issues raised in the recommendation. ORR has closed the recommendation.</p>		

Equipment Type	Place	Time	Date	Incident
Metro: On-track plant / machinery	St Johns Wood (LUL)	02:40	25 October 2007	Runaway incident
<b>RAIB Report No:</b>	24/2008	<b>Published:</b>	26 November 2008	

**Summary**

At 02:40 hrs on 25 October 2007, an engineering unit (consisting of a motorised electric track trolley carrying four persons and two loaded trailers) failed to slow down at the rate the driver expected. The engineering unit was travelling at approximately 10 mph (16 km/h) from St. John's Wood station towards Baker Street station on the London Underground southbound Jubilee line, which was on a 1 in 39 falling gradient. The engineering unit collided at slow speed with two manual trolleys. During the collision the manual trolleys were pushed back about 0.3 m. There were no injuries.

**Recommendations**      **Fourteen recommendations are made**

**RECOMMENDATION****1****Status: Amber = Open**

Consillia Ltd should undertake a review of the design of the braking system on its MTRL-1 trailers. The purpose of the review shall be:

- to determine sensitivity to the initial set-up, adjustment, lubrication; and subsequent mechanical damage; and
- to identify design modifications to improve the robustness of the design; and to restore reliability in service.

Any necessary improvements identified should be implemented.

**Comment**

Consillia Ltd has taken actions in response to this recommendation.

**RECOMMENDATION****2****Status: Green 1 = Closed**

London Underground Ltd, in consultation with Tube Lines should amend its Track Trolley Operators training to include a pre-work brake test on all wheels of trailers before they are placed on the track and that this is recorded. Once the electric track trolley and trailer(s) have been electrically and mechanically connected, a functional test of the emergency brake should be carried out at that time (this is linked to recommendation 1 in the Notting Hill report, ref: 12/2007).

**Comment**

Tube Lines, on behalf of LUL, has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****3****Status: Green 1 = Closed**

Tube Lines should restrict the operation of the Consillia Ltd MEC-4 electric track trolley and MTRL-1 trailers to a maximum speed of 5 mph (8 km/h) until both recommendations 1 and 2 have been completed.

**Comment**

Tube Lines has taken actions in response to this recommendation.  
ORR has closed the recommendation.



# 3 Metro

<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 1 = Closed</b>
London Underground Ltd, in consultation with Tube Lines, should investigate the safe operation of brakes on all existing types of trolleys when contaminated by grease and review their relevant design, engineering and operational specifications.		
<b>Comment</b>		
Tube Lines, on behalf of LUL, has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 2 = Complete</b>
Consillia Ltd should prepare a maintenance document detailing the maintenance procedures and testing arrangements for MEC-4 electric track trolleys and MTRL-1 trailers and schedules to be carried out by either Consillia Ltd or Tube Lines.		
<b>Comment</b>		
Consillia Ltd has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 1 = Closed</b>
Tube Lines should ensure that: <ul style="list-style-type: none"> <li>• Track Trolley Operators are provided with the appropriate reference material during training; and</li> <li>• Track Trolley Operators are trained to understand the information that they are required to carry on site (including information contained in method statements).</li> </ul>		
<b>Comment</b>		
Tube Lines has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 1 = Closed</b>
Tube Lines should amend its Track Trolleys Operators training to include how pre-work brake tests should be carried out on motorised trolleys and trailers (linked to Recommendations 2 and 6).		
<b>Comment</b>		
Tube Lines has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 1 = Closed</b>
Tube Lines should put in place a process to ensure that gradient data (obtained from either a database or the relevant method statement) is made available to Track Trolley Operators for each site.		
<b>Comment</b>		
Tube Lines has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>9</b>	<b>Status: Green 1 = Closed</b>
Tube Lines should review its process for the preparation of specifications for track plant equipment with the objective of ensuring that safety related performance requirements are correctly defined. Any necessary improvements identified should be implemented.		
<b>Comment</b>		
Tube Lines has undertaken a review in response to this recommendation. ORR has closed the recommendation.		

<b>RECOMMENDATION</b>	<b>10</b>	<b>Status: Amber = Open</b>
Consillia Ltd should review its design validation and testing process against current industry good practice (e.g. Engineering Safety Management: the 'Yellow Book', Issue 4.0). Any necessary improvements identified should be implemented.		
<b>Comment</b>		
Consillia Ltd has not provided evidence of actions taken to date.		
<b>RECOMMENDATION</b>	<b>11</b>	<b>Status: Green 1 = Closed</b>
London Underground Ltd should review the suitability of its process for the acceptance and approvals of trolleys, trailers and other items of on-track plant. Any necessary improvements identified should be implemented.		
<b>Comment</b>		
LUL has undertaken a review of its processes in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>12</b>	<b>Status: Green 1 = Closed</b>
London Underground Ltd, in consultation with all the Infracos, should revise the Site Person in Charge training and reference material to ensure that the Site Person in Charge's responsibilities for accident and incident reporting are defined.		
<b>Comment</b>		
LUL has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>13</b>	<b>Status: Green 1 = Closed</b>
London Underground Ltd, in consultation with Tube Lines, should: <ul style="list-style-type: none"> <li>re-brief all staff (including subcontractors) on their obligations to report accidents and incidents; and</li> <li>issue guidance on the circumstances in which they should do so.</li> </ul>		
<b>Comment</b>		
LUL has taken actions in response to this recommendation (following Recommendation 7 of RAIB report 12/2007). ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>14</b>	<b>Status: Green 1 = Closed</b>
Tube Lines, in consultation with Consillia Ltd, should clearly define the prehire checks that are required to confirm the correct operation of the equipment, the method for doing so and the pass/fail criteria to be applied (linked to the maintenance document to be written in response to recommendation 5).		
<b>Comment</b>		
Tube Lines has undertaken a review in response to this recommendation. ORR has closed the recommendation.		

# 3 Metro

## Recommendations made for Metro in reports published in 2009

Equipment Type	Place	Time	Date	Incident
Metro: 62 DLR unit	Deptford Bridge (Docklands Light Railway)	05:30	4 April 2008	Passenger train derailment
<b>RAIB Report No:</b>	16/2009	<b>Published:</b>		22 June 2009

### Summary

At 05:22 hrs on 4 April 2008, the 05:19 hrs Docklands Light Railway service from Lewisham had just left Deptford Bridge station, travelling towards Greenwich, when it struck a drilling jig that had been left on the track and became derailed. There were no injuries to the 59 persons on board the train.

**Recommendations** Eleven recommendations are made

### RECOMMENDATION

**1**

**Status: Green 1 = Closed**

Docklands Light Railway Ltd should implement arrangements to require that all organisations contracted to work on DLR infrastructure and stations should implement measures to improve the visibility of equipment representing a derailment risk when used at night.

### Comment

Docklands Light Railway Ltd has taken actions in response to this recommendation. ORR has closed the recommendation.

### RECOMMENDATION

**2**

**Status: Green 2 = Complete**

Carillion JM Ltd should clarify the role of the senior PICOW to provide them with guidance on the method, nature and extent of the supervision of PICOWs that they are required to carry out.

### Comment

Carillion JM Ltd has reported taking actions in response to this recommendation. ORR is considering whether to close the recommendation.

### RECOMMENDATION

**3**

**Status: Green 2 = Complete**

Docklands Light Railway Ltd, in consultation with Serco Docklands, should introduce modifications to the control system to remove the need for controllers to manually enter temporary speed restrictions after the rebooting of the system(s) and to simplify the checking of the correct speed restriction data.

### Comment

Docklands Light Railway Ltd has outlined its proposals in response to this recommendation. ORR is considering whether to close the recommendation.

### RECOMMENDATION

**4**

**Status: Green 1 = Closed**

Serco Docklands should review its competency management system and the way in which it is currently delivering training to passenger service agents and control centre controllers. The objective of this review shall be to assess the adequacy of existing arrangements (including resources available for training and the methods of delivery) and to identify ways of improving the overall levels of competence. Serco Docklands should take suitable actions to implement the findings of the review.

### Comment

Serco Docklands has taken actions in response to this recommendation. ORR has closed the recommendation.

<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Amber = Open</b>
Serco Docklands should undertake a review of its management arrangements for the monitoring, audit and review of activities at the level of operational and engineering staff. The findings of this review should be translated into effective corrective actions where appropriate.		
<b>Comment</b>		
Serco Docklands has reported taking actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Amber = Open</b>
Serco Docklands should undertake an in-depth assessment of the adequacy of the current rules and procedures and implement improvements as appropriate. This assessment should encompass:		
<ul style="list-style-type: none"> <li>o the level of compliance with existing rules and procedures;</li> <li>o identification of activities currently being undertaken that are not addressed by existing procedures;</li> <li>o the interface with concessionaires (linked to Recommendation 9); and</li> <li>o management systems to ensure compliance (e.g. audits).</li> </ul>		
<b>Comment</b>		
Serco Docklands has reported initiating a review in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Amber = Open</b>
Serco Docklands should thoroughly and comprehensively identify safety process indicators covering the entire scope of its operation and implement suitable management arrangements covering the collection of data, monitoring and subsequent review. The guidance contained in HSG 254 in relation to leading and lagging performance indicators should be taken into account.		
<b>Comment</b>		
Serco Docklands has accepted this recommendation and has reported taking actions in response to this recommendation.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 1 = Closed</b>
Serco Docklands should review what risks a sweep train is intended to reduce, and in the light of this review should revise the adequacy of the mitigation measures linked to the operation of the first train of the day. This should include an assessment of the appropriateness of a range of possible measures including:		
<ul style="list-style-type: none"> <li>o operation of sweep trains with no passengers;</li> <li>o better lighting around the trackside to enable sighting of obstructions (trainborne and/or trackside); and</li> <li>o reduction of the speed of sweep trains.</li> </ul>		
<b>Comment</b>		
Serco Docklands has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>9</b>	<b>Status: Green 2 = Complete</b>
Carillion JM Ltd should review its process for maintaining method statements as the design and project evolves. The process should include a check that the method statement states the actual tools and plant being used.		
<b>Comment</b>		
Carillion JM Ltd reported taking actions in response to this recommendation. ORR is considering whether to close the recommendation.		

## 3

## Metro

RECOMMENDATION	10	Status: Green 1 = Closed
<p>Docklands Light Railway Ltd should review and amend the current contractual and working arrangements with the objective of ensuring that Serco Docklands and City Greenwich Lewisham Rail plc (and further DLR concessionaires) work to one common rule book and coherent operating procedures.</p>		
<b>Comment</b>		
<p>Docklands Light Railway has considered and carried out the recommendation. ORR has closed the recommendation.</p>		
RECOMMENDATION	11	Status: Amber = Open
<p>Docklands Light Railway Ltd should undertake an assessment of the risk and possible mitigation measures associated with derailments and secondary collisions. This should assess the reasonable practicability of a range of measures including:</p> <ul style="list-style-type: none"> <li>○ additional derailment containment at high risk locations; and</li> <li>○ derailment detection (trainborne and/or trackside).</li> </ul> <p>This assessment should include consideration of the impact of increased train traffic, increased passenger loadings and the operation of more and longer trains.</p>		
<b>Comment</b>		
<p>Docklands Light Railway Ltd reported taking actions in response to this recommendation.</p>		

## Recommendations made for Heritage Rail in reports published in 2006 to 2008 with a status of open or complete in the 2008 Annual Report

Equipment Type	Place	Time	Date	Incident
Heritage: Steam Locomotive 45305	Loughborough Central station (Great Central Railway)	09:50	4 February 2006	Collision with carriages
<b>RAIB Report No:</b>	07/2006		<b>Published:</b>	10 July 2006

### Summary

Steam locomotive 45305 was travelling at slow speed towards Loughborough Central station when it collided with the rearmost of six coupled carriages that were berthed in platform one. Two members of Great Central Railway's staff sustained minor injuries. The locomotive and one carriage were damaged.

**Recommendations** Four recommendations are made

### RECOMMENDATION

**1**

**Status: Green 1 = Closed**

The Great Central Railway should revise its Rule Book and training to require:

- drivers to keep a good look out and not, unless absolutely necessary, operate controls other than those used for driving when proceeding at caution as far as the line is clear, and when staff, members of the public and other rail vehicles may be nearby; and
- firemen to keep a good look out when proceeding at caution as far as the line is clear, and when staff, members of the public and other rail vehicles may be nearby.

### Comment

The Great Central Railway has taken actions in response to this recommendation. ORR has closed the recommendation.

### RECOMMENDATION

**2**

**Status: Green 1 = Closed**

The Great Central Railway should put in place a supervisory system to ensure that members of its staff comply with the requirements of their medical certificates.

### Comment

The Great Central Railway has taken actions in response to this recommendation. ORR has closed the recommendation.

### RECOMMENDATION

**3**

**Status: Green 1 = Closed**

The Great Central Railway should put in place a supervisory system to ensure that its policy on medical certification and recertification is properly applied to all staff.

### Comment

The Great Central Railway has taken actions in response to this recommendation. ORR has closed the recommendation.

### RECOMMENDATION

**4**

**Status: Green 1 = Closed**

The Great Central Railway should ensure that a first-aid kit is provided and its provision clearly indicated in all locomotive driving cabs.

### Comment

The Great Central Railway has taken actions in response to this recommendation. ORR has closed the recommendation.

## 4

## Heritage Rail

Equipment Type	Place	Time	Date	Incident
Heritage: Locomotive 75029	Grosmont (North Yorkshire Moors Railway)	10:10	16 April 2006	Blowback of a locomotive fire
<b>RAIB Report No:</b>	04/2007	<b>Published:</b>		30 January 2007

**Summary**

At around 10:10 hrs on 16 April 2006, locomotive 75029, hauling the 09:45 hrs passenger service from Grosmont to Pickering on the North Yorkshire Moors Railway, suffered a blowback of its fire approximately 1160 metres south of Grosmont station. The blowback filled part of the footplate with flame for between 4 and 10 seconds. The locomotive driver suffered minor burns.

**Recommendations**      **Nine recommendations are made**

**RECOMMENDATION****3****Status: Green 3 = Closed with no actions taken**

Steam Powered Services Limited should have in place procedures to ensure that when defining and agreeing outsourced works to be carried out, the scope of any provision for mechanical inspections is explicitly defined.

**Comment**

Steam Powered Services Limited have confirmed that the failure that occurred in this instance will be covered in future contracts. The company does not know how the recommendation can be more generally applied. ORR has closed the recommendation.

**RECOMMENDATION****8****Status: Green 1 = Closed**

NYMR should use steel smoke box blower feed pipes as recommended by ORR RSPG (Railway Safety Principles and Guidance) or, if copper is to be used, should put in place procedures to ensure that it is maintained in a fully annealed state.

**Comment**

NYMR has taken actions in response to this recommendation. ORR has closed the recommendation.

**RECOMMENDATION****9****Status: Green 2 = Complete**

RSSB should allow the Heritage Rail Association direct access to the NIR (National Incident Register) system, both to raise NIRs and receive them.

**Comment**

RSSB has taken actions to enable access to safety critical information for the heritage sector. ORR is considering whether to close the recommendation.



Equipment Type	Place	Time	Date	Incident
Heritage: Diesel locomotive	Spout House Curve & Millwood Bank (Ravenglass & Eskdale Railway)	13:40 & 10:45	29 May 2006 & 5 July 2006	Passenger Train Derailments
<b>RAIB Report No:</b>	07/2007		<b>Published:</b>	27 March 2007

**Summary**

On 29 May 2006, a diesel locomotive hauled passenger train was travelling from Dalegarth to Ravenglass when the leading bogie of the sixth coach derailed at 13:40 hrs, on the exit from a left-hand curve (known as Spout House Curve) located approximately 5.75 miles (9.2 km) from Ravenglass. The derailment took place at 10-12 mph (16-19 km/h); there were no casualties and no significant damage to either the track or train.

On 5 July 2006 at 10:45 hrs, another diesel locomotive hauled passenger train, travelling from Dalegarth to Ravenglass was passing through Millwood Bank, located approximately 1.5 miles (2.4 km) from Ravenglass, when the leading bogie of the fifth coach derailed while travelling at 15-18 mph (24-29 km/h). The derailed coach, which was different in design from the coach in the first accident, was empty (tare) at the time. There were no casualties and no significant damage to the track or the train.

**Recommendations**      **Eight recommendations are made**

**RECOMMENDATION****1****Status: Green 1 = Closed**

Ravenglass and Eskdale Railway should undertake a full fleet check to ensure that axlebox clearances are adequate to ensure free movement, carry out remedial work where necessary and mandate a requirement in maintenance documentation for periodic checks on these clearances to be made. An assessment should also be made of the safety benefits of introducing lubrication at the axlebox/horn guide interface and, where practicable, identified improvements should be implemented.

**Comment**

Ravenglass & Eskdale Railway has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****3****Status: Amber = Open**

Ravenglass and Eskdale Railway should develop and bring into use, a rolling stock maintenance regime which is based on the assessment of hazards identified from both past experience and analysis of possible future failure modes. This assessment should include consideration of allowable tolerances in track condition. The revised documentation should identify critical dimensional parameters and component conditions to be checked at maintenance.

**Comment**

Ravenglass & Eskdale Railway has reported taking actions in response to this recommendation.

**RECOMMENDATION****5****Status: Green 1 = Closed**

Ravenglass and Eskdale Railway should review the effectiveness of the existing system for reporting track faults, prioritisation of repairs and the use of temporary speed restrictions. Any identified improvements should then be implemented and the system formalised and mandated.

**Comment**

Ravenglass & Eskdale Railway has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****6****Status: Amber = Open**

Ravenglass and Eskdale Railway should establish a system for routine inspection of the track condition and establish track standards such that temporary speed restrictions and/or remedial works are effected as appropriate to mitigate the risk of derailment due to excessive sway.

**Comment**

Ravenglass & Eskdale Railway has reported taking actions in response to this recommendation.

## 4

## Heritage Rail

RECOMMENDATION	8	Status: Green 1 = Closed
Ravenglass and Eskdale Railway should develop and implement means of ensuring that the body/bogie bolsters remain lubricated between maintenance checks.		
<b>Comment</b>		
Ravenglass & Eskdale Railway has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
Heritage: Passenger Train	Ropley (Mid-Hants Railway)	11:15	25 July 2006	Derailment
<b>RAIB Report No:</b>	20/2007	<b>Published:</b>	21 June 2007	

Summary	
At approximately 11:15 hrs on Tuesday 25 July 2006, the leading bogie of the 10:50 hrs Mid Hants Railway service from Alton to Alresford derailed on No.4 points approaching Ropley station. The derailed bogie followed a path midway between the routes to platforms 1 and 2, while the second bogie remained on the track, but followed the route towards platform 1. An instructor who was in the cab with the driver applied the emergency brake and the train stopped within 20 metres of the point where the front bogie derailed.	
<b>Recommendations</b>	<b>Six recommendations are made</b>

RECOMMENDATION	1	Status: Green 1 = Closed
The MHRPLC (The Mid Hants Railway plc) should ensure that existing plans for the provision of train detection on No.4 points at Ropley are implemented without further delay.		
<b>Comment</b>		
The MHRPLC has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	2	Status: Green 1 = Closed
The MHRPLC should ensure that if staff other than signalmen are to be involved in receiving tokens from or handing tokens to drivers at any station: <ul style="list-style-type: none"> <li>a. their use should be planned;</li> <li>b. the specific individual undertaking the role should be identified within the relevant operating notice;</li> <li>c. they should always work under the supervision of the signalman;</li> <li>d. they should be competent to perform the role.</li> </ul>		
<b>Comment</b>		
The MHRPLC has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	3	Status: Green 1 = Closed
The MHRPLC should make explicit in its procedures that staff who are to be subject to drugs and alcohol screening do not leave MHR premises until the screening has been undertaken.		
<b>Comment</b>		
The MHRPLC has taken actions in response to this recommendation. ORR has closed the recommendation.		

<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 1 = Closed</b>
The MHRPLC should conduct a review of its safety management system to identify non-compliances and develop/implement actions plans to resolve them.		
<b>Comment</b>		
The MHRPLC has reported completion of the review of its safety management system in response to this recommendation. ORR has closed the recommendation.		

<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 1 = Closed</b>
The MHRPLC should provide train detection on the points at the north end of Medstead station.		
<b>Comment</b>		
The MHRPLC has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
Heritage: Tram No.10	Seaton (Seaton Tramway)	12:55	18 March 2007	Derailment
<b>RAIB Report No:</b>	21/2007	<b>Published:</b>	3 July 2007	

<b>Summary</b>	
On 18 March 2007 at 12:55 hrs tram No 10 was approaching Seaton station on the Seaton Tramway, when it derailed at the points at the entry to the station. There were no casualties. The derailment was probably caused by persons unknown placing an object in the points. The RAIB has made two recommendations with regard to modifying the operation of points on the Seaton Tramway.	
<b>Recommendations</b>	<b>Two recommendations are made</b>

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Green 1 = Closed</b>
The Seaton Tramway should implement, so far as is reasonably practicable, the provision of visual indicators that show to drivers whether sprung and weighted points on the system that are used by trams carrying passengers are correctly set for the normal route.		
<b>Comment</b>		
The Seaton Tramway has taken actions in response to this recommendation. ORR has closed the recommendation.		

## 4

## Heritage Rail

Equipment Type	Place	Time	Date	Incident
Heritage: Steam locomotive number 62005	Pickering Station (North Yorkshire Moors Railway)	15:24	5 May 2007	Locomotive collision with carriages
<b>RAIB Report No:</b>	29/2007	<b>Published:</b>		8 August 2007

**Summary**

On 5 May 2007 at approximately 15:24 hrs a former British Railways (BR) steam locomotive, number 62005, in the process of running round its train at Pickering station on the North Yorkshire Moors Railway (NYMR), entered the platform line from which it had come, and collided with the carriages it had left there. The collision was caused by the driver of the locomotive becoming distracted, and not changing the points before giving the fireman permission to drive the locomotive across them. The RAIB has made two recommendations to modify the operation of points at the headshunt at Pickering, and one recommendation concerning actions after an accident.

<b>Recommendations</b>	<b>Two recommendations are made</b>
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**RECOMMENDATION****1****Status: Green 1 = Closed**

The NYMR should immediately mandate that the person who operates the hand points at Pickering south should remain at the points after operating them, and should only call a locomotive past them when the ground signal clears, after again checking the lie of the points; or

The NYMR should install a system at Pickering south that provides an indication to the train crew in the cab as to the lie of the points.

**Comment**

The NYMR has taken actions in response to this recommendation.  
ORR has closed the recommendation.

Equipment Type	Place	Time	Date	Incident
Heritage: Steam locomotive, 'Wroxham Broad' + 7 carriages	Fisherground (Ravenglass & Eskdale Railway)	19:00	12 May 2007	Derailment
<b>RAIB Report No:</b>	32/2007	<b>Published:</b>		30 August 2007

**Summary**

On 12 May 2007, a steam locomotive hauled passenger train, fully laden with passengers, was travelling from Dalegarth to Ravenglass when the leading wheelset of the trailing bogie on the third coach derailed at Hollin How near Fisherground. The derailment occurred while the train was travelling at between 5 and 7 mph (8 and 11 km/h). There were no passenger injuries or significant damage to the train or the track.

<b>Recommendations</b>	<b>Two recommendations are made</b>
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**RECOMMENDATION****1****Status: Green 1 = Closed**

Review and identify safety critical elements of engineering work on their bogies, including the re-fitting of compensating bars, and implement work procedures which include:

- a primary check by the person undertaking the work; and
- a secondary independent check signed off by a competent R&ER person to ensure that any problems are detected before entering service.

**Comment**

Ravenglass & Eskdale Railway has taken actions in response to this recommendation.  
ORR has closed the recommendation.

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Amber = Open</b>
Review their safety management system and operational procedures to identify if there are other areas where safety critical maintenance or design work is undertaken, or decisions are made, which should be subject to independent checking, and implement appropriate changes to procedures.		
<b>Comment</b>		
Ravenglass & Eskdale Railway has proposed a review, & improvements to maintenance standards in response to this recommendation.		

Equipment Type	Place	Time	Date	Incident
Heritage: Class 33/1 diesel locomotive 33108 (engineers train)	Swanage Station (Swanage Railway)	12:21	16 November 2006	Locomotive collision with Carriages
<b>RAiB Report No:</b>	35/2007	<b>Published:</b>	13 September 2007	

<b>Summary</b>
At 12:21 hrs on Thursday 16 November 2006 an engineer's train entered platform 2 at Swanage and collided with a rake of carriages that were stabled there. Two members of Swanage Railway personnel were treated by ambulance staff, but neither required hospital treatment. The locomotive and one carriage sustained damage to the buffers and surrounding bodywork.
<b>Recommendations</b>
<b>Five recommendations are made</b>

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: Green 1 = Closed</b>
The Swanage Railway should amend their Rule Book to: <ul style="list-style-type: none"> <li>ensure that shunting movements are made by the safest possible route; and</li> <li>ensure that whenever possible shunting moves are driven from the leading cab of the locomotive.</li> </ul>		
<b>Comment</b>		
The Swanage Railway has taken actions in response to this recommendation. ORR has closed the recommendation.		

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Green 1 = Closed</b>
The Swanage Railway should review its implementation and monitoring of the rule book requirements for safety critical communication to ensure that the requirements are being complied with, and implement such changes as are found necessary.		
<b>Comment</b>		
The Swanage Railway has taken actions in response to this recommendation. ORR has closed the recommendation.		

<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Amber = Open</b>
The Swanage Railway should amend its medical standards for drivers to comply with the new guidance from the Heritage Railways Association when that guidance is issued.		
<b>Comment</b>		
The Swanage Railway is assessing the current Heritage Railway Association guidance.		

## 4

## Heritage Rail

RECOMMENDATION	4	Status: Green 1 = Closed
The Swanage Railway should implement the use of a system that informs staff that trains are not to be moved whilst work such as maintenance or interior cleaning is being carried out on them.		
<b>Comment</b>		
The Swanage Railway has taken actions in response to this recommendation. ORR has closed the recommendation.		

RECOMMENDATION	5	Status: Green 1 = Closed
The Swanage Railway should enforce rule F 22.2, with illuminated lights provided, when vehicles are stabled in Swanage platform.		
<b>Comment</b>		
The Swanage Railway has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
Heritage: Diesel locomotive number 80 + 4 Carriages	Shenley Hill Road (Leighton Buzzard Railway)	13:08	25 March 2007	Collision on level crossing with car
<b>RAIB Report No:</b>	45/2007	<b>Published:</b>	19 December 2007	

Summary	
At approximately 13:08 hrs on 25 March 2007 a train on the Leighton Buzzard Railway (LBR), collided with a road vehicle at low speed on a level crossing at Shenley Hill Road on the outskirts of Leighton Buzzard, Bedfordshire.	
<b>Recommendations</b>	Three recommendations are made

RECOMMENDATION	1	Status: Amber = Open
Leighton Buzzard Railway Ltd (LBR Ltd) should change the method of working of Shenley Hill Road open crossing to require the train to stop and allow road traffic to halt before entering the level crossing.		
<b>Comment</b>		
LBR Ltd has proposed a trial of an amended method of working in response to this recommendation.		

RECOMMENDATION	2	Status: Green 1 = Closed
Bedfordshire County Council should cut down the vegetation around Shenley Hill Road open crossing and introduce a process of vegetation management in order to meet the viewing zone requirements of RSPG 2E Appendix B.		
<b>Comment</b>		
LBR Ltd written to the landowner (who is not BCC) to request immediate action. ORR has closed the recommendation.		

RECOMMENDATION	3	Status: Green 1 = Closed
Bedfordshire County Council and Leighton Buzzard Railway Limited, as appropriate should ensure that traffic signs and road surface markings for which they are each responsible at LBR level crossings comply with diagrams 771, 775 and 785 as defined in the Traffic Signs Regulations and General Directions 2002, and recommended in Railway Safety Principles and Guidance Part 2E (Health and Safety Executive, 1996), Diagram 6.		
<b>Comment</b>		
LBR Ltd has taken actions in response to this recommendation. ORR has closed the recommendation.		

Equipment Type	Place	Time	Date	Incident
Heritage: Locomotive, number 11 + 3 carriages	Cavalry Horse crossing (Leighton Buzzard Railway)	12:40	25 August 2007	Collision on level crossing with tractor
<b>RAIB Report No:</b>	46/2007	<b>Published:</b>		19 December 2007

**Summary**

At approximately 12:40 hrs on the 25 August 2007 the 12:20 hrs train from Pages Park to Stonehenge Works on the Leighton Buzzard Railway (LBR), collided with a tractor at low speed on Cavalry Horse User Worked Crossing (UWC) on the outskirts of Leighton Buzzard, Bedfordshire. One passenger was slightly injured, and damage was caused to the locomotive and the tractor.

**Recommendations** Two recommendations are made

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: Green 1 = Closed</b>
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The LBR should complete the briefings and works identified in its assessment of field crossings dated 25 September 2007, to the timescales laid down in that document.

**Comment**

LBR Ltd has taken actions in response to this recommendation.  
ORR has closed the recommendation.

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Green 1 = Closed</b>
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The LBR should install signing for all farm crossings on the railway so as to ensure that users are informed of how to use the crossing.

**Comment**

LBR Ltd has taken actions in response to this recommendation.  
ORR has closed the recommendation.

Equipment Type	Place	Time	Date	Incident
Heritage: Class 08 shunter	Lydney Town Junction (Dean Forest Railway)	14:40	15 August 2007	Injury to crossing keeper
<b>RAIB Report No:</b>	14/2008	<b>Published:</b>		2 July 2008

**Summary**

At approximately 14:40 hrs on Wednesday 15 August 2007 a special passenger train from Norchard to Lydney Junction on the Dean Forest Railway (DFR), struck a partially open gate at Lydney Town level crossing, detaching the gate from its mountings. The gate struck and seriously injured one of the two crossing keepers. No other person was physically injured, and there was only superficial damage to the train.

**Recommendations** Ten recommendations are made

<b>RECOMMENDATION</b>	<b>1</b>	<b>Status: Amber = Open</b>
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The Dean Forest Railway should review the system by which trains approach Lydney Town level crossing from the north so as to verify that the speed limit allows trains to stop before reaching the crossing in all cases of degraded braking and poor rail head conditions. The speed limit should also take into account a driver's ability to achieve the desired speed in a locomotive not equipped with a speedometer.

**Comment**

The Dean Forest Railway has reported taking actions in response to this recommendation.



## 4

## Heritage Rail

<b>RECOMMENDATION</b>	<b>2</b>	<b>Status: Green 2 = Complete</b>
The Dean Forest Railway should introduce a process to formally and periodically instruct all drivers of the importance of adhering to all published speed limits.		
<b>Comment</b>		
The Dean Forest Railway has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>3</b>	<b>Status: Green 2 = Complete</b>
The Dean Forest Railway should put in place systems to cover the provision, maintenance and use of the sanding systems on locomotives, autocoches and (where appropriate) brake vans in use on the railway.		
<b>Comment</b>		
The Dean Forest Railway has taken actions in response to this recommendation. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>4</b>	<b>Status: Green 1 = Closed</b>
The Dean Forest Railway should amend its procedures and rule book such that in the event of signalling system malfunctions there are adequate degraded safety mode procedures in place. The systems should also include a process for formally warning ground based operational staff and train crew when a safety system has been degraded.		
<b>Comment</b>		
The Dean Forest Railway has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>5</b>	<b>Status: Green 1 = Closed</b>
The Dean Forest Railway should set up a system for the setup and maintenance of the treadle mechanism on the approach to Lydney Town level crossing, in accordance with a recognised industry standard.		
<b>Comment</b>		
The Dean Forest Railway has replaced the treadles overcoming the need to implement this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>6</b>	<b>Status: Green 1 = Closed</b>
The Dean Forest Railway should document the optimum procedure, and train and assess footplate crews in the action to be taken, to stop an auto-train quickly in poor railhead conditions and other emergency situations.		
<b>Comment</b>		
The Dean Forest Railway has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>7</b>	<b>Status: Green 2 = Complete</b>
The Dean Forest Railway should appoint a competent person to advise the company on the steps needed to comply with health and safety law.		
<b>Comment</b>		
The Dean Forest Railway has appointed a Health and Safety director. ORR is considering whether to close the recommendation.		
<b>RECOMMENDATION</b>	<b>8</b>	<b>Status: Green 1 = Closed</b>
The Dean Forest Railway should, with advice from a suitably qualified person, review its safety management arrangements and implement any changes that are found to be necessary.		
<b>Comment</b>		
The Dean Forest Railway has taken actions in response to this recommendation. ORR has closed the recommendation.		

<b>RECOMMENDATION</b>	<b>9</b>	<b>Status: Green 1 = Closed</b>
The Dean Forest Railway should implement procedures to ensure the RAIB is notified of accidents or incidents in accordance with the requirements of the Railways (Accident Investigation and Reporting) Regulations 2005.		
<b>Comment</b>		
The Dean Forest Railway has taken actions in response to this recommendation. ORR has closed the recommendation.		
<b>RECOMMENDATION</b>	<b>10</b>	<b>Status: Green 1 = Closed</b>
The Dean Forest Railway should take appropriate steps to bring its practice on the employment of drivers over 70 years old into line with its policies relating to medical fitness.		
<b>Comment</b>		
The Dean Forest Railway has taken actions in response to this recommendation. ORR has closed the recommendation.		

## 4

## Heritage Rail

## Recommendations made for Heritage Rail in reports published in 2009

Equipment Type	Place	Time	Date	Incident
Heritage: Steam Locomotive	Gysgfa (Ffestiniog Railway)	15:25	3 May 2008	Passenger train derailment
<b>RAIB Report No:</b>	18/2009		<b>Published:</b>	2 July 2009

**Summary**

On 3 May 2008 the rear two vehicles of the Ffestiniog Railway 'Victorian train' became derailed as the train traversed the curves at Gysgfa, between Rhiw Goch and Tan-y-Bwlch. There were thirty four passengers and three crew on board the train at the time. One of the members of the train crew sustained a minor injury in the derailment. None of the passengers were injured.

**Recommendations** Five recommendations are made

**RECOMMENDATION****1****Status: Green 1 = Closed**

The Festiniog Railway Company should establish the number of consecutive defective baseplates that could lead to an unacceptable risk of a derailment.

**Comment**

The Festiniog Railway Company has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****2****Status: Green 1 = Closed**

The Festiniog Railway Company should develop techniques to detect baseplate deterioration with a sufficient safety margin to prevent an unacceptable level of risk of derailment.

**Comment**

The Festiniog Railway Company has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****3****Status: Green 1 = Closed**

The Festiniog Railway Company should amend its track maintenance procedures and instructions, so that:

- They are consistent with one another.
- They implement the techniques identified from Recommendation 2.
- They contain a requirement to clear away debris around pressed steel baseplates at suitable intervals, and always when investigating track faults, so as to allow close inspection of the timber and baseplate. The intervals should be determined from the work done in response to Recommendations 1 and 2.
- They list parameters that must be measured and recorded when investigating track faults and, where they do not already exist, include tolerances and relevant actions. This list must include track gauge and take account of relevant industry guidance.

**Comment**

The Festiniog Railway Company has taken actions in response to this recommendation.  
ORR has closed the recommendation.

**RECOMMENDATION****4****Status: Green 1 = Closed**

The Festiniog Railway Company should revise their system of track inspection and defect recording such that overdue actions are either rectified or reassessed and reprioritised.

**Comment**

The Festiniog Railway Company has taken actions in response to this recommendation.  
ORR has closed the recommendation.

RECOMMENDATION	5	Status: Green 1 = Closed
The Festiniog Railway Company should implement a change control procedure for standing instructions requiring that any risks arising from proposed changes to standing instructions are assessed, addressed and controlled as appropriate.		
<b>Comment</b>		
The Festiniog Railway Company has taken actions in response to this recommendation. ORR has closed the recommendation.		

## 5

## Channel Tunnel

## Recommendations made for Channel Tunnel in 2007 that had an open or complete status in the 2008 Annual Report

Equipment Type	Place	Time	Date	Incident
Channel Tunnel: Electric Locomotive - Eurotunnel	20.5 km from UK portal	13:30	21 August 2006	Fire on rolling stock
<b>RAIB Report No:</b>	37/2007		<b>Published:</b>	23 October 2007

### Summary

On 21 August 2006 a fire broke out in the load compartment of a lorry on HGV Shuttle Mission 7370, the 13:23 hrs service from the UK terminal to France. The shuttle train was brought to a controlled stop at PK3050, 20.5 km from the UK portal, at 13:40 hrs. All 34 persons on board (30 lorry drivers and 4 Eurotunnel staff) were evacuated into the service tunnel by 13:49 hrs without injury. They were subsequently evacuated out of the service tunnel to the French terminal, reaching the French service tunnel portal at 15:47 hrs.

**Recommendations**      **Sixteen recommendations are made**

### RECOMMENDATION

**1**

**Status: Green 1 = Closed**

Eurotunnel should update the procedure for HGV loading staff to include the requirement to visually check the roof and doors of the load compartment for signs of smoke escaping.

### Comment

Eurotunnel have undertaken an extensive revision of checking procedures / systems in the terminals. IGC now considers this recommendation to be closed.

### RECOMMENDATION

**2**

**Status: Green 1 = Closed**

Eurotunnel should review alternative means of more reliably detecting signs of fire or other abnormal situations on the rear sections of departing shuttles, which would include the number and positioning of Agents de Feu and should implement improved measures as appropriate.

### Comment

Eurotunnel have taken actions in response to this recommendation. IGC now considers this recommendation to be closed.

### RECOMMENDATION

**4**

**Status: Green 3 = Closed with no actions taken**

Eurotunnel should provide a means for the automatic transmission of alarms from the on-board fire detection system on the HGV shuttles to the RCC.

### Comment

Eurotunnel has demonstrated, to the satisfaction of the safety authority that the implementation of the recommendation is not reasonably practicable. IGC now considers the recommendation to be closed.

### RECOMMENDATION

**11**

**Status: Green 1 = Closed**

Eurotunnel should review the design of the ventilation control system with a view to reducing the possibility of controllers selecting a sub-optimal configuration.

### Comment

Eurotunnel have proposed a change to the software to incorporate reminders of the correct fan settings. IGC now consider this recommendation to be closed.

<b>RECOMMENDATION</b>	<b>13</b>	<b>Status: Amber = Open</b>
Eurotunnel, in consultation with the emergency services in France and the UK, should carry out a study to assess the feasibility of decreasing the time taken to earth the catenary during an emergency situation. The best solution identified should then be implemented if reasonably practicable to do so.		
<b>Comment</b>		
Eurotunnel had initiated discussion with the emergency services, and studied the safety issues prior to the fire in September 2008. IGC have notified RAIB that there is more work to be done in order to resolve the issue.		
<b>RECOMMENDATION</b>	<b>14</b>	<b>Status: Green 1 = Closed</b>
Eurotunnel, in conjunction with the Emergency Services, should review its emergency plan (and associated bi-national arrangements) with a view to ensuring that accurate information from the incident site is available promptly to those making strategic decisions within the ICCs.		
<b>Comment</b>		
Eurotunnel has taken actions in response to this recommendation. IGC now considers this recommendation to be closed.		
<b>RECOMMENDATION</b>	<b>16</b>	<b>Status: Green 3 = Closed with no actions taken</b>
Eurotunnel should modify the RTM procedure to incorporate an explicit requirement to advise the RCC Supervisor when a message regarding a fire alarm on an HGV shuttle has been received and clarify the sequence of actions to be taken by the RTM Controller in the event that a rolling stock alarm and a Level 2 alarm are declared almost simultaneously.		
<b>Comment</b>		
Eurotunnel believe that the procedures current at the time of the accident adequately defined the activities to be taken regarding a fire alarm on an HGV shuttle. IGC agrees with Eurotunnel's assessment and is proposing no further action.		

## 5

## Channel Tunnel

## Recommendations made for Channel Tunnel in reports published in 2009

Equipment Type	Place	Time	Date	Incident
Channel Tunnel: Electric Locomotive - Eurotunnel	Channel Tunnel	17:08	4 April 2008	Unsafe loads
<b>RAIB Report No:</b>	08/2009		<b>Published:</b>	19 March 2009

**Summary**

On 4 April 2008 as the 17:06 hrs Cheriton to Coquelles passenger shuttle departed from the UK terminal of the Channel Tunnel rail system, a road coach moved within the rail vehicle on which it was being conveyed, damaging the rail vehicle and a private car parked in the same vehicle.

**Recommendations**      **Three recommendations are made**

**RECOMMENDATION****1****Status: Green 1 = Closed**

Eurotunnel should review its operating and maintenance procedures to ensure the availability of the correct chocks in each wagon so far as is reasonably practicable.

**Comment**

Eurotunnel has taken actions in response to this recommendation.

**RECOMMENDATION****2****Status: Green 1 = Closed**

Eurotunnel should review, and improve if appropriate, the communications procedures for drivers of coaches aimed at ensuring their vehicles are correctly secured.

**Comment**

Eurotunnel has taken actions in response to this recommendation.

**RECOMMENDATION****3****Status: Green 1 = Closed**

Eurotunnel should review the announcements made prior to the departure of shuttles to ensure they include a warning to passengers not to remain in the vehicle roadway during the transit.

**Comment**

Eurotunnel has taken actions in response to the recommendation.



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