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23 September 2024

Mr Andy Lewis
Deputy Chief Inspector of Rail Accidents
Cullen House
Berkshire Copse Rd
Aldershot
Hampshire GU11 2HP

Dear Andy,

RAIB Report: Derailment of a passenger train at Carmont, Aberdeenshire on 12 August 2020

I write to provide an update¹ on the action taken in respect of recommendations 1 & 6 addressed to ORR in the above report, published on 10 March 2022.

The annex to this letter provides details of actions taken in response to the recommendations and the status decided by ORR. The status of recommendations 1 & 6 is '**Closed**'.

We do not propose to take any further action in respect of the recommendations, unless we become aware that any of the information provided has become inaccurate, in which case I will write to you again.

We will publish this response on the ORR website.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Oliver Stewart', written in a cursive style.

Oliver Stewart

¹ In accordance with Regulation 12(2)(b) of the Railways (Accident Investigation and Reporting) Regulations 2005

Recommendation 1

This recommendation recognises the evolution of Network Rail's processes since the Carmont 2011/12 drainage scheme was constructed and is intended to ensure that current processes ensure works are appropriately constructed and transferred into maintenance regimes with the records needed for safe future management of the asset.

Network Rail should review its contractual and project management arrangements to identify effective measures to:

- a) substantially reduce the risk of contractors modifying an approved design during construction without the appropriate approvals from the designer, the client and any other body affected by the change
- b) ensure the timely provision of the accurate records needed for future management of the asset. The review should include consideration of:
 - contractual conditions and penalties for non-compliance with mandated process
 - assurance and quality control requirements
 - change management procedures
 - appropriate client checks during construction
 - the timely preparation and hand-over of 'as-built' drawings and health and safety files
 - the requirements of the Construction (Design and Management) Regulations 2015
 - ways of guaranteeing access to asset records should a contractor go out of business
 - current levels of compliance and reasons for any significant levels of non-compliance.

The measures identified by the review should be incorporated into Network Rail's contractual and project management systems, and those tasked with implementing the improved arrangements should be provided with clear guidance and suitable briefing.

ORR decision

1. Network Rail conducted a review of contractual and project management arrangements, taking into account the measures identified in the recommendation. As a result of this review, Network Rail have identified and put in place effective measures to address the two matters raised by the recommendation: the risk of contractors modifying an approved design during construction without the appropriate approvals; and the provision of accurate records needed for future management of an asset.

- Mandatory contract quality requirements are included in the Network Rail Contract Suite
- Improved change management requirements have been integrated into engineering management and design standards
- Accountability and competence for H&S file delivery has been assigned to the Principal Designer role
- Documentation and record keeping requirements specified by engineering management and design standards have been enhanced
- A new standard for construction management for projects has been issued
- Requirements for H&S file management have been introduced into the project management framework and standards
- The Network Rail governance and controls relating to the timely delivery of as-built records and H&S files have been enhanced

2. The Network Rail Health & Safety file standard has been updated to clarify the arrangement for the H&S file and other relevant information to be provided to the asset maintainer.

3. Embedment of the changes by Network Rail and its contractors is not required to close the recommendation, however we understand that this is well under way.

4. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration; and
- has taken action to close it.

Status: Closed.

Previously reported to RAIB

5. On 9 March 2023 ORR reported the following:

Network Rail is reviewing contractual and project management arrangements across three workstreams – culture, workshops with suppliers (through the Rail Industry Association) and internal workshops. Network Rail have indicated the review is almost complete and have committed to providing ORR with its outputs in the near future.

Update

6. On 23 January 2024 Network Rail provided the following closure statement:



[N222-13] Carmont
Rec 1 Closure Statement

7. The executive summary states:

Network Rail developed and delivered an action plan for Recommendation 1, that included a review of contractual and project management arrangements to determine and deliver relevant

improvements to governance controls and competencies. This action plan was led by the Rail Investment Centre of Excellence in collaboration with colleagues in the Regions, Technical Authority, Route Services directorate and supply chain partners.

Network Rail has undertaken a thorough review and updated a variety of its processes, control arrangements and standards. These processes and procedures include clear requirements for recording and managing changes made during the project. Each modification, including design alterations, is required to be documented so that records are created and updated as changes occur. Network Rail's ways of working also make clear the need to use effective document management control procedures (including version control) so that the most up to date information is correctly stored and is accessible by future asset managers (e.g. the use of a common data environment).

As a result of this review we have improved control of changes to approved designs, including strengthening quality management processes in our project management (Project Acceleration in a Controlled Environment (PACE)) standards, introduction of a new "Construction Management for Projects" standard to strengthen the assurance of construction delivery, and increased monitoring and reporting of Health & Safety file closure. Additionally, we have enhanced the supplier crisis management process to include the securing of Health and Safety (H&S) files and other information assets in the case of a supplier entering insolvency.

Network Rail has undertaken a thorough review and updated a variety of its processes, governance and control arrangements to support the timely provision of accurate records. We have incorporated mandatory requirements within our engineering management and design standards, project documentation (e.g. Quality Plans), contract suite and contractual terms and conditions (T&Cs) such that contractors and project teams must adhere to specific documentation and record keeping requirements including the timely delivery of as-built asset records and the H&S files. Compliance with our requirements is appropriately cascaded to our suppliers through our contract management arrangements.

Additionally, the H&S file standard has been updated to clearly state H&S files must be provided by the contractor (principal designer) to the client (or asset manager) within 16 weeks of the works "entry into operational service" and that "as built" drawings and information must be returned to the maintainer, in accordance with their respective Standard. Collectively, these reinforce the importance of timely and accurate delivery of records and increase the likelihood that accurate and up to date asset information will be available for the ongoing and future management of the asset. This is a requirement against which assurance can be applied to illustrate compliance or any corrective action undertaken.

This confirms that the critical review has been completed and moved significantly into an embedment phase. On this basis, we have exceeded the expectation of the recommendation and. This is dependent upon continued key stakeholder engagement around ongoing embedment. We don't foresee any issues.

Recommendation 6

The intent of this recommendation is that the railway industry should review extreme weather processes and ensure that these adequately address rainfall-related risk at earthworks and drainage assets. The recommendation effectively requires a review of the changes introduced shortly after the accident and an assessment of their effectiveness.

Network Rail should review and, where necessary, improve its processes for mitigating rainfall-related threats to the integrity of its earthworks and drainage infrastructure which could potentially affect the safe operation of trains. This review should include:

- a) identification of any additional mitigation measures to manage the risk to assets, including those that are not considered to be at particular risk of failure in extreme rain-fall, and the circumstances in which these measures should be applied
- b) identification of enhanced methods for the monitoring and measurement of extreme rain-fall and thresholds for applying and disapplying mitigation measures
- c) consideration of resource availability during extreme events (allowing for any mobilisation time)
- d) a plan for ongoing review of the mitigation measures taking account of technological improvements and changing circumstances
- e) possible extension of learning to other weather conditions and/or other types of asset.

Any improvements to existing processes that are identified by this review should be implemented throughout the network.

ORR decision

8. The purpose of the recommendation is for Network Rail to review processes for mitigating rainfall-related threats to the integrity of its earthworks and drainage infrastructure. Network Rail commissioned independent expert reviews into its processes for managing earthworks and drainage assets (Mair) and the understanding of and approach to managing the specific risks posed by rainfall (Slingo). The Mair and Slingo reports form the backbone of the work Network Rail is doing on earthworks and drainage and the closure statement asserts that those reports also deliver the review element of the response to this RAIB recommendation. Improvements are currently being implemented, and action plans are in place to enable delivery to be monitored.

9. Network Rail has sought to address the risk of derailment resulting from earthworks and drainage failure in bad weather, through the following workstreams:

- Adherence to the Extreme Weather Action Teleconference (EWAT) process for responding to extreme weather events.
- Developed, designed, implemented, and embedded the convective alerting tool (CAT) in all control locations.
- Using Blanket Speed Restrictions (BSRs) to reduce the kinetic energy of trains on the network should they hit objects on the line. These BSRs are mapped to the geographic extent and duration of the forecast weather.
- Network Rail has also published an updated version of NR/L2/CIV/086 Module 9 (Earthworks Adverse/Extreme Weather Risk Assessment)

which now includes a process for rapidly updating the at-risk register in the event of the emergence of significant risks²

10. To reduce the reliance on BSRs, the weather risk taskforce is continuing to conduct research into the link between extreme rainfall and earthworks failure. We are aware Network Rail is developing a tool to identify speed restrictions in a more objective way (PRIMA - Proportionate Risk Response to Implementing Mitigating Speeds to Assets), which is relevant in this area. We will continue to monitor progress of this work as well as embedment of the processes Network Rail has put in place.

11. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration; and
- has taken action to close it.

Status: Closed.

Previously reported to RAIB

12. On 9 March 2023 ORR reported the following:

Work to address the recommendation is closely linked to other workstreams being led by the Weather Risk Task Force (WRTF). RSSB has published T1269 (whole system risk model for extreme rainfall events) and Network Rail are taking steps to understand the range of error in inputs and how that impacts outputs.

We have asked Network Rail to provide a clear plan addressing each point in the recommendation, the workstreams for progressing those points and a clear explanation of how they fit together and the interaction with other workstreams considering rainfall related risk. We will expect the Network Rail response to fully take into account T1269 and its management of system risk.

We have met with RSSB and Network Rail to discuss the work being done to improve implementation of blanket emergency speed restrictions in relation to Laurencekirk rec 2.

Update

13. On 16 May 2023 Network Rail provided the following closure statement:



[N213-10] Carmont
Rec 6.doc

² Landslips affecting Network Rail infrastructure between June 2012 and February 2013 rec 4 - [Landslips affecting Network Rail infrastructure between June 2012 and February 2013 - ORR letter to RAIB dated 1 August 2024](#)

14. On 15 February 2024 Network Rail provided the additional closure information:



RAIB Carmont Rec 6
Closure Statement v3

Previously reported to RAIB

Recommendation 1

This recommendation recognises the evolution of Network Rail's processes since the Carmont 2011/12 drainage scheme was constructed and is intended to ensure that current processes ensure works are appropriately constructed and transferred into maintenance regimes with the records needed for safe future management of the asset.

Network Rail should review its contractual and project management arrangements to identify effective measures to:

- a) substantially reduce the risk of contractors modifying an approved design during construction without the appropriate approvals from the designer, the client and any other body affected by the change
- b) ensure the timely provision of the accurate records needed for future management of the asset. The review should include consideration of:
 - contractual conditions and penalties for non-compliance with mandated process
 - assurance and quality control requirements
 - change management procedures
 - appropriate client checks during construction
 - the timely preparation and hand-over of 'as-built' drawings and health and safety files
 - the requirements of the Construction (Design and Management) Regulations 2015
 - ways of guaranteeing access to asset records should a contractor go out of business
 - current levels of compliance and reasons for any significant levels of non-compliance.

The measures identified by the review should be incorporated into Network Rail's contractual and project management systems, and those tasked with implementing the improved arrangements should be provided with clear guidance and suitable briefing

ORR decision

1. Network Rail is reviewing contractual and project management arrangements across three workstreams – culture, workshops with suppliers (through the Rail Industry Association) and internal workshops. Network Rail have indicated the review is almost complete and have committed to providing ORR with its outputs in the near future.

2. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration; and
- is taking action to implement it by December 2023

Status: Open

Information in support of ORR decision

3. On 19 May 2022 Network Rail provided the following action plan:

Action Plan

Please provide milestones with dates

The Action Plan will undertake a review of contractual and project management arrangements, determine, and deliver relevant improvement to governance controls and competency development offering. This action plan will be led by the Rail Investment Centre of Excellence with involvement from across our Regions, Technical Authority and Route Services directorates.

1. Identify current Standards relating to recommendation – **complete**
2. Identify those accountable, responsible, or need to be consulted - **complete**
3. Integrate planning with Heads of Engineering (Regions) in relation to overlap with action plans relating to recommendations A9.11, A9.13, and A9.20 – 8th April '22
4. Hold recommendation action plan launch with national technical leads for programme management (RiCoE), contract commercial (Route Services), and construction management (Technical Authority) – by end April '22
5. confirm current governance and assurance arrangements – by middle May '22
6. risk workshop and gap analysis/mitigation plan with Regions – by end May '22
7. Supply chain engagement to identify good practice – by end June '22
8. Review risk-based gap analysis against current controls - by end June '22
9. Identify behavioural and competency gaps – by end July '22
10. Publish and promote learning material to Sponsor, Project Management, and Project Engineering teams – by end August '22

Pending conclusion of risk-based gap analysis as required:

11. Standards change remits for approval published (if required by milestone 6 and / or 8) – by end June '22
12. Roll out formal training and development interventions (if required from milestone 9) - by end September '22
13. Updated standards and controls published (if required by milestone 6 and / or 8) – by end December '22
14. Embedment of new Standards complete that integrates any formal training and development (action 12), technical and awareness briefings held, recorded and subsequently made available on the standards and controls website, and any further development sessions required to embed the change (if required by milestone 6 and / or 8) – by end June '23

Evidence required to support closure of recommendation

- a) Minutes from Heads of Engineering (milestone 3 plan agreed)
- b) Minutes from national technical leads briefing (milestone 4 plan endorsed)
- c) Baselined scope document (milestone 5)
- d) Risk record created (milestone 6)
- e) Minutes from supply chain engagement meeting (milestone 7)
- f) Risk record updated with mitigation (milestone 8 and 9)
- g) Standards change remits published (milestone 11)
- h) Briefing document (milestone 10)
- i) Training plan and needs analysis (milestone 12)
- j) Published Standards (milestone 13)
- k) Standards change remits approved for closure (milestone 14)
- l) Risk record updated to reflect reduction in risk to tolerable levels (risk closed)

4. On 24 May Network Rail provided the following update:



2022 05 24 Carmont
derailment (Rec 1) - N

5. On 22 September 2022 Network Rail provided the following update:



Carmont
Recommendation 1

6. On 24 January 2023 Network Rail provided the following action plan showing completed milestones and next steps:

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Action Plan and milestone dates				
MS	Description	Date	Status	Comment
1	Identify current Standards relating to recommendation		Complete	
2	Identify those accountable, responsible, or need to be consulted		Complete	
3	Integrate planning with Heads of Engineering (Regions) in relation to overlap with action plans relating to recommendations A 9.11, A9.13, and A9.20 – 8 th April '22 <ul style="list-style-type: none"> OUTPUT: (a) Minutes from Heads of Engineering (milestone 3 plan agreed) 		Complete	
4	Hold recommendation action plan launch with national technical leads for programme management (RICOe), contract commercial (Route Services), and construction management (Technical Authority) – by end April '22 <ul style="list-style-type: none"> OUTPUT: (b) Minutes from national technical leads briefing (milestone 4 plan endorsed) 		Complete	
5	Confirm current governance and assurance arrangements – by middle May '22 <ul style="list-style-type: none"> OUTPUT: (c) Baselined scope document (milestone 5) 		Complete	
6	Risk workshop and gap analysis/mitigation plan with Regions – by end May '22 (07 June '22) <ul style="list-style-type: none"> OUTPUT: (d) Gaps and opportunities register created (milestone 6) 		Complete	
7	Supply chain engagement to identify good practice – by end Sept '22 <ul style="list-style-type: none"> OUTPUT: (e) Report from supply chain engagement meeting (milestone 7) 		Substantially complete	Report complete, further cascade & briefing required
8	Review risk-based gap analysis against current controls - by end October '22 <ul style="list-style-type: none"> OUTPUT: (f) Clear programme of improvement activities (milestone 8 and 9) 		Substantially complete	Engagement with action owners ongoing
9	Identify behavioural and competency gaps – by end October '22 <ul style="list-style-type: none"> OUTPUT: (f) Clear programme of improvement activities (milestone 8 and 9) 		Substantially complete	Engagement with action owners ongoing
10	Publish and promote learning material to Sponsor, Project Management, and Project Engineering teams – by end November '22 <ul style="list-style-type: none"> OUTPUT: (h) Briefing document / learning from lessons artifact (milestone 10) 	November '22	Ongoing	Some training started. Opportunity for industry-wide learning identified.

24/01/2023

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Action Plan and milestone dates				
MS	Description	Date	Status	Comment
	Pending conclusion of risk -based gap analysis as required:			
11	Standards change remits for approval published (if required by milestone 6 and / or 8) – by end January '23 <ul style="list-style-type: none"> OUTPUT: (g) Standards change remits published (milestone 11) 		Complete	See next slide
12	Roll out formal training and development interventions (if required from milestone 9) – by end March '23 <ul style="list-style-type: none"> OUTPUT: (i) Training plan and needs analysis (milestone 12) 	March '23		
13	Updated standards and controls published (if required by milestone 6 and / or 8) – by end September '23 <ul style="list-style-type: none"> OUTPUT: (j) Published Standards (milestone 13) 	September '23	Ongoing	See slide 11
14	Embedment of new Standards complete that integrates any formal training and development (action 12), technical and awareness briefings held, recorded and subsequently made available on the standards and controls website, and any further development sessions required to embed the change (if required by milestone 6 and / or 8) – by end December '23 <ul style="list-style-type: none"> OUTPUT: (k) Standards change remits approved for closure (milestone 14) OUTPUT: (l) Gaps and opportunities register updated to reflect reduction in risk to tolerable levels 	December '23		
NEW 15	Review into the cultural entrenched reasons for the process failure of 2011/12 governance and assurance arrangements – by end October '22 <ul style="list-style-type: none"> OUTPUT: (m) Independent report and recommendations to feed into the programme of improvement activities 		Complete	See slide 6

24/01/2023

Recommendation 6

The intent of this recommendation is that the railway industry should review extreme weather processes and ensure that these adequately address rainfall-related risk at earthworks and drainage assets. The recommendation effectively requires a review of the changes introduced shortly after the accident and an assessment of their effectiveness.

Network Rail should review and, where necessary, improve its processes for mitigating rainfall-related threats to the integrity of its earthworks and drainage infrastructure which could potentially affect the safe operation of trains. This review should include:

- a) identification of any additional mitigation measures to manage the risk to assets, including those that are not considered to be at particular risk of failure in extreme rain-fall, and the circumstances in which these measures should be applied
- b) identification of enhanced methods for the monitoring and measurement of extreme rain-fall and thresholds for applying and disapplying mitigation measures
- c) consideration of resource availability during extreme events (allowing for any mobilisation time)
- d) a plan for ongoing review of the mitigation measures taking account of technological improvements and changing circumstances
- e) possible extension of learning to other weather conditions and/or other types of asset.

Any improvements to existing processes that are identified by this review should be implemented throughout the network.

ORR decision

7. Work to address the recommendation is closely linked to other workstreams being led by the Weather Risk Task Force (WRTF). RSSB has published T1269 (whole system risk model for extreme rainfall events) and Network Rail are taking steps to understand the range of error in inputs and how that impacts outputs.

8. We have asked Network Rail to provide a clear plan addressing each point in the recommendation, the workstreams for progressing those points and a clear explanation of how they fit together and the interaction with other workstreams considering rainfall related risk. We will expect the Network Rail response to fully take into account T1269 and its management of system risk.

9. We have met with RSSB and Network Rail to discuss the work being done to improve implementation of blanket emergency speed restrictions in relation to Laurencekirk rec 2³.

10. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration; and
- is taking action to implement it

Status: Open

Information in support of ORR decision

11. On 19 May 2022 Network Rail provided the following action plan:

³ ORR initial response to Laurencekirk and Portlethen RAIB report: [RAIB Report: Overspeeding trains between Laurencekirk and Portlethen on 4 December 2020 - ORR letter to RAIB dated 21 October 2022](#)

Action Plan

1. Please provide milestones with dates

General - a review of the changes introduced shortly after the accident and an assessment of their effectiveness

1. Undertake a round of national embedment assurance, covering all regions, to prove the use of the convective alerting tool (CAT). To be concluded after software improvements identified by previous assurance activity have been completed (April 2022) – Date: 31 August 2022
2. Check every region has an Integrated Weather Management Plan (IWMP) and for any region that does not, identify the alternative (May 2022). Assure the effectiveness of the IWMPs (or equivalent). Date: 31 December 2022
3. A gap analysis and training to close those gaps for our current weather tools was undertaken with circa 330 Network Rail Operations and Engineering colleagues (concluded January 2022). Evaluate the effectiveness of training material for Network Rail Weather Service (NRWS) and complimentary training provided. Date: 31 December 2022

Rainfall related threats:

- Additional mitigations (inc. assets not at particular risk)
 1. In collaboration with RSSB, deliver whole system risk model to better inform our mitigations (in the light of system risk) – Date: November 2022
 2. [Resolution of RAIB recommendation 10 – Review the effectiveness of bow-ties controls will address]
- Identification of enhanced methods for the monitoring and measurement of extreme rainfall and thresholds for applying and disapplying mitigation measures
 1. Deliver the science plan to better understand the link between rainfall and earthworks failure: Date: 31 December 2022. *N.B. there is a risk that the science plan will not identify an enhanced method for setting rainfall thresholds.*
 2. Review of CAT thresholds balancing the human factors risk associated with more granular information (control overload) with the benefit of imposing speeds during convective storms. **Completed and new thresholds implemented April 2022**
 3. Deliver replacement service for NRWS leveraging better weather data where available. *N.B. The five-year plan to deliver the Meteorological Insights Tool (MIT) as recommended by Dame Julia Slingo will incrementally improve our monitoring and measurement of extreme rainfall in the long term.* Date: 31 August 2023
 4. Develop Operational Route Section (ORS) parameters for the Seasonally Agnostic Railway Model (SARM). Date: 31 August 2022.
- Consideration of resource availability during extreme events
 1. [Resolution of NR internal investigation recommendation A9.1 – Regional Operations Directors to review resource to deal with significant disruption events will address]
- A plan for ongoing review of the mitigation measures taking account of technical improvements and changing circumstances

1. Develop and agree a transition approach detailing how new weather tools will be implemented, embedded, and assured in each region (including clear roles and responsibilities). Date: 30 September 2022
 2. Assess effectiveness of above through business as usual (BAU) activities, including National De-Briefs of Extreme Weather Events. Date: From 01 October 2022
- Possible extension of learning to other weather conditions and/or types of assets.
1. Conduct a joint review with the Chief Engineers Leadership Team on the potential impacts to other asset groups (e.g. structures/telecoms). Date 31 December 2022

Evidence required to support closure of recommendation

- Whole System Risk model published
- Output of the science plan (rainfall)
- New CAT thresholds justification, implemented and reviewed
- Programme plan for MIT
- WRTF Roadmap and ORR monitoring regime, Eunice outputs + future protocol (written)
- Review report