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10 September 2018



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

Dear Andrew,

**Dangerous train door incident at Bank station on the Docklands Light Railway,  
6 February 2017**

I write to report<sup>1</sup> on the consideration given and action taken in respect of the three recommendations addressed to ORR in the above report, published on 21 September 2017.

The annex to this letter provides details in respect of each recommendation. The status of all three recommendations is '**implemented**'.

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

We will publish this response on the ORR website on 10 September 2018.

Yours sincerely,

Oliver Stewart

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

## Initial consideration by ORR

1. All three recommendations were addressed to ORR when the report was published on 21 September 2017.
2. After considering the recommendations, ORR passed recommendation 1 to Keolis Amey Docklands Ltd, recommendation 2 to Docklands Light Railway Ltd and recommendation 3 to both Keolis Amey Docklands Ltd and London Underground Ltd.
3. ORR asked each of these three companies to consider and where appropriate act upon them; advising ORR of their conclusions. Their consideration given against each recommendation is included below.
4. The learning point in the report was brought to the attention of Keolis Amey Docklands Ltd in order to encourage them to review staff training whilst ensuring the issues raised in the report are adequately covered.
5. Recommendation 2 and its learning point was brought to the attention of ORR account holders of individual TOCs and other metro operators.
6. Recommendation 2 also prompted us to make contact with the three airport Terminal Transfer System (TSS) operators in the UK (Heathrow, Gatwick and Stanstead), as they share some operational characteristics with the DLR.

## Recommendation 1

*The intent of this recommendation is to reduce the risk of trap and drag incidents on current Docklands Light Railway rolling stock, caused by clothing and other thin, flexible objects becoming trapped in the closing doors.*

Keolis Amey Docklands Ltd should, in conjunction with Docklands Light Railway Ltd:

- a) measure the forces required to pull out thin flexible objects trapped by train doors in its current fleet to determine the range of forces, and assess the risk of trap and drag incidents;
- b) investigate changing the design of the door nosing rubbers on its current fleet to reduce the forces required to pull out trapped objects so that they are in line with good industry practice; and
- c) where practicable, change the door nosing rubbers on its trains to reduce the pull-out force to the target level identified in (b).

## ORR decision

7. Keolis Amey Docklands Ltd have carried out pull tests on both types of rolling stock that operate on the Docklands Light Railway and have used the results to inform the design and selection of new door rubbers that will be fitted to the fleet in 2019 as part of the F7 overhaul programme.

8. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Keolis Amey Docklands Ltd and Docklands Light Railway Ltd (DLRL) have:

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

**Status: Implemented**

### Information in support of ORR decision

9. On 30 November 2017 Keolis Amey Docklands Ltd provided the following initial response:

*Action to be taken:*

*1. Keolis Amey Docklands Ltd (in conjunction with Docklands Light Railway Ltd) have commenced a series of pull tests on 5% of both the B92 and B2007 fleets, using a representative sample of common items. The tests will be conducted in line with the Rolling Stock Technical Notice (RSTN) 400, following which an assessment of the risk of trap and drag incidents will be carried out.*

*Target Completion Date: 30th December 2017*

*2. The results of the assessment and comparison with industry will determine further action required including, if appropriate, the changing of the door rubbers on the current fleet. This review will set out the timescales for remedial action for both the design review and the appropriate action going forward. The door manufacturer recommends that door rubbers are replaced after 15 years of use, which for the B2007 vehicles will be 2022. Replacement of the door rubbers will be incorporated into this workstream.*

*Target Completion Date: Initial review will be completed by 30th March 2018*

10. On 17 May 2018 Keolis Amey Docklands Ltd (KAD) provided the following update:

*Update May 2018: Extensive pull testing has been undertaken by KAD using a representative sample of typical articles carried by passengers on the DLR, as outlined in report RSTN-414. This report has been accepted by DLRL and is being used to inform a new design to door rubbers which will be fitted to the B2007 fleet during the F7 overhaul programme (2019).*

11. On 9th July 2019 Keolis Amey Docklands Ltd confirmed these actions are now closed. The B2007 units will be modified when the F7 maintenance programme commences and the new design will also be incorporated in the new fleet when this design process commences

## **Recommendation 2**

*The intent of this recommendation is that safety learning from this investigation about minimising extraction forces for objects accidentally trapped in doors, is addressed when new trains for the Docklands Light Railway are specified.*

Docklands Light Railway Ltd should ensure that the specification for its forthcoming new trains gives adequate consideration to minimising the force required to remove objects trapped in passenger doors. Particular consideration should be given to the risk of thin, flexible objects such as items of clothing, becoming wrapped around door nosing rubbers.

This recommendation could apply to other organisations involved in the specification and procurement of new trains

### **ORR decision**

12. As part of the specification for new rolling stock, Docklands Light Railway Ltd have included a requirement for a means to be provided for objects or passengers to be released if they become trapped in the doors. The specification has been amended in order to make specific reference to the Bank Docklands Light Railway RAIB report.

13. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Docklands Light Railway Ltd has:

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

***Status: Implemented***

## Information in support of ORR decision

14. Docklands Light Railway Ltd (DLRL) provided the following initial response:

*The trains specification for DLRL's forthcoming new trains programme already addresses issues of obstruction, in Section 16.3 Obstruction Management and Anti-Dragging. The section outlines the particular requirements for the Train to manage the risk of objects and passengers being trapped by the door system, possibly leading to being dragged along the platform. The facilities to be provided by the Manufacturer to reduce this risk may include: obstacle detection, pushback and sensitive edges.*

*With respect to the design of the doors, section 16.3.2 states:*

*"The design of the door system shall provide a means for objects and passengers to be released if they become trapped in the doors, as set out in this paragraph 16.3 of this Train Technical Specification, with details to be agreed with the Purchaser at the Preliminary Design Phase".*

*DLRL already has a requirement for the manufacturer to comply with BS EN 14752:2015 Railway applications - Bodyside entrance systems for rolling stock. However, whilst the standard is a good general document, it does not specifically consider (in the testing section 5.2.1.4) an event such as occurred at Bank, i.e. it does not account for thin chords as was the case in the Bank incident.*

*Accordingly, in the final specification DLRL has amended the wording of section 16.3.2 to make specific the inclusion of the door forces, and with specific reference to the RAIB's investigation report. This has been appended to the specification so the manufacturer can understand the context.*

*The amended text is as follows (new text in red):*

*"The design of the door system, including the door leaf mating seals, shall provide a means for objects (including thin chords in accordance with the RAIB Report 12/2017) and passengers to be released if they become trapped in the doors, as set out in this section 16.3 of this Train Technical Specification, with details to be agreed with the Purchaser at the Preliminary Design Phase. "*

*This text has been included in the formal Invitation Tender Notice (ITN) which was publicly issued on Friday 17th November 2017.*

*DLRL will follow its normal design review process, which ensures all requirements outlined in the specification are addressed.*

### Recommendation 3

*The intent of this recommendation is that Keolis Amey Docklands Ltd has a robust process in place to detect and rectify faults in platform observation equipment used by its Passenger Service Agents (PSAs).*

Keolis Amey Docklands Ltd should:

a) examine the integrity of its processes for detecting and rectifying defects in platform observation equipment used by Passenger Service Agents such as mirrors, monitors and CCTV systems. The review should include consideration of:

- training and reminders given to staff on the timely reporting of defects;
- how defects which can impact upon the safe operation of the system, are identified, recorded and addressed in a timely manner;
- risk mitigation measures in the period between detection and correction for safety-critical defects; and
- monitoring processes to verify the effective correction of reported defects.

b) implement a documented procedure to address the shortcomings identified in its existing processes.

### ORR decision

15. ORR is content that Keolis Amey Docklands Ltd have reviewed and have suitable processes in place for identifying, recording and addressing defects with equipment for which they are responsible, as well appropriate arrangements for training staff in carrying out those tasks.

16. London Underground Ltd (LUL) own and operate the CCTV cameras at Bank station. Accordingly it is their responsibility to rectify faults with that equipment when reported by the Docklands Light Railway or other third parties. We are content that they have appropriate processes in place for doing this.

17. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Keolis Amey Docklands Ltd and Docklands Light Railway Ltd have:

- taken the recommendation into consideration.
- taken action to implement it.

***Status: Implemented***

## Information in support of ORR decision

18. On 30 November 2017 Keolis Amey Docklands Ltd (KAD) provided the following initial response:

*Action to be taken:*

*1. A reminder to staff on the importance of timely reporting of defects will be developed and cascaded via the company team briefing process. This will complement the information on defect reporting contained in the KAD Track Awareness and PICOW course which captures both KAD staff, subcontractors and Third Parties.*

*Target Completion Date: 30th January 2018*

*2. Review Standard Operating Procedure – SOP M.3.03 – Automatic Operations Door Procedure to review the current arrangements for reporting defects associated with mirrors and monitors, with a focus on the identification, recording and remediation of such defects within suitable timescales.*

*Updated procedure will be subject to formal briefing to key staff.*

*Target Completion Date: 30th March 2018*

*3. Defects are captured in DLR Metro. A documented procedure will be developed to provide guidance on the categorisation of defects that cannot be rectified immediately, including timescales for rectification. The arrangements contained in the documented procedure will integrate with the existing process for agreeing a Temporary Approval of Non-Compliance (TANC).*

*Target Completion Date: 21st June 2018*

*4. Review KAD's Asset Management System (DLR Metro) to determine effectiveness of current defect reporting categorisation. Potential changes to the categorisation of defects within DLR Metro will be subject to an assessment to ensure any mitigation measures align with the principle of 'As Low as is Reasonably Practicable' (ALARP.)*

*Target Completion Date: 21st June 2018*

19. On 17 May 2018 Keolis Amey Docklands Ltd provided the following update:

*The procedure was updated to include specific responsibilities on vehicle operators to advise the KAD Control Centre Controllers of any issues or faults relating to the door procedure, including defects associated with mirrors and monitors. In addition there is a requirement for an Incident Report Form (IRF) to be submitted within 24 hours of the fault on the mirror/monitor issue being identified.*

*The updated procedure has been briefed to key staff following formal approval.*

20. On 9 July 2018 Keolis Amey Docklands Ltd confirmed the following in respect of the target dates, completion and close-out of the four actions (as identified on 30 November 2017 above).

1. A reminder to staff on the importance of timely reporting of defects (etc).

*This action was carried out by way of briefing from the Engineering Senior Team Meeting (ESTM) where all General Managers were requested to brief their teams on correct, accurate and timely reporting of defects. No formal briefing note was issued, although all GMs fed back to ESTM (which is held weekly) to confirm that teams had been briefed. This action is closed.*

2. Review Standard Operating Procedure (SOP M.3.03)

*SOP M 3.03 was reviewed, revised and reissued in January 2018 (copy attached). Changes were briefed to all operational staff as they booked on; briefings took place over a period of approximately 1 month. This action is closed.*

3. Defects are captured in DLR Metro (etc).

*DLR Metro was updated to make it far easier to correctly categorise defects, and to ensure that rectification timescales are appropriate to the nature of the defect reported. A documented procedure was not produced – this was because the simplification of DLR Metro reporting would have meant that writing a new procedure would not have added value; it was felt that it would be better to ensure that all FRMC staff were appropriately briefed, and engineering staff shown how to effectively interrogate the system. This has been done. This action is closed.*

4. Review KAD's Asset Management System (etc)

*This action was also captured under item 3 above. This action is closed.*



21. On 6 December 2017 London Underground Ltd (LUL) provided the following initial response:

*In response to recommendation 3 (a) London Underground will complete the following actions:*

- 1. LUL will ensure that following Keolis Amey Docklands' (KAD) testing by the mirrors and monitors team or defects reported by the PSA any failures noting camera alignment or camera failure will be reported to the LUL MCC on 0207 0271903. This can be done directly or via the Customer Service Supervisor at Bank station. CCTV faults will be attended to by our LUL contractor Telent- who will be instructed to arrange a joint meeting with KAD to rectify the fault and to test in conjunction with KAD to ensure Platform Train Interface views are correct and all doors can be viewed.*
- 2. The DLR Platform Train Interface benchmark will be issued to Telent to replace the existing and this will be used as the reference benchmark for Preventive maintenance purposes.*

*I can also confirm that we wrote to KAD on 17<sup>th</sup> October asking them to follow the process outlined in (1) above. We also issued the platform train interface benchmark to Telent in October 2017.*

*It should also be noted that no similar interfaces (ie DLR use but LUL maintain CCTV) occur and Bank is a unique installation within LU.*