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29 January 2014

Ms Carolyn Griffiths
Chief Inspector of Rail Accidents
Rail Accident Investigation Branch
Block A, 2nd Floor
Dukes Court
Dukes Street
Woking GU21 5BH

Dear Carolyn,

RAIB report: Derailment of a tram at East Croydon

I write to report¹ on the consideration given and action taken in respect of the recommendations addressed to ORR in the above report, published on 28 March 2013.

The annex to this letter provides details of the consideration given/action taken in respect of each recommendation. Recommendations 1 and 2 are in progress and recommendation 3 has been implemented. We expect to update you on recommendations 1 and 2 by 31 May 2014.

We expect to publish this response on the ORR website on 12 February 2014.

Yours Sincerely

Chris O'Doherty

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

Initial consideration by ORR

1. All 3 recommendations were addressed to ORR when the report was published on 28 March 2013.

2. After considering the recommendations ORR passed recommendations 1, 2 and 3 to London Tramlink asking them to consider and where appropriate act upon them and advise ORR of its conclusions. The consideration given to each recommendation is included below.

Recommendation 1

The intention of this recommendation is to promote a review of the signalling and operational arrangements at East Croydon and to take any action needed to make them fit for purpose.

London Tramlink should review the operational and signalling arrangements at East Croydon to consider whether undue reliance is being placed on the correct operation of track circuits. If found necessary:

- additional measures to alert tram drivers to the stopping position in platforms should be provided; and/or
- the signalling and/ or point control arrangements should be modified.

Steps taken or being taken to address the recommendation

3. In its response of 7 May 2013 London Tramlink provided the following information:

Lloyds Register on behalf of London Tramlink are currently carrying out a review of the operational and signalling arrangements at East Croydon. Based on the outcomes of that review London Tram link will make the necessary changes to the infrastructure. The review report is due at the end of June 2013. Improvement works will be prioritized as necessary.

ORR decision

ORR is content with the proposed actions by London Tramlink and will visit London Tramlink in March 2014 to confirm what improvement works have taken place.

Status: In progress, ORR will update RAIB by 31 May 2014

Recommendation 2

The intention of this recommendation is to reduce the risk of rail head contamination affecting the correct operation of track circuits. This should include inspections immediately after events which could lead to accumulation of silt.

London Tramlink should identify areas of paved track where silt collects and instigate an improved inspection and cleaning regime where such silt may affect the safe operation of the tramway system.

Actions taken or being taken to address the recommendation

4. In its response of 7 May 2013 London Tramlink provided the following information:

A contract has been let with both AECOM and Enterprise Mouchel for the following works:

Enterprise Mouchel have been instructed to clean out all the gullies around the town centre (including East Croydon area) and undertake a CCTV camera survey of the connections to see if there are any issues. They have commenced this work and to date have completed the works at East Croydon.

AECOM are undertaking a desktop study of the East Croydon/Cherry Orchard Road area to review topography, low spots etc. They have the topographical survey data and are now in a position to review the output from the gully work referenced above. We expect this work to be completed by the end of June 2013.

In addition, in July last year London Tram link replaced one of the track cross drains in the east bound direction immediately past the taxi rank to improve the capacity. Any further improvements identified in the works outlined above that relate to London Tram link infrastructure will be undertaken when during future closures.

Two weekly clearing of the track drains continues as per the routine maintenance schedule.

5. On 31 May 2013 ORR asked London Tramlink if it had taken into consideration areas of paved track where silt collects across the tramway system and not just at East Croydon. A response from London Tramlink was received on 10 June 2013 providing the following information:

In response to your letter regarding recommendation 2- we have considered other locations where silt may build up. Apologies if this was not clear in my previous letter. I hope that the explanation below makes our position clear.

The power points are located at East Croydon (x2), Church Street, Therapia Lane, Depot West, New Addington, Sandilands, Arena and Beckenham Junction. Of these only East Croydon and Church Street are in the town centre and on embedded track, New Addington is also on a short section of embedded track in the ballasted track area. All the others are on ballast and are free draining and do not suffer silt build up.

New Addington does not silt up, but it is cleaned approximately every 2 months. The town centre sites are cleaned more regularly in recognition that tracks get dirtier, but Cherry Orchard Road is the only site which suffers occasional bouts of silt build up and has been judged to require a more permanent solution.

Cherry Orchard Road is cleaned every two weeks. Our consultants, AECOM, are undertaking a desktop study of the East Croydon/Cherry Orchard Road area to review topography, low spots etc. They now have topographical survey data and are in a position to review this in conjunction with the CCTV survey carried out by Enterprise Mouchel earlier this year. We are expecting their report and recommendations by the end of June 2013.

ORR decision

We are content that London Tramlink has identified areas of paved track where silt collects. We intend to visit London Tramlink in March 2014 to confirm what actions have been taken as a result of the recommendations in the report produced by AECOM.

Status: In progress - ORR will update RAIB by 31 May 2014.

Recommendation 3

The intention of this recommendation is to establish boundary values for tram wheel tyre to wheel tyre resistances and introduce requirements to take appropriate measurements during planned maintenance.

London Tramlink should conduct a fundamental review of track circuit settings and wheel tyre to wheel tyre resistances and then put in place a system of maintenance that ensures the signalling equipment and trams are maintained to mutually compatible standards, which include due allowance for reasonably foreseeable levels of contamination at the wheel/rail interface.

Steps taken or being taken to address the recommendation

6. In its response of 7 May 2013 London Tramlink provided the following information:

A comprehensive review of track circuit settings and wheel tyre resistances has taken place. A new procedure has been developed LT- IMS -ENG-610. This sets out the relationship between wheel resistance and track circuit shunt parameters and the minimum action required on discovery of failure. Vehicle Maintenance instructions have also been updated to reflect the new IMS procedure. Action completed December 2012.

ORR decision

7. ORR in reviewing the response provided by London Tramlink has concluded that in accordance with the Railway (Accident Investigation and Reporting) Regulations 2005, they have:

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

Status: *Implemented*