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31 March 2022

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

Dear Andrew,

RAIB Report: Derailment of a passenger train at Ealing Broadway on 2 March 2016

I write to provide an update¹ on the action taken in respect of recommendations 1 & 3 addressed to ORR in the above report, published on 5 December 2016

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 & 3 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 has become inaccurate, in which case I will write to you again.

We will publish this response on the ORR website on 5 April 2022.

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

The intent of this recommendation is to improve the presentation of information to service control staff so that they can comply with the LUL rule book requirement to come to a complete agreement on the actions to allow a train past a signal at danger.

London Underground Limited should provide signallers and, as appropriate, service control staff with adequate means of determining the position of points and a clear method of identifying the required points and their positions in order to be able to come to a complete understanding and agreement of the actions necessary to set a route in order to pass a signal at danger.

ORR decision

1. When the recommendation was made, LUL concluded that the risk of points been set incorrectly in the event of a permissive move would be controlled in the long term by the resignalling of around Ealing Broadway with Communication Based Train Control system (CBTC) as it would allow control centre staff to clearly identify and observe the orientation of the points on the service control desk monitors.
2. ORR challenged LUL to consider what interim changes could be made to the diagrammatic representation of points and detection of their lie on the existing signalling system. Despite extensive consideration of this topic LUL was unable to identify any interim means of providing the point orientation facility that the upgraded signalling system would deliver.
3. As an interim measure until the new signalling system was expected to be commissioned, LUL held workshops for staff who operate points manually to help support the identification of complex and unusual point types (such as slip points, the type involved in the incident) as shown on the traffic controller's diagrams and aid their decision making (see attached briefing material). LUL has also corrected out of date track circuit diagram (TCDs).
4. The CBTC resignalling will not now take place at Ealing Broadway, however ORR consider the revised operational arrangements in place control the risk of points been set incorrectly in the event of a permissive move, so far as is reasonable practicably. LUL has confirmed that there has been no similar incidents involving the incorrect identification of points since the revised operational procedures were introduced.
5. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, London Underground Ltd has:
 - taken the recommendation into consideration; and
 - has taken action to implement it

Status: Implemented.

Previously reported to RAIB

6. On 5 December 2017 ORR reported the following:

We are seeking clarification from LUL that they have considered the use of route cards to assist staff in identifying the required position for every end of every set of points in a route that is required to be set.

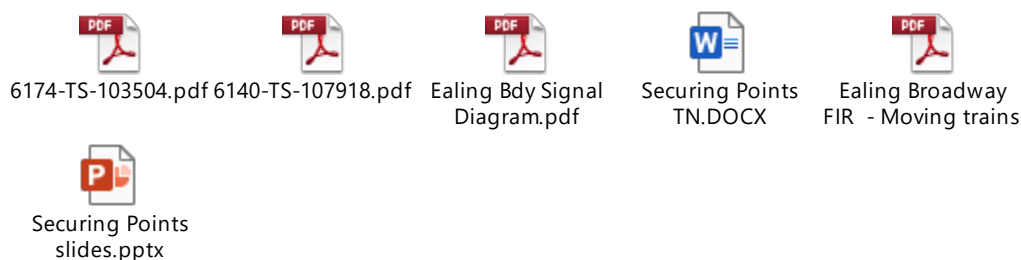
Update

7. On 20 July 2018 LUL provided the following update:

I've discussed the issue with the 4LM Upgrades Delivery Manager.

The legacy signalling and control system in the Ealing Broadway area will be replaced as part of our migration to a CBTC (Communication Based Train Control system) signalling system. Control of the area will be moved from the current control centre at Earls Court to a new facility at Hammersmith. The current plans show the migration of the Acton Town / Ealing Broadway area, as part of our Signalling Migration Area (SMA)10/11, to be commissioned in November 2020. The new signalling system will allow staff in the Hammersmith Service Control Centre to clearly identify and observe the orientation of the points (normal / reverse position) on the service control desk monitors. The Vehicle Control Computer (VCC) terminals, which are used by maintenance personnel, will also display the points orientation and will enable safety critical decisions to be made.

Given the legacy signalling and control systems will be replaced in the Ealing area in 2020, it is not feasible or practical to modify the legacy signalling system to show point orientation in a way which would allow safety critical decisions to be made using that information. Until the new signalling system is commissioned in the Ealing Area we are satisfied that the current arrangements are adequate and that the risk of an operational incident, as a result of using the current arrangements, are considered to be as low as reasonably practicable.



8. On 13 December 2021, LUL provided the following information:

Please see below the response from the District Line Service Control team in response to the question regarding recommendation no.1

SMA's 10 and 11 have been decommissioned and there is no longer any plan to implement CBTC at Ealing Broadway. However the introduction of the PICU system in 2018/19 now allows service control staff, in the Griffin Rooms, to clearly identify and observe the orientation of the points. Therefore since June 2018 both Hammersmith and Turnham Green have been upgraded and the lay of the points are

shown on the signalling system in the Griffin Room. Also since February 2019, Acton Town, Ealing Common, Hanger Lane and Ealing Broadway, were all migrated over to the new system and there is visibility of the points in all of these sites. With respect to other points, this centred around the fact that Earls Court signalled the Majority of the District line which it no longer does (this is done via Hammersmith Control Room)

I can also confirm there has been no incidents or confusion around these complex areas or detection of the points.

Recommendation 3

The intent of this recommendation is to improve the quality of team working to avoid conflict and promote improved decision making during periods of degraded working.

To promote and enhance team working, and to facilitate effective decision making in degraded working situations, London Underground should identify barriers to good decision making by service control staff, particularly where there are interfaces between lines and take action to develop the capability of these staff to:

- i. communicate effectively;
- ii. challenge decisions where there is doubt or uncertainty;
- iii. be aware of information gaps and the risk that assumptions may fill knowledge gaps; and
- iv. to be aware of how some behaviours may adversely influence the behaviours of others, and how to deal with this.

ORR decision

9. LUL has pursued a number of strategies to facilitate improved team working and communication during periods of degraded working, including rebriefing safety critical communication protocols; arranging visits between different control rooms to help facilitate team building; and debriefing following serious operational incidents to quickly identify lessons learnt between different Service Control staff.

10. Although LUL provided ORR with information on how the recommendation had been addressed in 2018, we decided to carry out additional checks to consider the extent to which new procedures had become embedded. ORR has reviewed the team work plan and consider the actions taken to sufficient to consider the recommendation as implemented.

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

- taken the recommendation into consideration; and

- has taken action to implement it

Status: Implemented.

Previously reported to RAIB

12. On 5 December 2017 ORR reported the following:

We are content with the approach London Underground Ltd have taken to improving team working by to facilitate better communication in times of degraded working. However, the LUL response only refers to the District and Piccadilly lines, so we are seeking clarification that actions will be rolled out to other lines.

Update

13. On 15 January 2019 LUL provided the following update:




All incidents across the Network are monitored and reviewed on a daily basis (Including incidents which involve Service Control). When an incident requires formal incident management, and becomes protracted or perceived to be not managed well, a 'hot debrief' is produced to identify any lesson learnt or areas for improvement. Service Control are often involved with these reviews as they are more often or not central to the management and service recovery of an incident. If there were poor working practices between different line service control centres they would be highlighted in these reviews.

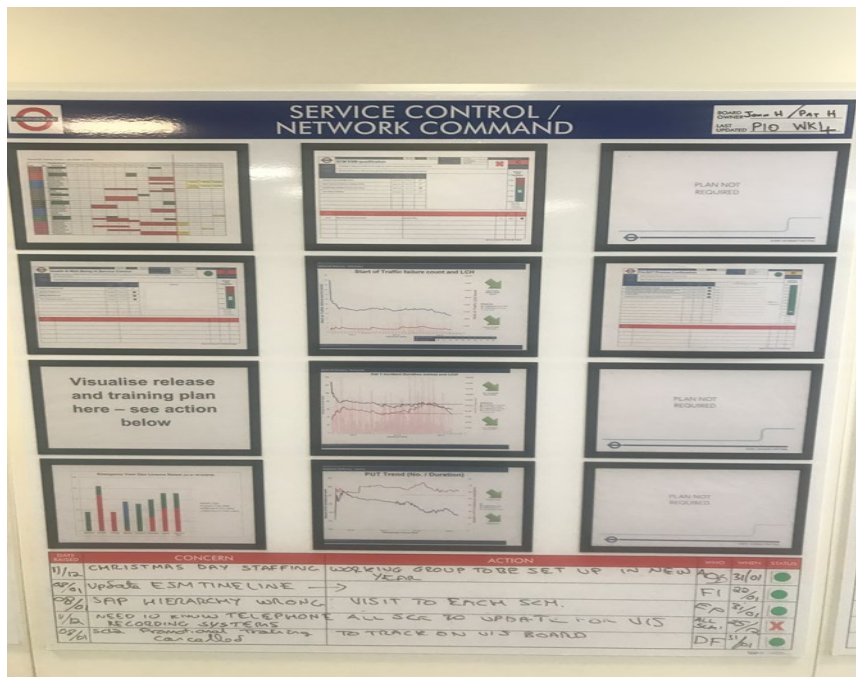
Performance of all the line Service Control Centres is monitored during a weekly Visualisation session similar to that used by the operating and maintenance functions in London Underground. The Service Controller information is managed by John Healy, who reports directly to Richard Jones - Head of Network Delivery. I've attached a photo of the visualisation board. This monitoring of performance of service control centres at this network level is to ensure we look at the performance and interaction of the centres as a system as opposed to individual lines.

Topics monitored / reviewed at the weekly meeting include:

- *Previous weeks performance - Category 1 incidents and impact on Lost Customer Hours etc If an incident was protracted due to a line Service Control Centre, or more than one line Service Control Centres, then it would be discussed here. This would be in addition to the Hot Debrief investigation.*
- *Health & Well Being in Service Control*
- *Start of Traffic (SOT) failures (Service Control hold a SOT conference call with all lines to check lines are ready for traffic etc*
- *Training / Competence requirements*
- *Person Under Train / Person ill on Train Data*

London Underground also hold a Service Control Managers Forum. This is held every period and representatives from all service control centres are asked to participate. Various issues are discussed including incidents and performance.

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Previously reported to RAIB

Recommendation 1

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London Underground Limited should provide signallers and, as appropriate, service control staff with adequate means of determining the position of points and a clear method of identifying the required points and their positions in order to be able to come to a complete understanding and agreement of the actions necessary to set a route in order to pass a signal at danger.

ORR decision

1. We are seeking clarification from LUL that they have considered the use of route cards to assist staff in identifying the required position for every end of every set of points in a route that is required to be set.
2. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, London Underground Ltd has:
 - taken the recommendation into consideration; and
 - is taking action to implement it, subject to confirmation that actions have been completed

Status: Progressing

Information in support of ORR decision

3. On 24 February 2017 London Underground Ltd provided their initial response and subsequent confirmation of completion of actions 21 November 2017:

To ensure Service Control staff, including Signallers, are competent in identifying complex or unusual point types shown on traffic controllers diagrams and ensure traffic controllers diagrams provide for easier identification of complex or unusual point types, London Underground will:

- *Include within the Service Control training the identification of complex and unusual point types and how they are depicted on the traffic controller's diagrams.*

A briefing has been developed by London Skills & Development department, titled, Moving trains under failure conditions with points involved (Attached), to remind Service Control staff what to look for when deciding what points need securing. The briefing is not designed to be exhaustive and it is strongly advised that locations where staff know there

are complex points or configurations, that Service Control staff become familiar with the area. If Service Control staff are not confident in their area, then this should form part of any P&D/CMS discussions. Bernie Moran, Competence and Compliance Manager will be reinforcing this action via the competence assessment process

- *Reinforce the identification of complex and unusual point types as shown on the traffic controller's diagrams through the competence assessment process.*

The LU Competence and Compliance Manager has contacted the Service Control Standards Managers for each area regarding the FIR at Ealing Broadway. The Service Control Standards Managers are responsible for carrying out their annual CDP for each line. Within the CDP, they are shown TCD's and carry out table top exercises for different scenarios in order to ensure they demonstrate their ongoing competence. This is captured within the individuals CMS records. The LU Competence and Compliance Manager will also be carrying out CMS verification checks on a sample of service control staff to ensure that this is being adhered to.

- *Update traffic controller's diagrams to include the representation of unusual or complex point types in the signals key table.*

All traffic controller diagrams have been reviewed to identify unusable or complex points. As a result symbols for unusual or complex point types, as per British Standard BS376-1:2012, have been added to the Symbol Key drawing for all Traffic Controller Diagrams. Drg No. 6140-TS-107918/2. These have been uploaded to the LU Intranet and service control staff are instructed to use these versions.

- *Review traffic controller's diagrams to identify any enhancements in the depiction of slip points to improve clarity.*

As the above bullet point.

- *Include in the training of LU Operational staff that may be required to secure points, details of how to identify what points are required within a route, what position they require to be secured in and how to secure them correctly*

LU Skills & Development have undertaken the following actions

- *Amended the learning material in the rules and procedures training for scotching and securing points has been amended. (See attached powepoint slides and extract of training notes for securing points.*
- *Delegates will have to complete a module on the e-zone and watch a video for securing points.*
- *Delegates have to complete a learning check which is focused mainly on securing points.*

- *There is also a practical assessment for each delegate to demonstrate their ability to secure points correctly.*

Recommendation 3

The intent of this recommendation is to improve the quality of team working to avoid conflict and promote improved decision making during periods of degraded working.

To promote and enhance team working, and to facilitate effective decision making in degraded working situations, London Underground should identify barriers to good decision making by service control staff, particularly where there are interfaces between lines and take action to develop the capability of these staff to:

- i. communicate effectively;
- ii. challenge decisions where there is doubt or uncertainty;
- iii. be aware of information gaps and the risk that assumptions may fill knowledge gaps; and
- iv. to be aware of how some behaviours may adversely influence the behaviours of others, and how to deal with this.

ORR decision

4. We are content with the approach London Underground Ltd have taken to improving team working by to facilitate better communication in times of degraded working. However, the LUL response only refers to the District and Piccadilly lines, so we are seeking clarification that actions will be rolled out to other lines.

5. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, London Underground Ltd has:

- taken the recommendation into consideration; and
- is taking action to implement it, subject to confirmation that actions have been completed

Status: Progressing

Information in support of ORR decision

6. On 24 February 2017 London Underground Ltd provided the following initial response:

London Underground will undertake a review to identify factors that may influence the productive and efficient working arrangements between different Service Control teams. Special attention shall be paid to (but not limited to); non-technical skills, colocation of the teams, communication channels,

conflicting performance measurements, understanding of roles and responsibilities. Where deficiencies or short comings are identified these should be addressed with appropriate controls and mitigations.

The above actions will be completed by 30/06/2017

7. London Underground provided an update on 21 November 2017 providing further information:

Key members of the District and Piccadilly Service Control management team met with the respective Line Trains Performance Managers to agree the actions necessary to address the recommendation and some immediate reliability / service management issues. The attached document titled District & Piccadilly Teamwork Plan Update detailed the steps taken to improve relationships between Piccadilly and District Line Service Controllers.

The briefing produced by the London Underground Skills & Development department, titled, 'Moving trains under failure conditions with points involved', addresses the issues of making service control staff aware of communication information gaps , the risk that assumptions may fill knowledge gaps and to be aware of behaviours that can impact others, particularly when people are under pressure.

Additionally, non-technical skills now form part of all safety critical training.