

## Minutes of Meeting

Location: Templar House – Camden Room – 26 June 2013  
 Subject: TCT Emerging Issues Project Board

Company	Attendee	Role
LUL	Jill Collis (JC - Dir)	Director of Safety
LUL	Malcolm Dobell (MD)	Head of Train Systems
LUL	Ed Wells (EW)	Head of Assurance
LUL	Martin Skiggs (MS)	Lead Premises Engineer
LUL	John Caves (JC)	Principal Premises Engineer
LUL	Simon Hargreaves (SH)	Asbestos Control Unit (Advisor)
LUL	Dave Simpkins (DS)	Hazardous Materials Unit Manager
LUL	Paul Hewitt (PH)	Technical Manager (Hazardous Materials)
LUL	Guy Harris (GH)	Project Engineer
LUL	Steve Walling (SW)	Senior Project Manager
LUL	Alan Wilson (AW)	Project Manager
LUL	Adrian McCrow (AM)	Senior Sponsor Train Systems & Upgrades
LUL	Iain Flynn (IF)	Lead Sponsor Train Systems & Upgrades

Distribution: Attendees + , , Peter Syers, Anne Hadjiry

Ref	Minutes	Action
1	<p><b>Purpose of meeting</b>                      AMc – to reach a decision going forward with no further feasibility testing.                      IF – As minimum the meeting needs to recommend to the company what to do on the project and the wider issue of tunnel cleaning</p>	Noted
2	<p><b>Discussion</b>                      The attached presentation was discussed, supported with videos and images. The content, the findings and the resulting options and implications for the company were generally agreed.</p> <p>The principal findings are:</p> <p>Some cleaning will be possible within heat constraints (demonstrated by Factory Test Video);</p> <p>ACM constraints as written into the agreed strategy remove all ability to clean 98% of the network.</p> <p>The train is not an acceptable means of “controlled collection” therefore cannot be used if it will disturb fibres.</p>	<p>Noted</p> <p>Noted</p> <p>Noted</p> <p>Noted</p>

	<p>Air flow limits imposed to remove the risk of disturbing ACMs during operation prevent all cleaning.</p> <p>Further testing will not improve those limits.</p> <p>The Go/No-Go Decision required is to alter those constraints or cancel the project.</p> <p>The risk of new stocks disturbing both dust and ACMs was discussed. Project testing implies that disturbing dust is evidence that ACMs have also been disturbed, however JC and MD stated that air quality monitoring from previous new stocks indicate that this is not the case. AW noted that the project testing does not replicate air flows along the tunnel so it is reasonable to assume that TCT results do not apply to the air flows created by trains. Consensus was that the introduction of new trains is not affected by these results.</p> <p>JC / IF took an action to investigate how other metros deal with their ACMs, e.g. Newcastle, Paris, Korea, S-Bahn etc.</p> <p>A general discussion around the LU approach to ACMs concluded that “managing the status quo” has its limits and the company should begin to proactively remove or encapsulate ACMs. Although outside the TCT project itself, the consensus was that this would yield long term benefits in access and productivity, complimentary to the short term benefits to TCT. This process would begin with the removal of troughing and redundant cables.</p> <p>It was agreed that the removal of troughing would enable the train to clean the 4’ in most locations and the whole track bed in others. These locations are to be defined by the ACU / HMU stakeholders with reference to the LU Asset Register and the ballast survey reports.</p> <p>ACU / HMU stakeholders stated that it would cost in the order of £1.5M to £2M to remove the majority of the troughing to allow cleaning of the track bed. Some additional cost would be required to replace a limited amount of cabling that crosses the track bed. It was noted that noise shelf areas are still specifically excluded until these have been encapsulated or otherwise made safe. AMc / ACU / HMU to create Business Case with project support..</p> <p>It was further noted that the removal and encapsulation works will only leave part of the network available to clean. Removal of Noise Shelf from JNP was estimated at £56M requiring 385 closures. This is unlikely to be approved.</p>	<p>Noted</p> <p>Noted</p> <p>Noted</p> <p>Noted</p> <p>John Caves / IF</p> <p>IF to raise at RUB</p> <p>SH / PH / DS</p> <p>SH / PH / DS / AMc / AW</p> <p>Noted</p>
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	<p>Encapsulation would cost £12-20M and is more realistic, however the expected life of the encapsulant is around 5 years and continual management would be required. Removal of Asbestos Caulking would be even more expensive and disruptive and is to all intents and purposes, impractical.</p> <p>It was noted that JNP (legacy Tubelines) have a policy to actively remove and encapsulate ACMs, while ACU (legacy LU) do not. This discrepancy must be resolved. JC / IF / JC action.</p> <p>SW challenged the group to discuss if the approach taken was “overly risk averse”, “gold plated” or “unpragmatic”. The agreement was that the project team and “Project Asbestos Working Group” have followed logical steps to a pragmatic solution which balances safety, compliance and benefits.</p>	<p>Noted</p> <p>JC / IF / JC (Dir)</p> <p>Noted</p>
3	<p><b>Concerns / actions raised</b></p> <p>The discussion included the following points / actions:</p> <p>The LU approach to the management of asbestos risks is understood to be reasonable and least risk but could benefit from review of approaches taken by other similar rail operators worldwide – action ACU.</p> <p>It was accepted that the operation of the TCT will be restricted to tunnel / cut and cover areas of the network that do not contain ACMs – currently this means the TCT will operate on the Picc Heathrow loop and the JLE only (this is about 2% of the area originally planned for TCT operation).</p> <p>SH stated that if troughing were removed cleaning the track bed would be possible over the network except noise shelf areas and sections of track with contaminated ballast. It was thought that this approach may enable track cleaning for about 2/3 of the network. (<i>Post meeting note required on definition of track bed, exact positioning of cleaning heads and the presence of other ACMs</i>).</p> <p>DS said that funding was available for troughing removal on JNP, funding to be found for troughing removal for the other areas of the network</p> <p>IF asked for clarification of delivered benefits, savings and costs if cancelled compared with costs to continue against benefits (which would need to include costs for troughing removal and track bed cleaning benefits).</p>	<p>John Caves / IF</p> <p>Noted</p> <p>Noted. GH / AW to seek clarification on track bed</p> <p>PH / SH / AMc</p> <p>SH / PH / DS</p>

	<p>EW expressed concern with regards to the solidity of benefits – what benefits will be delivered by project, what further benefits are dependent on ACM removal. It was noted that the 2009TS dust problems were never counted in the business case, but these could be mitigated by the TCT once the Vic Line track bed has been cleared of ACMs.</p> <p>AMc will update the business case accordingly with appropriate input from ACU on costs for removal of troughing, encapsulation of noise shelf, ballast contamination and the associated increase in operational areas. ACU / HMU will need to supply information on funded work, unfunded work, aspirations and the associated benefits. The project team will assist where possible.</p> <p>IF needs to report back to RUB on intended progress of TCT project and future asbestos strategy;</p> <p>IF asked if the project would now be “plain sailing”. AW/GH/SW noted that substantial elements of the delivery are still “Research &amp; Development” for both LU and our contractor, therefore significant risks remain.</p> <p>The decision of the meeting was to continue the TCT project with the heat-compliant design and the creation of a separate project to remove troughing and contaminated ballast. This decision is dependent on revalidation of the Business Case (action AMc &amp; ACU / HMU / Project) and ratification by RUB (action IF).</p>	<p>AMc to revise Business Case</p> <p>AMc / SH / PH / project</p> <p>IF</p> <p>Noted</p> <p>IF / AMc</p>
4	<p><b>Next Steps</b> The following is the agreed way forward:</p> <p>The Project Board recommendation is to eliminate the “no go” option and proceed with the procurement of the Tunnel Cleaning Unit on the basis of a new strategy and a new project to remove troughing.</p> <p>AW to update the TCT Asbestos Control Strategy to reflect the above. The change to the strategy is as follows: Formerly the machine would be prohibited from some areas and clean everywhere else at a uniform, restricted, ACM-compliant limit. Now the TCT will clean at full power (non-ACM compliant) but will only do so where there are no ACMs of any type.</p> <p>AMc will update the business case with the additional ACM costs and revised benefits (as determined by the revised operational area of the train, TBD by HMU / ACU).</p>	<p>Noted</p> <p>AW</p> <p>AMC</p>

	<p>It was accepted that the operational area will be restricted at first but will grow over time with investment by the business in the removal of ACMs.</p> <p>JC / JC will consult with ORR / HSE on the new approach (noting that they are already aware of the risk-based approach based on air flow testing.</p>	<p>Noted</p> <p>JC / JC (Dir)</p>
5	AOB – none	