## Minutes of Meeting

Location: Templar House – Camden Room – 24th August 2012
Subject: Tunnel Cleaning Train ACM Board Meeting

Attendees:

| Company | Name | Role |
|---|---|---|
| London Underground | Peter Syers (PS) | Rolling Stock Programme Delivery Manager |
| London Underground | Kevin Pughe (KP) | Senior Project Manager |
| London Underground | Guy Harris (GH) | Project Engineer |
| London Underground | Alan Wilson (AW) | Project Manager |
| London Underground | Barbara Johnstone (BJ) | Asbestos Control Unit Advisor |
| London Underground | Martin Skiggs (MS) | Lead Premises Engineer |
| Tubelines Ltd | Dave Simpkins (DS) | Hazardous Materials Unit Manager |
| Tubelines Ltd | Paul Hewitt (PH) | Technical Manager - Hazardous Materials |
| London Underground | Adrian McCrow (AM) | Train Systems Sponsor |
| London Underground | Gilbert Rowe (GR) | Senior Client Engineer (Fleet) |
| London Underground | Robert Taylor (RT) | Principal Client Engineer (Fleet) |
| 4-Rail Services Ltd | Darren Rice (DR) | Consultant |

Distribution: Attendees

| Ref | Minutes | Action |
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| 1 | AW introduced the project and recapped the history. AW noted that the project was originally authorised on the basis that repeated sampling of the dust had revealed no asbestos, therefore the risks associated with disturbing asbestos while cleaning were considered to be well controlled.<br><br>It was later discovered that during manual cleaning, operatives were instructed to stay clear of certain areas due to the risk of disturbing asbestos. This re-opened the issue. The project team have therefore been seeking ways to establish the risk of asbestos release during the operation of the TCT.<br><br>The agreed action was to establish what level of air flow around ACMs is safe, and therefore gathering evidence to demonstrate that the TCT is safe to operate in all conditions.<br><br>This meeting is a follow up from the meeting on 30/08/11 and emails in October 11, which indicate that the problem is more widespread than originally considered. | |
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| 2 | Instead of proving that the TCT would not disturb ACMs, the testing actually showed that the original design parameters for the Schorling train were at risk of doing so.<br><br>Testing was re-focussed on to determination of a safe level of air flow which the TCT could use to disturb and capture dust with no risk of disturbing fibres from known ACMs on the network. | |

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| | This work has now produced a "first pass" figure against a range of ACMs and the initial results on low friability assets show that flow rates which would allow the TCT to clean dust effectively do not disturb fibres.<br><br>It was noted however that more highly friable assets exist, and where these are present there is no expectation that the TCT can run. This is because focussing high pressure air on these assets could disturb them, and the risk is not viewed as tolerable by the Duty Holders. This means certain parts of the network may be identified as "exclusion zones" for the TCT until measures are taken to make the assets safe.<br><br>The next steps for this work are to validate the air flow results achieved so far, and build a degree of confidence around the air speeds which can be used. Once suitable confidence has been established a safety factor can be determined and the Schorling design will be made compatible with the values identified.<br><br>A similar work stream will be required for suction flows, to determine if the assets react differently to suction flows than high pressure air impacting on a surface.<br><br>The exact details of this testing will be agreed between the project and the Duty Holders, such that a sufficient assurance can be provided. | |
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| 3 | It was agreed that a detailed map must be produced to provide greater detail that produced by the project team. The map will use the Asbestos Register to fully define where low, medium and high friability assets exist. Subject to the final results of air flow testing above, the operational zone of the train can then be defined with confidence. | |
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| 4 | Of more concern is a statement from 4-Rail which emerged regarding the dust, during the air flow analysis:<br><br>*"Over time we have conducted a number of surveys in the tunnels and a fair appreciation of where asbestos residues were/or still are located has been built up. When dust is sampled from these areas e.g. noise shelf locations, by tunnel ring caulking and by asbestos washers to ring bolts we find or are likely to find asbestos in the dust"*<br><br>The project team requested clarification of the statement and were sent an example report then told:<br><br>"*The example materials of interest with respect to dust are Figure 1 (asbestos braided cable) and Figures 11 and 39 to 48 residual noise shelf in the dust.*<br><br>*The other asbestos items Dave and I discussed were tunnel ring caulking, bleed resistor boxes/covers, section switch covers, asbestos sheathed braided cables, cable trough, cellactite tunnel lining and cable wrap."*<br><br>It was also noted that dust from the brake blocks of legacy stocks would have released fibres into the environment, which may still be present deep in the ballast. Studies have shown that this type of fibre is rendered harmless by the heat and other by-products (e.g. resins) of the braking process.<br><br>The possibility of ACMs in the dust itself is a serious problem for the TCT project, as these fibres are lighter and less dense than the dust itself, therefore any collection of the dust in these areas is nearly certain to collect any fibres | |

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| | present within the dust.<br><br>If proven accurate, the claim that fibres are present in the dust would force LU to implement control measures which are impractical for this train in order to clean areas where fibres are identified. This would include either the construction of a negative pressure tent around the train as it cleaned, or the installation of HEPA filters within the train, coupled by a full decontamination of the train in controlled conditions after every use.<br><br>The verdict was that the TCT can only run if reasonable precautions can be undertaken to ensure it can not disturb any fibres.<br><br>The agreed steps are:<br><br>• For DS to approach 4-Rail and fully understand the scope, applicability and implications of the statements above.<br>• For the project team to arrange for the map as described above to contain suitable detail on the types of ACM found such that their tendency to leave fibre residues can be shown.<br>• For the project team to arrange an all-encompassing review of dust surveys completed to date to look for the presence of fibres.<br>• For the project team to arrange for dust sampling on a suitable scale to define if the dust does actually contain fibres.<br>• For the project team to produce estimates of the cost and time required to undertake this work.<br>• Once the sampling, survey and map are complete, the Duty Holders will fully and formally define any exclusion zones for the TCT. They will document their reasons for these exclusions such that the list can be kept up to date as projects to remove or encapsulate ACMs continue.<br><br>It was noted that a desk top study into existing dust samples could be undertaken. These would need to be carefully reviewed however, as the reports derived from the samples may not be specifically looking for fibres, or may include an element of "selective reporting" if the filters used were not fine enough to capture them.<br><br>Possible sources for this information include:<br><br>• ACU<br>• 4-Rail<br>• Sharepoint<br>• Core Asset Information System<br>• Distribution Services<br>• ESG<br>• Scientifics Ltd<br>• Any CPD contracts which commissioned their own studies | |
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| 5 | The outcome of this work is a TCT Specific Asbestos Management Plan. This will detail all the controls and risk mitigations to ensure the TCT is safe to operate. It will hold the master list of exclusion zones, and be updated by the TCT management team in conjunction with the ACU and Duty Holders.<br><br>The plan will be approved by:<br><br>• Martin Skiggs – Lead Premises Engineer<br>• Dave Simpkins – Hazardous Materials Unit Manager<br>• Simon Hargreaves – Asbestos Control Unit | |

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| | • John Caves – Principal Premises Engineer<br>• DRACCT<br><br>Once a position is agreed the group above will consider briefing ORR as appropriate. | |
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| 6 | AW asked what the impact would be if air monitoring were to detect the TCT creating a fibre release. The verdict was that so long as reasonable precautions had been taken to prevent the release the law would be taken to have been complied with.<br><br>It would then be necessary to wait until the fibres had dispersed or settled before services could begin.<br><br>The mitigation for any risk to the operator's health is the clean-air supply system. This will filter air then force it into the cab and cleaning console areas – creating a positive pressure gradient which prevents air entering the cab other than via the HEPA filters. | |
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| 7 | Decision on project:<br><br>The decision was taken to continue the project, with new scope added for the full investigation into fibre concentrations. A PCN will be raised to draw funding from risk once the costs and programme implications have been defined. | |

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