

17 August 2014

‘Tunnel Cleaning Train’ delayed until 2017 or later. Delays blamed on need to ensure ‘asbestos containing material’ across 98% of network is ‘removed or encapsulated’ and other reasons

‘Tube dust’ concentrations range between 700 µg/m³ and 960 µg/m³ at worst stations. Levels may be up to 25 times the legal limit allowed in ambient air at street level

Tube dust is not safe. Mayor seems still to be relying on health advice which is hopelessly out of date. Public Health England should formally update advice on exposure to tube dust. The Mayor should provide realistic interim health advice to passengers and employees with specific warnings for the most vulnerable people

CAL urges Mayor to accelerate plans for the Tunnel Cleaning Train and asbestos removal or encapsulation and consider urgently, in parallel, other options to protect people such as better ventilation and filtration in passenger areas

CAL has used powerful European access to environmental information laws to obtain information about the Tunnel Cleaning Train and tube dust in the London Underground.

As CAL understands it, scientists have found no safe level for exposure to airborne particulate matter. Indeed, CAL’s understanding is that exposure to ‘dust’ can adversely affect health and it is important to keep dust concentrations as low as possible. In CAL’s opinion, it is wrong therefore for the Mayor to say or imply that such pollution is ‘safe’ when it is approaching some maximum guideline levels in some locations: it is a bit like saying it’s safe to drive at the speed limit.

As recently as July 2013, the World Health Organisation said in its REVIHAAP final technical report:

“In the absence of a threshold and in light of linear or supra-linear risk functions, public health benefits will result from any reduction of PM_{2.5} concentrations whether or not the current levels are above or below the limit values.” See page 38.

and on page 175:

“In general, all exposures to air pollution of indoor and occupational origin, as well as exposure from commuting, vary between individuals much more than exposure to air pollution of ambient origin and depend strongly on the microenvironments and behaviour of the individual.

“Specifically, commuting can increase exposures to particulate matter, NO₂, CO and benzene, and is a major contributor to the exposure to ultrafine particles, black carbon and some metals, most importantly Fe, Ni and Cu in underground rail transport systems.”

http://www.euro.who.int/_data/assets/pdf_file/0004/193108/REVIHAAP-Final-technical-report-final-version.pdf?ua=1

Quotes

Simon Birkett, Founder and Director of Clean Air in London, said:

“It has taken nearly a year to obtain an up to date picture of ‘tube dust’ in the London Underground.

“It seems levels of dangerous airborne particles in the London Underground may range up to between 700 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$) and $960 \mu\text{g}/\text{m}^3$ i.e. up to 25 times the legal limit for ambient air quality above ground.

“On 20 November 2013, TfL told CAL “*There is therefore no possibility of our staff or customers being exposed to airborne asbestos fibres on the Underground*”. In its further reply dated 13 March 2014, TfL stated “*Given the systems and controls we have in place to manage asbestos containing materials, as described below, the risk of harmful emissions to air is extremely remote*”. Despite this assurance, CAL has found no evidence that TfL routinely tests air throughout the London Underground specifically for the presence of asbestos fibres.

“Against this background, CAL is very concerned that the Tunnel Cleaning Train due to enter operation in 2012 and then March 2013 is ‘on hold’ with a new planned date for the project of 2017. It seems the presence of “*asbestos containing materials [ACM] renders the TCT inoperable across 98 percent of the LU network*”. Worse, “*A decision regarding the future of the Tunnel Cleaning Train project will be made once the cost and timescales associated with this ACM Mitigation project are known.*” In a nutshell, it seems the more we know about air pollution in the London Underground the more troubling the issues become.

“In CAL’s considered opinion:

- ‘Tube dust’ is not ‘safe’ throughout the London Underground as exposure to ‘dust’ can adversely affect health.
- TfL is wrong to suggest or imply that because iron in ‘tube dust’ is ‘heavier’ than most particles in ambient air, air pollution guidelines for ambient air are not relevant in the London Underground.
- the Mayor is wrong to judge the potential harm to passengers from ‘tube dust’ against Workplace Exposure Limits for dust or suggest it is ‘safe’ provided levels are below the maximum legally permissible. It is also wrong for the Mayor to say or imply that exposure remains safe for both staff and customers throughout the London Underground.
- air pollution guidelines in the London Underground should be based on absolute concentrations (i.e. objective criteria) not the lowest ‘practically’ achievable (i.e. which is largely subjective).
- the Mayor seems to be relying largely or totally on health advice which is hopelessly out of date.

“CAL considers there is an urgent need *inter alia*:

- i. to investigate independently actual levels of air pollution in the London Underground and trends;

- ii. to assess the implications of asbestos containing materials in the track bed, where TfL says the majority of the dust gathers. Why might the Tunnel Cleaning Train disturb this dust more than other trains on deep lines?;
- iii. for Public Health England to update formally health advice on exposure to ‘tube dust’;
- iv. pending (iii) above, for the Mayor to provide realistic interim health advice to passengers and employees with specific warnings for the most vulnerable people; and
- v. for TfL to consider urgently, in parallel, with plans for the Tunnel Cleaning Train other options for reducing levels of air pollution in the tube such as ventilation and filtration in passenger areas.

“It is shocking to discover the Mayor has failed to address unsafe levels of air pollution in the London Underground because TfL has uncovered an even bigger problem i.e. the risk of disturbing asbestos containing materials.

“CAL urges the Mayor to accelerate plans for the Tunnel Cleaning Train and asbestos removal or encapsulation and consider urgently, in parallel, other options to protect people such as better ventilation and filtration in passenger areas.

“Meanwhile, people need to be warned about the risks of exposure to tube dust.”

Information released by TfL

The three requests to Transport for London (TfL) and CAL’s opinion on what they show include:

1. Tunnel Cleaning Train

CAL asked to understand why the Tunnel Cleaning Train has been delayed in a request dated 23 March 2014.

TfL replied citing supplier issues and emerging issues leading to ‘enabling works’ and provided a new estimated date for the project of 2017. Attached was a briefing paper for the Rail and Underground Board meeting on 13 October 2013 which stated:

“The project is now ‘on hold’ following confirmation that without removal and encapsulation works (the extent of which is not yet established) the presence of asbestos containing materials (ACMs) renders the TCT inoperable across 98 percent of the LU network.”

And....

“The TCT project was authorised in 2009 for £8.634m and re-authorised in February 2012 with an increased EFC following identification of a number of design issues (most notably power related), which have now been successfully addressed. The current authority is £14.322m and includes £2.124m of risk. The current EFC is £13.630m, including £1.806m of risk. All prices are outturn. The EFC is lower than the authority owing to various efficiencies achieved by the project team, including negotiation with suppliers and recycling of materials from disused

passenger stock. The TCT was expected to be operational in March 2013 and was approved against a BCR of 6.16 to 1.

“The predominant problem now facing the TCT project is the interaction between the TCT and ACMs found in various forms throughout the LU network. Historically, LU has managed ACMs safely by identifying and recording their location and then performing detailed pre-work surveys and removing them only when necessary. In the absence of the TCT, there would be no requirement in the foreseeable future to change this approach.

“However, design work on TCT has now established that any mechanised cleaning able to remove heavy (iron) dust particles will also disturb ACMs, potentially releasing asbestos fibres. It has been concluded that without removal of certain classes of ACM from the network, the TCT would be inoperable across 98 percent of the LU network. Without commissioning further work to address this ACM issue, the TCT project is therefore no longer viable.

“ACM removal or encapsulation in the track bed is believed to be feasible, and would allow the TCT to clean the track bed over across roughly 66 percent of the network. (The remaining areas where track bed cleaning would remain prohibited are those where there is asbestos noise shelf and contaminated ballast, these areas are predominantly found on the Central, Jubilee and Northern Lines. The Hazardous Materials Unit is trialling a new encapsulation product on the noise shelf that, if acceptable, could permit TCT operation in more areas). Initial estimates suggest that the cost of these removal works would be in the order of £2-5m and could take up to 18 months. However, these are rough order of magnitude estimates, and detailed surveys would be required to determine the likely scope and cost of the required works. These surveys and analysis of the findings would take 5-7 months to complete, at a cost of around £500k, and would provide LU with the necessary information to permit the safe removal of ACMs, without impacting adjacent non-ACM assets.”

TfL went on to say in its formal reply to CAL:

“With all other options exhausted the only remaining solution is to remove or encapsulate all ACMs on the LU railway. The decision was made, and endorsed at RUB on 19 December 2013 to initiate a separate project within the company’s infrastructure programme to scope out and establish the cost of mitigation (via removal or encapsulation) of all ACMs on the LU railway, beginning with the track bed, which is where the majority of dust gathers.

“A decision regarding the future of the Tunnel Cleaning Train project will be made once the cost and timescales associated with this ACM Mitigation project are known. The first phase of the work to price the mitigation of ACMs is underway now, with a report expected at the end of July 2014.”

2. Tube dust

CAL asked for information about dust levels across London Underground stations and trains in a request dated 7 March 2014.

A report released was titled 'Air quality monitoring for airborne dust: LUL train operators and station staff by 4-Rail Services Ltd dated 10 May 2013 (attached).

Respirable and inhalable dusts are currently assessed against the respective Workplace Exposure Limits of 4 milligrams per cubic metre (mg/m^3) and $10 \text{ mg}/\text{m}^3$ averaged over an 8-hour reference period (Health and Safety Executive Document EH40/05, 2nd Edition dated 2011).

The report comments that although not all of the duties and locations were monitored in exactly the same way as in 2007, 2008, 2009 and 2011 those that were repeated, or performed in similar locations, generally gave similar results with no significant variations.

The highest levels of respirable dust were recorded at the following five stations (in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$) not milligrams per cubic metre):

Paddington	Platform 4, Southbound	960 $\mu\text{g}/\text{m}^3$
	Platform 3, Northbound	780 $\mu\text{g}/\text{m}^3$
Hampstead	Platform 1, Southbound	740 $\mu\text{g}/\text{m}^3$
Elephant and Castle	Platform 2, Southbound	730 $\mu\text{g}/\text{m}^3$
Euston Square	Platform 2, Eastbound	730 $\mu\text{g}/\text{m}^3$
Aldgate East	Platform 2, Eastbound	700 $\mu\text{g}/\text{m}^3$

On 15 June 2014, CAL requested an internal review of TfL's decision to withhold some information about 'ongoing research'. TfL has missed the two month statutory deadline to respond to that request.

3. Asbestos

Further to CAL's request dated 23 October 2013 and TfL's refusal dated 20 November 2013, CAL asked on 23 November 2013 to understand asbestos in the London Underground with a view to assessing or determining the possibility, risk and/or control of harmful emissions to air.

In particular, CAL sought to understand the basis for TfL's assertion in its refusal email titled "*There is therefore no possibility of our staff or customers being exposed to airborne asbestos fibres on the Underground*".

In its further reply dated 13 March 2014, TfL stated *inter alia* "Given the systems and controls we have in place to manage asbestos containing materials, as described below, the risk of harmful emissions to air is extremely remote".

CAL has found no evidence that TfL routinely tests air throughout the London Underground specifically for the presence of asbestos fibres. Indeed a report titled 'Airborne fibre monitoring

on passenger trains during traffic hours' by 4-Rail Services Ltd dated 10 May 2013 (attached) stated *inter alia*:

"The levels of airborne fibres measured on all lines were satisfactory and similar to general background measurements made in areas where no asbestos materials are present. It must be stressed that the method counts all fibres and that those found are not necessarily asbestos."

The full requests appear in Note 5 below.

In each case, CAL is publishing the main response from Transport for London and selected supporting documents received.

ENDS

Notes

1. Transport for London statements about health effects 'tube dust'

<https://www.tfl.gov.uk/cdn/static/cms/documents/air-quality-on-underground.pdf>

Video - How London Underground manages and monitors air quality on the Tube

<http://youtu.be/B98G-GR5zOE>

2. Health and Safety Executive presentation on 'dust'

http://cleanairinlondon.org/wp-content/uploads/CAL-236-HSE-Construction-Dust-not-just-a-Nuisance-Seminar-Presentation-2013_Tube-dust.pdf

3. Media coverage

<http://www.railway-technology.com/features/feature-air-in-underground-subways-harming-health/>

<http://www.itv.com/news/london/2014-07-23/could-tube-dust-be-affecting-the-health-of-londoners/>

4. Previous CAL articles about so-called 'tube dust'

High levels of 'tube dust' dated 18 December 2011

<http://cleanairinlondon.org/sources/high-levels-of-tube-dust/>

Tube dust is not 'safe' dated 11 February 2013

<http://cleanairinlondon.org/hot-topics/tube-dust-is-not-safe/>

‘Tube dust’: broken promises, ‘blind eye turned’ and duty breached dated 25 April 2013

<http://cleanairinlondon.org/health/tube-dust-broken-promises-blind-eye-turned-and-duty-breached/>

5. Requests for information

A. Tunnel Cleaning Train (23 March 2014)

- a request dated 23 March 2014 to understand why the ‘Tunnel Cleaning Train’ has been delayed. For example, what problems have so far been identified that have delayed its procurement, trial and/or operation e.g. the possible need for ‘enabling works’ and what is meant by this phrase? What reasons for the delay or briefings have been given to managers or Directors within TfL of others?

B. Tube dust (7 March 2014)

- i. a request for information about dust levels across London Underground stations and trains dated 7 March 2014. In particular, CAL requested the 2013 report(s) about dust levels recorded across the London Underground stations and/or trains referred to here:

<http://beta.tfl.gov.uk/cdn/static/cms/documents/air-quality-on-underground.pdf>

<http://beta.tfl.gov.uk/corporate/publications-and-reports/environment-reports>

- ii. together with: copies of the other ‘ongoing research’ referred to in 1 above (i.e. in the paragraph below the table); and any other information held by TfL relating to the ‘monitor[ing of] research’ carried out by others referred to in 1 above (i.e. in the final paragraph) including communications to or from the scientists or others and/or internal emails or minutes of meetings within TfL.

C. Asbestos (23 November 2013)

Further to CAL’s request dated 23 October 2013 and your refusal dated 20 November 2013 I wish to understand asbestos in the London Underground with a view to assessing or determining the possibility, risk and/or control of harmful emissions to air. I would also like to understand the basis for TfL’s assertion in its refusal email titled ‘There is therefore no possibility of our staff or customers being exposed to airborne asbestos fibres on the Underground’. You are likely to be aware of the overwhelming public interest in this issue. For example, I would like to receive:

- i. one single map; one single table; one single spreadsheet or workbook; and/or one single ‘scorecard’ held by TfL summarising the location, amount and/or extent of asbestos believed to exist within the London Underground omitting any locations required to be withheld for the purposes of national security or otherwise. This might therefore be up to five summary pieces of information;

- ii. the latest plan(s) held by TfL (e.g. the Asbestos Control Unit) or its agents or by Tube Lines for the Jubilee, Northern and Piccadilly lines that set(s) out how you are going to manage the risk at locations where asbestos is believed to exist. As you know, such plans are required to be held by the Control of Asbestos Regulations 2012. This might be one plan covering all sites or several plans;
- iii. any evidence you are taking the steps needed to put each plan mentioned in (ii) above into action; and
- iv. details of any monitoring undertaken since 1 January 2010 including the results thereof that would support TfL's assertion that 'there is [therefore] no possibility of our staff or customers being exposed to airborne asbestos fibres on the Underground' e.g. regular and/or random monitoring of asbestos in areas of the network that are publicly accessible. Please note the information provided in response to TfL Ref: FOI-1046-1314 said the type of fibres identified in that testing was not known.

I have sought to focus the information as far as reasonably practical around the information TfL should be holding to meet its statutory requirements or to support its assurance given to CAL or to summarise the situation for senior management.