LOCAL AUTHORITY WEBINAR Q&A

Ricardo Spotlight on Air Quality: 14th May 2025

Webinar Topic	Question	Response
Low-Cost Sensors and QA/QC: Domestic Burning Project	How much drift are in the $PM_{2.5}$ monitors? I want to be sure that any change in pollution is due to changes in concentration and not changes in the monitor itself.	Daily checks of the 43 monitors is undertaken, and it is determined whether they're drifting and algorithms are applied to adjust the data accordingly. The data is further ratified to address any erroneous data to address potential drift.
	Have you come across a publicly available source of information collecting potential transboundary sources that may impact readings?	No. However TfGM do instruct an alert system that identifies transboundary pollution. This is something that we are interested in exploring further.
	Composition of PM is very helpful in identifying its origins, e.g. nitrates showing it probably came from animal agriculture in the Netherlands. Can we determine composition?	Not as part of this project, however, the University of Manchester has some quite interesting monitoring equipment which can pick up black carbon and metals. So, I think what's coming from agriculture nitrates, we can't do. But I think it's important that we start. Our project looks at the particulate matter that affects health rather than total particulate matter, so we're directing our efforts in this way.
	How did you confirm that there is no wood burning local to background sites, for example from any wood burning installations missing from the HETAS data?	Through street view, or we visited the site. In some locations, there are no chimneys, so you can determine that there are no wood burning stoves in those areas. This doesn't preclude people from burning in the garden, obviously. With regard to the wood burning stoves, you can usually see evidence on the top of chimneys, and if they're used frequently, you can see brown staining from the materials that come out of the stack. So it was very much using this approach as a starting point, but then using information from the local authorities about complaints that they've received from wood burning stoves, and also then site visits.
	Have you looked at ultra fines particularly associated with Manchester airport?	No, TfGM don't have an ultrafine monitor, I'm afraid, but it's something that I'm sure we'll be getting into.

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AQ modelling: Establishing AQ targets & measures	In reference to the slides, which showed the percentage of local authorities who were complying with the 40/30/20/10 limits, when you look at the year average, would you look at an average of all of the sites? How do you how do you assess where each local authority falls?	The data shown on that initial slide showing that distribution of the NO_2 concentrations, is considering the maximum. So would take one site that is an exceedance and could put you above that 40-microgram threshold. So that data was taken from the air quality compliance hub and is a demonstration of the current state of compliance, even if it is one site out of hundreds.
	Did you utilise the Ricardo toolbox of AQ action measures that I believe was developed?	This is the scenario modelling tool. The Warsaw project was completed before this was developed; however, it is something that can be integrated into some of these scenario modelling examples such as the Warsaw project, to streamline the process. It is a useful tool to use in tandem with these projects. It is also useful to have bespoke designed measures, especially if it is a localised issue impacting one or two diffusion tubes on a number of roads.

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A day in the life – Ricardo LSO & QAQC Audits	Could you share common pitfalls you've encountered during linearity or NO_2 converter efficiency tests in field, and how these might bias NOx data without triggering obvious instrument faults?	So, the idea would be for us to have an audit before the ESU service is scheduled. What that means is that when the audit is happening, the analyser is in it's longest period since having its last service (6-months). So, our auditors sometimes do have a challenge auditing some of these analysers because the tests can be quite difficult for an analyser that is basically in need of a of a service, and what we can sometimes find is that linearity or converter failure. This may be a reflection on the fact that the analyser needs servicing, other times it can be genuine issues we've had with the NO_2 converters, for example, that may need to be replaced. If the converter test fails and we find stability within the test, the data can be rescaled according to how far out the converter has failed. In terms of linearity issues, I personally have not found an analyser which had an obvious fault which caused issues with the audit, so I don't think there's many instances that we've had to deal with analysers that weren't linear.