

Network

The newsletter for the UK Air Quality Monitoring Network **Issue 3**

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Measurement methods

Particles – the sampling issue!

An international workshop was recently held by the DETR in London to discuss the complex issues surrounding the accurate measurement of PM₁₀ – with a much lighter consideration of whether the Wide Range Aerosol Classifier (WRAC) could also double-up as a burger van!! (You have to see it to believe it!)

Problems with PM₁₀ monitoring have arisen in all Member States due to the fact that the measurement method for PM₁₀ stated in the Daughter Directive is based upon the gravimetric method of sampling for which three possible Reference Methods are used; the Low Volume Sampler (LVS) PM₁₀ head; the High Volume Sampler (HVS) PM₁₀ Head and the Wide Range Aerosol Classifier (WRAC) PM₁₀ Head.

Historically, measurement methods in the UK (and other countries within the EU) have been based on continuous measurement methods such as the Tapered Element Oscillating Micro-balances (TEOMs) and β-attenuation monitors where good temporal resolution of data can be obtained (i.e. hourly average PM₁₀ concentrations). In order to satisfy the criteria of the First Daughter Directive, Member States must seek to prove equivalence of existing

measurement methods for PM₁₀ against one of the three EU Reference Methods above.

In the UK, the DETR are currently funding a 12 month cross-comparison study between existing TEOM PM₁₀ methods and the LVS PM₁₀ Reference Method. 8-port LVS sequential samplers (Kleinfiltergerat PNS-X8 systems) have been installed at Thurrock, Marylebone Road, Harwell, Port Talbot and Glasgow Centre with a further one proposed for Belfast Centre site. Operated by existing local site operators, the sites have been chosen on the basis of covering a wide variety of particulate emissions sources and climatic variations across the UK. Also included in the study at three of the sites (Marylebone Road, Glasgow and Belfast) is the Rupprecht and Patashnick Partisol Plus 2025 gravimetric sampler – a sequential gravimetric sampler that enables up to 16 days consecutive samples without site attendance.

EN 12341; the reference method for PM₁₀ monitoring in the EU, clearly defines the procedures necessary for the accurate weighing and conditioning of unexposed and exposed filters. AEA Technology has been awarded the contract for this component of the work utilising their controlled climate room within their existing engine emissions testing facility.

Monitoring commenced at four of the six sites during the summer months this year and is scheduled to continue with additional sites coming on-line as and when ready. Preliminary analysis of results has included subjecting the data to rigorous statistical analysis subsequent to any detailed interpretation. We wait with bated breath!

IN THIS ISSUE

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Public perception of air pollution

Data capture statistics



Public perception of air pollution



Recent qualitative research into the public's perception of air pollution highlights the requirement for further improvement in public dissemination of the data acquired through the AURN. The report by Alan Hedges, funded by the Department of Health, was based on eight group discussions involving 62 participants, mainly among 'sensitive' target groups.

The results clearly indicate that traffic pollution and smoking were recognised as the main areas of concern. The study highlights that there is the perception that air pollution as a result of traffic is likely to become worse with increased traffic growth predicted for future years. Awareness of other pollutant sources (e.g. industrial, aircraft fuel, construction dust, etc.), were found to be dependent on the areas in which individuals were living. For example, participants in the Midlands were aware of the contribution of power station emissions to air pollution whilst concerns were expressed by those from West London with respect to aviation fuel.

The research highlights that most people mistrust government information. Previous health scares (for example, BSE, GM foods and salmonella in eggs) have



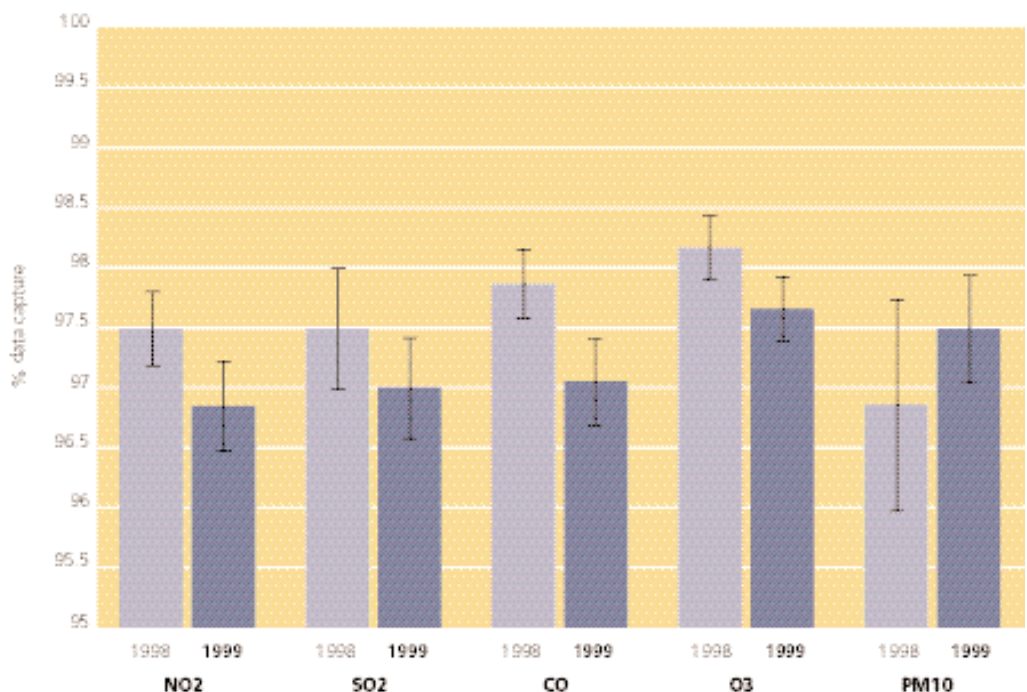
taken their toll in casting doubts about secretiveness, vested interests and political pressures on the information given to the public. However, this mistrust seems more significant for certain kinds of information where statements about *whether there is a problem* tend to be more suspect than statements about *the nature of the problem*. Local authorities take heed; the research indicates that local authorities are perceived as not necessarily being more trustworthy than central government.

Participants highlighted that bulletin-type information would be acceptable from government, although the current bandings of LOW, MODERATE, HIGH and VERY HIGH were thought to create their own problems in perception and credibility with participants questioning the validity of a long string of 'LOWS'. Information given through news media/weather forecasts were thought to be the best access that the public could have to information on air pollution, although participants of the research highlighted the need to steer clear of the use of scientific names and jargon, and also the reporting of numbers. It was generally felt that reporting by exception was the best way of disseminating information.



Data Capture Statistics

Latest analysis of the percentage data capture statistics by CMCU for the 25 sites in the network for which weekend cover was previously provided has highlighted a minimal impact of its removal from local site operators and equipment support units. For certain sites, in certain months, data capture statistics fell below 90%. However, when taken on an annual basis, improved data capture statistics for the remaining months of the year at each of the sites meant that data capture statistics for all sites were above 90%.



Annual Review Meeting

The 9th Annual Review Meeting for members of the Network, held at the National Exhibition Centre, Birmingham, on October 8th, 1999, opened with a presentation by Steve Moorcroft of Stanger Science and Environment on an update of the activities of the network in the last year (see this edition: Particles – the sampling issue!). This was followed by presentations by Trudie McMullen (AEQ-Division, DETR) and John Tipping (Environment Agency) giving presentations on Local Air Quality Management and the new MCERTS scheme, respectively. Both NETECN (Jane Vallance-Plews and Brian Stacey) and NPL (Alan Woolley and Bryan Sweeney) provided updates on the activities for the QA/QC units in the afternoon session.

In contrast to previous years' discussion sessions, participants at this years' Review Meeting were given the chance to provide questions 'up-front'. A lively discussion in the afternoon session clearly indicated that this was the way forward. Of particular concern was the issues raised by a number of LSOs surrounding the provision of calibration cylinders (see this edition for NPL's response), and the criteria for which NETCEN remove data during ratification.

Copies of the Speaker's Notes will soon be sent out to all members and organisations of the AURN.

Review of site calibration cylinder arrangements

Following several comments expressed during the Annual Review Meeting in Birmingham, NPL has reviewed its system for sending out calibration cylinders to sites as old ones need replacing. In future, when NPL receives a fax showing that a cylinder pressure is low, they will now call the LSO to check the position and keep them informed, at the same time as the replacement is ordered. This should avoid problems with incorrect cylinder sizes being dispatched and other misunderstandings that were raised. NPL would also like to hear directly of problems or concerns relating to site cylinders as they arise, so that arrangements either at NPL or BOC can be improved as necessary.

Contact details for Alan Woolley and Bryan Sweeney are listed on the Who's Who? on the back page of NETWORK. Additional contact can be made using email (alan.woolley@npl.co.uk) or fax (0181 977 4591).

In this edition of *Network* we report on the notable activities of the Network over the last year. Specifically, we cover the issue of particulate pollution monitoring in the light of the EU Stage 1 Limit Values based on gravimetric sampling, and report on the current UK position. We highlight the efforts taken to ensure that the activities of the Network continue uninterrupted in the new millennium, and report on the latest Annual Review meeting held at the NEC in October.

In addition, in the last edition of *Network* I intimated in my editorial that the continued efforts of all those participating in the Network can only be further recognised as the demands for legislative requirements and public information increase. However, a report into the public's perception of air pollution has recently indicated that little progress has been made in increasing public understanding on this issue – the majority remaining confused and ill-informed. For local authorities undertaking public consultation, the report is of particular interest and identifies possible pit-falls that can be avoided in conveying information during this process. Clearly, some further analysis of how we translate the workings of the AURN into the provision of information to the public is required.

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Trudie McMullen, Paul Quincey, Ray Evans, and Jeff Booker

News update

Millennium Compliance (Y2K)

The Y2K programme which has been ongoing for the past 18 months is now virtually complete with, of the 87 stations in the network, only four DETR and three affiliated sites remaining that require logger upgrades. The DETR sites have been scheduled for early November and assurances have been given that the affiliated sites will be compliant before the end of the year.

The data management system has also been upgraded during the summer months and has been operating without problems, and we are as confident as we can be that the rollover into the new millennium will be without major incident. However, the proof of the pudding. . .

Change in Stanger logo

Observant readers of this edition of *Network* will notice the new Stanger Science and Environment logo. The need for a new corporate identity has arisen as a consequence of a split at our parent company level with the formation of a new company, Carillion plc., formerly Tarmac Construction Services.

Winter blues . . .

It seems that it's not just people that can't deal with the clocks going back. The thought of long, dark, winter evenings is something that the Signal Ambirak systems just can't handle. CMCU had a number of reports that the Ambirak systems had closed down as a result of the time change brought about by the move from British Summer Time to Greenwich Mean Time. Let's wait and see what happens in the move to BST in the Year 2000!

WHO'S WHO?

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intercalibrations

cylinder supplies

Who does what in the Network?

The successful operation of the Network is dependent on the commitment and dedication from a large number of organisations, and the individuals within them. A brief reminder of who does what:

Central Management & Co-ordination Unit (CMCU):

Responsible for setting up new sites within the Network (including site selection and procurement of equipment); Network operation (appointment of ESUs and LSOs, co-ordination of equipment calibration and servicing); data collection and validation; data reporting.

Quality Assurance/Quality Control (QA/QC) Units:

Responsible for providing independent QA/QC checks on Network operations. This includes routine inter-calibration audits and data ratification. The QA/QC Units also provide advice on operation issues to the CMCU.

Equipment Service Units (ESUs):

Responsible for the routine and emergency servicing of analysers and ancillary equipment.

Local Site Operators (LSOs):

Responsible for undertaking routine site calibrations. The LSOs also provide invaluable information and feedback on site performance to both CMCU and QA/QC Units, and undertake initial investigations of site problems.

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