

AIR QUALITY

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BULLETIN

EUROPE

Defra submits PM₁₀ exemption

Defra has submitted the UK's application to the European Commission for an extension to meet air quality limit values for PM₁₀.

It has also published its response to criticisms of its plans released earlier this year (*AQB February p1*). It accepts few points made by respondents such as Lacors (*AQB April p6*).

Defra claims the extension will enable current and planned measures to take effect to reduce PM₁₀ levels to within the EU limits by the extended deadline of 2011: "Of particular importance in delivering improvements are the EU vehicle emission standards and other traffic related measures,

such as encouraging lower emission vehicles, and regional or local measures promoting greater use of public transport and smoother traffic flows. The commitment in the budget to introduce measures to incentivise uptake of HGV's and buses that meet the latest EU vehicle emission standards will also deliver valuable improvements."

Defra's eight page summary of the 38 responses to the consultation comment on the charge that PM₁₀ concentrations are rising, not falling: "It is recognised that PM₁₀ concentrations have not been declining as much as expected in recent years. However, in the

eight zones covered in our notification, projections indicate achievement of compliance by 2011."

In answer to the criticism "why has local monitoring not been used?" Defra says: "It is recognised that local knowledge may provide extra information that may remove or include an exceedence location. However it is extremely difficult to include large amounts of local information into the national model."

Plans were widely criticised as they relied on London Mayor's low emission zone and congestion charge, which have since been watered down. Defra

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BUDGET

Recession measures could help air quality

The Government's latest Budget includes some measures that may impact air quality.

A scrappage scheme for older cars and vans has been introduced to help the ailing motor industry and could improve air quality. The Government will contribute £1,000 towards a new car for anyone that trades in a ten year old car they have owned for over a year and that has a valid MOT.

The SMMT says there are over 19 million cars and vans over 10 years old but there will be funding for only 300,000 trade ins. However many observers fear that the scheme will not prove popular because drivers of older vehicles will be unable to afford new vehicles even with the £1,000 grant.

There are further fears that old petrol cars will be traded in for new diesel cars and that this will dilute any benefits. The numbers are also dwarfed by the 25% fall in new sales caused by the credit crunch – this will impact on the penetration of newer, cleaner cars assumed in emission factor forecasts.

The Budget also announced support for ultra-low carbon vehicles, including early electric and plug-in hybrid cars. In addition to direct funding, the Government is also providing support through the tax system, with electric vehicles paying no fuel duty or VED. Up to £20 million will be available to support the roll-out of charging infrastructure. £250 million will be used to reduce up-front costs of early electric and plug-in

hybrid cars by between £2,000 and £5,000.

The Euro V vehicle emissions standard for new heavy goods vehicles will become mandatory on 1 October 2009. As a result, reduced pollution certificates (RPCs) for vehicles achieving early compliance with this standard will no longer be available for new vehicles from that date. The Government will introduce measures to incentivise the choice of Euro VI vehicles, once the full details of the standard have been established by the European Commission.

Epuk welcomed the Budget, it says it will accelerate the removal of older, polluting vehicles and stimulate the market for cleaner electric vehicles.

IN BRIEF

EEA records more PM exposure

A report by the European Environment Agency attempts to use European monitoring data to estimate population pollution exposure.

Usually such analysis relies on modelled data and the EEA methodology yields higher mortality figures than in the past. EEA says its reliance on monitored rather than modelled data removes underestimates caused by averaging of peak exposures in urban areas.

It says the number of Europeans exposed to annual mean concentrations of PM₁₀ above the annual limit value (40µg/m³) was more than 9% of the total population in 2005. About 28% of the European population were exposed for more than 35 days to PM₁₀ concentrations of above 50 µg/m³ (the limit value).

The number of premature deaths per million inhabitants attributable to PM₁₀ exposure (across the EU 27 as a whole) was estimated to range from 510 to 1,150 cases per million. Even if the lower figure were applicable to the UK, it would be considerably higher than current Defra assumptions for London.

The Campaign for Clean Air in London has cited the estimates as they affect London and say they are three times what the Government assumes.

In a letter to MPs and Europe, the Campaign is demanding that the UK Department of Health "clarify the full extent of the health impact of poor air quality in Greater London; and to commit to a major public information programme to communicate updated similar information at least annually in future".

● EEA's report *Spatial assessment of PM₁₀ and ozone concentrations in Europe (2005)* can be viewed on www.eea.europa.eu

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IN BRIEF

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responds: "The modelling for London includes assessment of the impacts of phase three of the London low emission zone (LEZ) and the western extension. Whilst the London Mayor has indicated his intentions to suspend or remove these measures, final decisions will be subject to consultation which will take place between now and 2011. Should the Mayor decide to suspend phase three of the LEZ, we would expect him to put in place other measures that would deliver equal, if not greater, improvements to air quality."

The cost benefit calculation outlined in the consultation was couched in terms of do everything or do nothing. Doing nothing was considered cheapest. In answer to criticisms of this approach, Defra says: "In the 2007 air quality strategy, retrofitting was the most effective potential option on the basis of monetary cost, technical feasibility and practicability. That is why a large scale retrofitting of diesel particulate filters was the option considered. While it is possible that a portfolio of local schemes might deliver the objective at lower cost, a national measure is preferable both to ensure certainty and the necessary speed of action."

- The application comprises a series of detailed forms and a technical report, which are available at: www.defra.gov.uk/environment/airquality/eu-int/eu-directives/airqual-directives/notification.htm

Ozone dips

According to several indicators, ozone levels during the summer of 2008 were the lowest since 1997 according to an European Environment Agency report.

As in most previous years, no exceedences of the EU threshold value occurred in northern Europe. Once again the long-term objective (120µg/m³ over 8-hours) was exceeded in all EU member states.

- *Air pollution by ozone across Europe in summer 2008* www.eea.europa.eu

NEWS FROM THE IEH MEETING HELD LAST MONTH AT CRANFIELD

NO₂: real or imaginary?

Discussion continued at the Cranfield Institute of Environment and Health meeting on whether NO₂ led to health effects in its own right, or is simply a marker for something else.

The issue is hugely significant – it is the NO₂ objective that is giving the UK and other European countries most difficulty in meeting objectives, and it is the NO₂ objective that is constraining expansion of Heathrow on air quality grounds.

The Health Protection Agency's Bob Maynard told the conference: "Why are so many people so keen to ask the question whether or not NO₂ has a primary effect on health or is simply an index? What are the implications of deciding one way or another?"

Birmingham University's Jon Ayres said: "I believe it is a

marker for something else. Chamber studies suggest that you have to have very high exposure before you can see effects." With so many epidemiology studies unable to agree whether NO₂ has a direct effect or is simply a marker, Ayres said that it may be that epidemiology has gone as far as it can, and that further chamber studies are needed. His team is completing one such study.

Meanwhile Inga Mills of St George's, University of London, reported on her work on a new meta analysis aimed at shedding more light on NO₂ confounding. This involved collecting and compiling a database of multipollutant studies.

Core objectives include:

- To assess the strength of the epidemiological evidence from studies using two or multipollutant statistical models which simultaneously

incorporate concentrations of particles to estimate the effects of short term exposure to NO₂ on health;

- To create a dataset of quantitative effect estimates linking short term exposure to NO₂ with health outcomes and data on a range of possible confounders and effect modifiers; and

- To conduct exploratory statistical analyses to identify the sources of heterogeneity and effect modification in the effect estimates linking short term exposure to NO₂ with outcomes of health.

Results are not yet available, but Mills has found 185 peer reviewed papers for a total of 11 categories of health outcomes linked to short term exposure to NO₂ from which some 336 estimates can be derived. Less than a quarter of these are multi city.

CRANFIELD IEH MEETING

Approved analysis underestimated

Government assessment methods may underestimate the impact of particles on health according to Mike Ashmore of York University.

He told the IEH conference that cost benefit analysis, as used to inform the air quality strategy, uses average exposure to work out the impact of particles on the population and benefits of interventions. But this tends to underestimate the impacts and benefits compared to techniques using personal exposure, for instance the model underestimates the number of

people that live near busy roads.

Currently exposure is averaged using AEA's 1km concentration grids and a national health effect coefficient used to establish impact. Ashmore explains: "However the health outcome for any individual relates to their personal exposure. Within an urban population, personal exposure varies between individuals due to differences in their location and time activity and modelled exposure will yield inaccurate results." This is being tested in Leicester.

Official costing methods assume people are only exposed to outdoor background concentration in the grid square in which they are resident. The population exposure frequency distribution is skewed because population density is greatest in grid squares with the highest concentrations.

He says this may produce a systematic bias and concluded: "We think that current national AEA methods underestimate current health impacts and benefits of measures to reduce roadside concentrations."

CRANFIELD IEH MEETING

Noise ignored in air quality studies

Impacts of noise have been inadequately controlled for in air quality studies, Imperial researcher Lars Jarup told the IEH conference held in Cranfield last month.

He explained that both noise and air quality exposure is strongly influenced by traffic levels so that noise and air pollution exposure maps look very similar. There is evidence

that exposure to traffic noise can cause stress and subsequent heart attacks, but it is not clear how noise is confounding air quality studies, and vice versa.

Jarup cited two recent studies which looked at noise and air quality impacts (One by Beelan et al, another by Selander et al). He said that while both concluded that impacts were more due to air pollution than

noise, data within the reports hinted that noise may have an independent effect.

He said: "None of the acute air pollution studies have controlled for noise. In spite of this obvious co-exposure there is a lack of interaction between the scientific community dealing with health impacts due to exposure to noise and that dealing with air pollution."

NEWS FROM THE LAQN/ERG SEMINAR HELD IN LONDON LAST MONTH

Tensions erupt on data conflict

Delegates at the Environmental Research Group/London Air Quality Network conference held last month heard experts voice concerns about the growing gap between monitoring data and modelled projections.

In its air quality strategy, and recent submission to Europe seeking flexibility, Defra has relied on projections that show a dramatic drop in modelled pollution concentrations. By contrast ERG's Gary Fuller told the conference that latest figures showed continued stability – or even rises – in monitored

pollution concentrations.

This divergence between projections and reality led to much discussion. ERG's Sean Beevers noted: "There is a problem reconciling trends with forecasting models because emission models do not reflect reality."

Dick Derwent commented: "There is a lot invested in NO_x emission policies and emission factors – somehow we are going to have to reconcile the growing divergence between observations and assumptions."

Leeds University's David Carslaw said: "We've had seven

years of NO_x controls and yet concentrations are still increasing."

● Medic Chris Griffiths told the conference about a huge new study set up within the London area to look at air pollution health effects.

Two groups of 150 children from Hackney and Tower Hamlets schools will be closely monitored in a bid to establish the impact of pollution on lung development. Kids are visited in their schools and various lung function tests and urine samples taken and their proximity to major roads recorded.

LONDON

Defra accused of deceit

Retired medic Stan Prokop attended the LAQN meeting and has voiced his concerns.

He has accused Defra of deceit in a letter to European authorities. He says Defra is hiding the true cost of air pollution and that the UK should be prosecuted for not taking action.

He says: "Defra talks of falling emissions when it means

values of the computer modelled emissions inventory are falling. This has become embarrassing as the real time measures are steady, not to say rising. There is no presentation of the populations affected by these kilometres, nor their social deprivation scores."

Prokop has also criticised Defra's proposed adoption of the CMAQ air pollution

modelling tool to estimate strategic scale concentrations. He claims European experience with this model suggests it undercounts the level of particle episode peaks by 50%.

He also says the Committee on the Medical Effects of Air Pollution should raise its official estimate of PM₁₀ mortality (6%) given European findings that suggest higher figures.

LONDON

Report calls for targeted London zone

The London Assembly has completed its inquiry into air quality in London.

Many experts were called to give evidence to the inquiry earlier this year (*AQB April p3*). Its findings will feed into the revamp of the Mayor's air quality strategy. The report says: "Air quality in London is amongst the worst in Europe. The committee is looking for the Mayor to set out in his air quality strategy a realistic timetable for how he will tackle poor air quality. In 2012 we do not want the quality of London's air to be an issue as was the case in the two most recent Olympic Games in Beijing and Athens."

Other comments include:

● The number of premature deaths prompted by air pollution is 1,000 according to official estimates – but could be 3,000 a year based on other analyses.

The committee says better information and data on impacts are required;

● Bold and innovative action must be taken by government and the mayor to improve public health and avoid infringement proceedings by the EU. The mayor should set out how proposed measures will improve air quality in the short, medium and long term;

● Additional, smaller low emission zones should be introduced to target pollution hotspots from road transport.

● *Every breath you take: An investigation into air quality in London* can be viewed on www.london.gov.uk/assembly/reports/environment/air-quality-report-200904.pdf

committees, experts were intelligently grilled eg. by the well briefed Murad Qureshi (explained by having an MSc in environmental economics).

But was Qureshi on holiday when the report was written? While he provided a robust personal comment afterwards, within the report itself there is scarcely a mention of the mayor's postponement of the third phase of the low emission zone and dilution of the congestion charge.

Boris Johnson's pandering to motorists mirrors that of the Government, London used to have air quality policies to be proud of and this seems to have been overlooked in the report.

Sadly this mediocrity may set the tone for the current revamp of the London air strategy which is supposed to contain new policies to make up for the LEZ postponement.

IN BRIEF

Tube update

The NO₂ diffusion tube bias adjustment factor spreadsheet has been updated from the 03/09 version.

● The new spreadsheet (v. 05/09) may be downloaded from the helpdesk website www.uwe.ac.uk/aqm/review

Low carbon London

London Mayor Boris Johnson has allocated £3 million to develop 10 low carbon zones to cut carbon emissions.

The zones will have a target to deliver 20.12% of carbon emission savings by 2012 and will bring together local authorities, community organisations, residents, businesses and utilities to work in partnership in a targeted geographic area.

Initiatives include decentralised energy plants to produce heat and electricity locally and use renewable energy sources.

Compost control

Guidance has been produced for local authorities on composting and odour.

The guide is not statutory but provides information on best practice techniques for the control of composting odours and the proactive and reactive assessment of odour from composting.

● *NANR 275 – Good practice and regulatory guidance on composting and odour control for local authorities* can be viewed on www.defra.gov.uk/environment/noise/research/pdf/composting-odour-guidance.pdf

Eco omission

Epuk believes the draft planning policy statement on Ecotowns should include low emission criteria.

While Epuk welcomes "some high environmental criteria set out, we express concern at the absence of standards for local environmental quality in the consultation draft".

It says the PPS should require the implementation of low emission strategies to keep emissions of air pollutants from activities related to eco-towns to a minimum (for instance biomass installations).

IN BRIEF

Epuk on LTp guidance

Epuk has responded to the recent DfT consultation guidance for the third round of local transport plans (*AQB January P5*). Air quality was further downplayed in the guidance.

Epuk says: "We feel that the local environmental impacts of local transport receive insufficient attention. Local journeys have the strongest effect on local environmental quality due to their proximity to homes, schools and offices. On air quality we feel that there needs to be greater recognition of the need to comply with EU limit values for key pollutants; these limit values will be coming into effect over the course of the LTP3 period.

"In LTP2 air quality was one of four-shared priorities, and local authorities were encouraged to incorporate air quality action plans into their local transport plans where transport was the main source of breaches of air quality standards. While it is good to see air quality featured in the 'challenges matrix', the general feeling is that the importance of air quality has been watered down when compared to LTP2."

Register updated

The UK Pollutant Release and Transfer Register (UK PRTR) has been updated.

It contains pollutant release data from a wide range of industrial installations across the UK, including: refineries; power stations; and less polluting activities that are regulated by local authorities.

● www.defra.gov.uk/prtr

New FAQs

New frequently asked questions have been posted on the review and assessment helpdesk website.

They cover carbon monoxide, bias adjustment for NO₂, worst case locations, an error in the volatile correction model and solid fuel burning.

● Review and assessment www.uwe.ac.uk/aqm/review

EXCELLENCE

Birkett scoops AQB award

Campaign for Clean Air in London leader Simon Birkett has won this year's 'most mentioned' award from *AQB*.

The award, a bronze impression of the editor's bottom, was initially conceived as a joke but has gathered momentum as a serious award recognising special efforts on air quality. Previous 'bottom' holders include Jon Fox of Bexley, Andrew Whittles now of Cenex, Duncan Laxen and Steve Moorcroft of AQC, Mark Daly of Sheffield and Ruth Calderwood of the City of London.

The award is handed out at Epuk's spring workshop. Birkett was chosen this year for his work with the Campaign for Clean Air in London. *AQB* editor Jack Pease explained the reasoning: "Several years ago we had a confident and ambitious Defra which set up a world-class framework for air quality which was praised both by central and local government for its inclusion and vision. Of late, Defra appears to have come under the thumb of Treasury, Dberr and the DfT, Defra now focuses less on



Simon Birkett, left, is presented the award by Jim Storey

science and more on cost benefit analyses to justify inaction, saving other departments from doing it themselves."

Pease continued: "Only the arrival of Simon Birkett, with his very real threats of legal action in Europe, appears have given Defra some confidence to stand up to other departments. While Defra's response on the PM₁₀ extension has been lacklustre, there is a real feeling

that at last, something will need to be done on air quality – and we can thank Birkett for that."

Birkett is renowned for frequent, incredibly long and detailed copied-to-everyone emails and letters which are ignored at the recipients' peril.

From the banking industry, he has recently taken early retirement from HSBC so he is likely to become even more of a scourge for the authorities.

REGULATION

Rich pickings likely from data mountain

Defra has completed a consultation on the INSPIRE Directive.

The EU Directive will collate spatial, geographic and environmental data, currently held by numerous organisations, to provide a single access point to each EU member state's information. INSPIRE will enable planners, decision makers and policy makers to have consistent and easy access to location information.

The assessment shows that one-off costs of implementation over 10 years are estimated to be some £55-£60m for the UK. No extra funding is planned, Defra says it can be paid for out of existing budgets. Benefits are estimated to be some £70-£130m in the UK made up of:

- More efficient EIAs and SEAs (£10-20m);
- More efficient environmental monitoring and assessment (£10m);

- More cost effective expenditure on environmental protection (£30m);
- More cost effective implementation of EU Directives (£5m);
- More effective implementation of UK environmental projects (£1.5m);
- Reduced duplication of spatial data collection (£2-25m);
- Improved delivery of risk prevention policies (£12-40m).

Issues to be included in the massive database include:

- Geographical distribution of dominance of pathologies (allergies, cancers, respiratory diseases, etc.);
- Information indicating the effect on health (biomarkers, decline of fertility, epidemics) or wellbeing (fatigue, stress, etc.) linked directly (air pollution, chemicals, depletion of the ozone layer, noise, etc.);
- Location and operation of environmental monitoring

facilities includes observation and measurement of emissions, of the state of environmental media and of other ecosystem parameters (biodiversity, ecological conditions of vegetation, etc) by or on behalf of public authorities;

- Population distribution, including population characteristics and activity levels;
- Atmospheric conditions;
- Physical conditions in the atmosphere. Includes spatial data based on measurements, on models or on a combination thereof and includes measurement locations;
- Meteorological and geographical features;
- Weather conditions and their measurements; precipitation, temperature, evapotranspiration, wind speed and direction.

The paper can be viewed at www.defra.gov.uk/corporate/consult/inspire/index.htm

LOCAL GOVERNMENT

Plan freedoms U-turn

Councils may once again be obliged to produce action plans in a U turn just announced.

The move is contained in a new DCLG consultation that claims to devolve more power to local authorities and cut down on bureaucracy.

The consultation explains: "Top rated councils under the now departed Comprehensive Performance Assessment (CPA) were given exemption from the requirement to produce some of the plans discussed in this consultation. With the introduction of Comprehensive Area Assessment (CAA), a broader form of assessment for the area as a whole, and

providing greater freedoms at local level, these exemptions no longer apply.

"Most of the four star authorities that are currently exempt from producing an air quality action plan choose to do so. Due to the EU imposing a statutory duty on each member state to meet limit values for a number of air pollutants and the importance of local action plans for meeting these limit values, it is proposed to remove the exemption once comprehensive performance assessment ends.

"Defra has been considering options for minimising the burden on local authorities in the way they produce air quality

action plans, and revised local air quality management guidance will simplify local authority reporting so that seven pollutants are reported on, rather than focus on the potential sources for each of these pollutants. Defra will keep the system under review to consider whether further improvements can be made."

Spending of income from environmental fixed penalty notices is currently restricted to environmental issues – the consultation asks if these restrictions should be lifted.

● www.communities.gov.uk/corporate/publications/consultations.

REGULATION

13 gang up to challenge Heathrow

13 organisations have joined together to challenge the Government's decision to expand Heathrow.

London Councils within the 2M group and green groups are using the judicial review process claiming the Government's decision making was flawed and the decision irrational. They hope to prompt a review of aviation policy and delays to the consultation.

The local authorities will argue that the Government failed to conduct a lawful consultation process and arrived

at a decision on a potentially half-capacity third runway, which was different to the fully operational runway in the consultation.

They will claim that the decision was irrational in a number of areas including the economic case, noise, air quality and public transport impacts and the approach to climate change issues, and that the transport secretary failed to provide adequate reasons for his decision. If permission is granted it is likely that a hearing would not take place until the

early part of 2010.

2M said: "The number of organisations backing this challenge is unprecedented. For the local authorities the real concern is that the Government has not proved that a third runway can be operated without breaching air pollution limits, making noise worse or creating intolerable congestion on local roads and public transport. This consultation was deeply flawed because it failed to give local people the opportunity to say no to expansion."

● www.2MGroup.org.uk

REGULATION

Metals remain low in network

Metals in the UK remained low, a report from NPL claims.

2008 data collected under NPL's five year contract suggests show a slow downward trend in annual average concentration values. In more detail:

- Arsenic: Levels continue to fall and are uniformly low across the network;
- Cadmium: Concentrations are low except Walsall;
- Chromium: Concentrations remain low across the network and heavily influenced by recordings from Sheffield;
- Copper levels have decreased for the fifth year in a row;
- Iron: Concentrations have

increased in 2008, primarily because the network reorganisation has encompassed a large number of point sources located around steel plants;

- Particulate phase mercury: Concentrations remain very low across the network and have decreased in 2008;
- Total gaseous mercury: Concentrations have shown a small increase influenced by high levels at Runcorn;
- Manganese: Concentrations have increased in 2008, this is blamed on network re-organisation increasing sites near steel plants;
- Nickel: Concentrations showed a decrease in 2008 but

one site was above the upper directive threshold, and another above the lower threshold;

- Vanadium: Concentrations decreased slightly in 2008, and remain generally low;
- Zinc: Concentrations increased in 2008 (heavily influenced by Walsall), but at most locations remain low;
- Lead levels showed a slight increase 2008 but remain low across the network. Over the last 10 years levels have approximately halved.
- *Annual report for 2008 on the UK heavy metals monitoring network* can be found on the reports section of www.airquality.co.uk

IN BRIEF

Biomass: sink or sinner

The Environment Agency has released a report on the carbon balance of biomass plants.

Increasing numbers of biomass facilities are being planned, the air quality disbenefits can be significant and regulators need to know whether the carbon benefits justify the air quality disbenefits.

The research shows that greenhouse gas emissions from energy generated using biomass are generally, but not always, less than from fossil fuels.

For example, using short rotation coppice chips to generate electricity can produce 35 to 85% less emissions, whereas using straw can, in some cases, produce over 35% more, than a combined cycle gas turbine power station per unit of energy delivered.

A *Biomass environmental assessment tool* (BEAT2) is outlined that can be used to help the calculation of benefits (www.biomassenergycentre.org.uk/BEAT).

● *Biomass: Carbon sink or carbon sinner* can be viewed on www.environment-agency.gov.uk/static/documents/Biomass_carbon_sink_or_carbon_sinner_summary_report.pdf

Six year review

Government has consulted on the periodic review of process guidance notes which set out best available techniques to minimise air emissions from Part B installation.

The consultation seeks views on how the next review should be conducted and what it should cover. It is proposed to undertake the review of all 80 process guidance notes between 2009 and 2011, the last major review was between 2003 and 2005.

● *Consultation on the scope of the proposed 6-year review of process guidance notes for Part B installations* www.defra.gov.uk/corporate/consult/sixyear-review/index.htm

Mcerts 2009

The two-day Mcerts monitoring event held in Bretby last month attracted good numbers. Jack Pease reports from the exhibition which saw monitor firms in a sombre mood.

Ambient air quality monitoring has had a good couple of years. Defra and the devolved regions' monitoring network has been heavily revamped leading to plenty of new orders for monitors (with Air Monitors scooping up a particularly big contract for its CB Teom FDMS's).

But now that upgrade is nearing completion, 09/10 could be a difficult year with little extra by the way of new European directives to prompt

additional monitoring. Firms are hoping that Defra's meagre air quality grant will be focussed once again towards monitoring.

Some firms will be desperate to pick up those titbits – there have been some notable winners and losers in terms of monitor maintenance contracts (see news, right). Coupled with the credit crunch and higher import costs because of the weak pound, we wish firms all the best in surviving till the next Mcerts in two years time.



Let's talk about the weather

Air Monitor's Jim Mills revealed its sonic wind speed weather station (see picture, below).

Increasingly local authorities need accurate weather data to match up to air quality readings. Relying on weather data from a met station 20 miles away can lead to meaningless results.

Air Monitors' device can be located adjacent to the pollution monitor cabinet, or on a nearby building and linked using a wireless connection. It is then possible to match pollution peaks

with weather data and establish, for instance, which direction the wind is blowing when the peaks occur.

It logs wind speed, direction, temperature, barometric pressure and humidity and data can be included in Air Monitors' AQ Data web system.



FDMS integrated with Teom



Thermo's Colin Craggs with the firm's new equipment

Thermo showed its latest Teom which integrates the FDMS technology into the device.

In recent times the old 1400 Teom has been sold along with an FDMS attachment in order to achieve equivalence with European monitoring standards.

Now the 1400 replacement, the 1405, can be bought as the 1405 F (ie with the FDMS) or D (dichotomous, measuring two sizes (eg PM_{2.5} and PM₁₀) at the same time).

Thermo's Colin Craggs told *AQB* that the list price of the old Teom 1400 and 8500 FDMS was £29k, the newer 1405F list price is £26,800 (£30,400 for dichotomous version).



Shrewsbury data open to all

Since last summer, Enviro Technology has been working with Shrewsbury to help it offer an air quality data service to residents and interested parties.

Though the council already had some emissions monitoring in place, this is the first time it has been able to provide detailed information from the town's traffic hotspots. Given Shrewsbury's narrow medieval streets (see left), traditional monitoring stations were too bulky to allow them to be positioned in the places where emissions were at their highest. ET's compact Roadbox now allows data can now be collected from the areas most affected and fed into the new air quality data section of the council's website, also provided by ET. David Spode, from Shrewsbury Borough Council, said: "We were able to secure funding for the equipment and the website from Defra, which other local authorities should bear in mind when thinking about updating their air quality monitoring." (www.shrewsbury.airqualitydata.com)

MONITORING

Three win AURN contracts

Lucrative monitoring contracts awarded by Defra were much discussed on the Mcerts stands.

Maintenance contracts for the automatic urban and rural network (AURN) have been keenly fought with firms battling both the downturn and the aftermath of last year's Defra spending spree on new monitors.

For the first time, AURN maintenance was split into regional lots. This became a problem for some companies who have a policy of not maintaining other firms' kit.

Enviro Technology won the rural element and the urban south lot, Air Monitors has won the 'affiliated' sites (north and south contracts) and Casella

won the urban north lot.

Firms including Horiba, Signal and SupportingU have been involved in network maintenance prior to this contract.

Casella told *AQB*: "We won the tender we put in a bid for and wanted to win. This covers 100 analysers and is a significant value contract and represents an increase in Casella Monitor's share of stations (albeit a different mix this time around) and plays to Casella Monitors strengths, since six of our 10 field service engineers are located in 'the North' (as defined by the tender)."

Enviro Technology's technical director Mike Webley said: "This is a significant win

for us. The AURN has been in operation since 1992 and we have been working with Defra on various service and support contracts since that time but never before have we been responsible for so many analysers (126) on the network."

Air Monitors is relatively new on the block and is pleased with its win: "This is a prestigious appointment that places Air Monitors Limited as one of the top three air quality instrumentation suppliers in the UK," said Jim Mills

Bureau Veritas (BV) judged the tender in its capacity of CMCU (central management co-ordination unit) on behalf of Defra.

IN BRIEF

Training opportunities

Air Monitors is running a monitoring workshop and training courses on its AQ web software suite.

Courses will be held at Rutherglen on May 21st & 22nd and are designed to familiarise users with the software and to build skills related to data capture, editing, quality assurance and quality control and reports generation. Publication of data via the internet, digital media and conventional means will also be covered.

Courses will be limited to 10 users per day in order to allow sufficient 'hands on' time for each candidate.

Meanwhile the conference on May 20th on monitoring will feature speakers from BMT Cordah, AEA Technology, Prime Space, Napier University and JMP.
 ● www.airmonitors.co.uk/aqweb_seminars

Zones reported

AEA has released a summary of data submitted to Europe on the UK's exceedence of objectives.

Among the air quality strategy pollutants in the 2007 reporting year, it shows that one zone will bust the one hour NO₂ objective, 39 zones for the annual NO₂ objective, and 25 zones for the PM₁₀ annual objective.

● *UK air quality modelling for annual reporting 2007 on ambient air quality assessment under Directives 96/62/EC, 1999/30/EC and 2000/69/EC* can be viewed on www.airquality.co.uk

Ozone reported

43 UK zones will exceed the long term eight hour objective for ozone, the UK's report to the EU suggests.

● *UK and Gibraltar air quality modelling for annual reporting 2007 on ambient air quality assessment under Council Directives 96/62/EC and 2002/3/EC relating to ozone in ambient air* can be viewed on the reports section of www.airquality.co.uk



Sniffing out disaster

Enviro Technology's Duncan Mounsor demonstrated its new portable hazardous gas detector.

The detector includes four different monitoring technologies (ion mobility, photo ionisation detection, electro chemical sensing and metal oxide sensing) as a means of giving greater accuracy and fewer false positives.

The device could be used for emergency response teams attending events such as Buncefield. The Airsense GDA2 gas detector array can quickly 'sniff' the air and flag up what compounds are there and at what concentration.

● (Editors note: the shirt. Mounsor's shirt needs to be explained – the company dressed up in a holiday theme, complete with deckchair, to highlight its easy-to-use CEMS monitors. The flowery shirts provided welcome colour among grey suits, in an exhibition held in a grey former factory, located in a grey ex-colliery site on a grey day!)

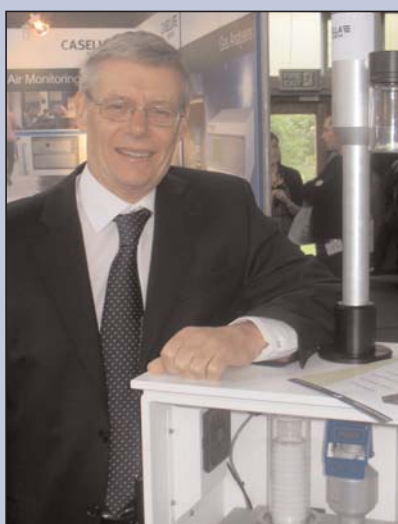
Gravisol: sneak preview

A competitor for the Partisol made an appearance at the Mcerts 2009 exhibition.

Casella Measurement, under its newly formed 'Monitor' brand, was showing off the 'low entry price' Gravisol sequential ambient particulate monitor which it has had specially developed. It will be marketed worldwide by Casella within months. Most of Casella's range is available for hire or purchase..

Casella's Graham Easton (pictured next to the monitor) told *AQB*: "We are currently in discussions about certification, we believe there is a market for a new sequential sampler for PM_{2.5} and PM₁₀. It holds 18 filter cassettes, has an automatic filter exchange, external sensor capability, touch screen interface and 1gb data capability."

Casella was also demonstrating its Chromatec gas analyser which can be used in applications such as boundary monitoring.



Biomass: how to handle it

Guidance has been proposed for local authorities and developers keen to handle biomass correctly

Epuk and Lacors have collaborated to produce draft guidance for biomass aimed at local authorities.

The guidance is eagerly awaited by environmental health officers who are being asked by planners to approve developments with biomass plants. Wood burning and other renewable energies are being expressly required by many planning authorities as a condition for development. Alongside the guidance is an information leaflet for developers who may be asked to provide detailed information on their biomass provision (see right).

Local authorities such as Dundee, Edinburgh and London boroughs have expressed fears that widespread uptake of biomass could worsen air quality, especially PM₁₀. Reports compiled by AEA suggested the effect was small but significant, especially in air quality management areas (*AQB Dec 2008 p1*). As well as meeting limits, local authorities are also supposed to work towards improving air quality even where limits are met. For PM_{2.5}, for instance, exposure reduction objectives seek reductions of concentrations across the board because of the no-threshold health impacts of fine particles.

The latest Epuk/Lacors report results from the setting up of a working group convened to provide robust advice on the

issue. It comes at the same time as publication of a Defra assessment on biomass uptake (see right) – if the gung ho biomass industry had been hoping for an unqualified all clear, it will be disappointed. That assessment concludes that biomass is best for rural areas remote from the natural gas grid – and should be used with caution in urban areas. This is not the sort of endorsement that pushy biomass groups would have liked (*AQB January p7*).

Biomass can refer to many different types of renewable heat. This could be relatively benign liquid biofuels to timber and residues from other processes. The latest guidance only covers dry woody fuels.

In terms of size, take up could come from individual householders keen to reduce their reliance on gas and electricity to large scale commercial developments which require fuel deliveries by bulk trucks. The majority of installations of biomass plants will occur as part of a larger development, and will therefore need both regulatory (pollution) approval and also planning approval., medium and small size facilities are effectively unregulated – the Clean Air Act is not fit and proper to control emissions from such appliances (emissions performance of ‘approved’ appliances can vary wildly).

The guidance states: “The document is



Biomass in urban areas may be a problem

Available now:

Main guidance document

Biomass and air quality guidance for local authorities (England and Wales) (The main guidance document)

Accompanying Tools

Biomass and air quality: A leaflet that local authorities can hand to developers considering biomass energy for their developments;

Biomass boiler information request template: An adaptable template form for local authorities to request details of a biomass boiler;

Biomass boiler inventory template: A template spreadsheet for logging the details of biomass boilers, to help assess cumulative impacts;

Unit conversion and screening tool (and instructions) Emissions and fuel properties data may be presented in a variety of units, and this spreadsheet contains worksheets that convert between these.

EXAMPLES OF S106 CONDITIONS

Assessment and certification conditions

An air quality assessment using dispersion modelling shall be carried out and submitted to the local authority to demonstrate that the stack height of the biomass boilers is sufficient to prevent emissions having a significant negative impact on the air quality objectives for NO₂ and PM₁₀. Where emissions are shown to result in an increase a full discussion of any potential breaches of air quality criteria shall be provided and an outline of how emissions will be mitigated.

With regards to energy use on site the biomass boiler must be certified as an exempt appliance in accordance with the Clean Air Act 1993. Evidence to demonstrate that the boiler has been tested and certified as an exempt appliance shall be provided to the local authority prior to installation. This shall be supplemented with the technical details of the biomass boiler.

Fuel quality conditions

The biomass boiler shall only be operated using clean wood pellets that comply with a recognised fuel quality standard (such as CEN/TS 14961:2005.) A written guarantee shall be submitted to the local authority prior to commencement of the development with a declaration that wood pellets conforming to a recognised fuel quality standard will be consistently used in the biomass boiler.

A statement shall be submitted to the local authority specifying the quantity of wood pellets used in the biomass boiler, and the fuel specifications in accordance with CEN/TS 14961:2005 or a similar recognised standard. (The statement shall be obtained from the fuel supplier.)

Maintenance conditions

The biomass boiler shall be associated with a written schedule of maintenance, which shall include removal of ash, inspection and maintenance of particulate arrestment equipment, boiler servicing and stack cleaning. The maintenance schedule shall be submitted prior to installation.

aimed at local authorities, and is intended to help officers and elected members with strategic planning and decisions on individual planning applications. The guidance focuses on assessing and managing the effects of biomass on air quality – specifically NO₂ and particulates (PM₁₀ and PM_{2.5}). It does not cover sulphur dioxide in depth.

The guidance starts off by advising that once a local authority receives notification that a biomass boiler is planned for a particular location, a number of steps need to be followed to assess whether the potential air quality impacts are significant: “The first, and probably most important step is to collect basic information about the proposed boiler to enable a quick risk-based assessment to be made. This will be followed by the collection of more detailed information, a screening assessment, and proceeding to a more detailed assessment if screening suggests that there may be a significant impact.

“If the quick assessment suggests that the biomass boiler may pose a risk to air quality then more detailed information about the biomass boiler will be required. Collecting this at the earliest stage possible is key to making a good assessment, but is a step that many local authorities have found to be difficult.

“Once basic information has been

National biomass impact proves very large

In response to questioning by Epuk, the Government has finally released its analysis of potential air quality impacts of biomass. They are large (up to £2.8bn).

Biomass has been in the news much in recent months, with London and Scottish councils funding research into impacts of increased biomass take up (*AQB Dec 2008 p1*). Meanwhile Epuk and Lacors have produced guidance for local authorities and developers in draft form (see main feature).

But the latest analysis focuses on UK emissions if substantial increase in biomass takes place. Local and national planning policies are obliging developers to install alternative energy supplies to developments, as wind and solar are unproven, biomass (fuels such as wood or straw) facilities are often proposed.

Defra analysed six different scenarios. These assessed the impacts of the level of final uptake of biomass heat in 2020, the fuels likely to be replaced, and the locations in which biomass heat likely to be used. The analysis focused on the small industrial/commercial, public and domestic sectors (larger installations are tightly regulated).

These scenarios were modelled on a national basis and compared with a 'business as usual' scenario, to assess the additional impact of biomass heat uptake. It was found that the impact on concentrations of nitrogen dioxide was negligible on a national basis. The impacts on concentrations of PM₁₀ were assessed for additional lengths of road exceeding the mandatory air quality limit values for PM₁₀ and the costs to society of additional health impacts (see table).

Environment minister Lord Hunt told Epuk that biomass facilities should be low emission and located

away from urban areas – for instance in rural areas that are not served by gas (displacing relatively dirty coal and oil fired heating).

Hunt's points include:

- "To meet the 2020 targets for renewable energy, the UK needs to increase very substantially the amount of renewable heat generated, and biomass heat is one of the key technologies;
- "The potential conflicts between these goals and air quality can be avoided through the use of high quality, low emission plant. The replacement of old coal and oil fired plant with high quality wood fired plant located off the gas grid and away from densely populated urban areas may actually benefit air quality. In urban areas or where an air quality management area has been declared, we would expect biomass heat deployment to be less common and larger (and therefore cleaner) biomass units to be more prevalent;
- "Encouraging the use of larger plant, for example in conjunction with the development of heat networks, will result in a system where air quality emissions are easier to control than from a larger number of small plant".

IMPACT OF NATIONAL TAKE UP OF BIOMASS (DEFRA ANALYSIS)

Appliance emission levels	Final uptake level in 2020	Located	Additional Km of roads exceeding PM ₁₀ limit value in 2020	Annual health impact in 2020 (£ million)
Medium emissions appliances	52 TWh	scattered	577	2,803
	50 TWh	avoiding AQMAs	20	732
	38 TWh	avoiding AQMAs	9	557
Clean emission appliances	52 TWh	scattered	138	731
	50 TWh	avoiding AQMAs	3	189
	38 TWh	avoiding AQMAs	2.5	142

collected a screening tool can be used to make an initial assessment. If this shows that the impact may be significant the developer can then be asked to use more detailed dispersion modelling to make a more detailed assessment of emissions and stack heights.

"If the impact is still judged to be significant the developer can be asked to use abatement technology, choose a cleaner boiler or, if none of these are suitable, use a different renewable energy technology."

The guidance points out that if the matter is not settled by the time it reaches the planning boards, any air quality consideration that relates to land use and its development is capable of being a 'material' planning consideration: "If air quality is judged to be a material consideration for the application, planning can be conditional on stricter conditions than minimum compliance with the applicable regulatory system, and in certain cases permission for a biomass boiler to be installed can even be refused."

Local authorities will face the conundrum that while a single biomass boiler is unlikely to affect air quality outside of its immediate vicinity, the cumulative effect of a number of biomass boilers could potentially add to localised air quality exceedences, and raise background levels of air pollutants: "Steps should therefore be

taken to ensure that biomass deployment is monitored, and screening assessments are made to ensure that any significant issues are flagged up."

Part of the reason why London and Scottish EHOs were so keen to challenge early biomass based developments was the lack of ability to control emissions once plant was installed: "Current UK and EU wide emission standards for biomass boilers are largely inadequate as tools for setting demanding air quality conditions, as mostly they do not directly cover emissions of NO_x, PM₁₀ and PM_{2.5}. Emission standards and eco-labels have been developed in other European countries, and may be quoted in the information provided to local authorities. These standards are, however, difficult to apply to the UK due to a wide range of approaches used for testing cycles and emissions measurement."

In some overseas countries – but not the UK – there are fuel standards which can be used to ensure that the correct fuel is used in boilers. European standard bodies are currently working on common standards which could trickle down into the UK via British Standards.

● *Draft biomass and air quality guidance* is available on the Environmental Protection UK website for consultation. The link is: www.environmental-protection.org.uk/biomass

Current regulations

Solid fuel furnaces up to 20 MWth (thermal input) are generally regulated under the Clean Air Act (CAA) which sets up smoke control areas.

For combustion appliances above 20 MWth, the Environmental Permitting Regulations (EPR) will apply.

Appliances smaller than 20 MWth can fall under EPR if they are (a) directly associated with another regulated activity or, (b) part of a larger (>50 MWth) combustion installation or, (c) a waste-burning process.

Within a smoke control area appliances either must burn authorised 'smokeless' fuels or, the appliance needs to have been assessed and exempted by Defra for use in a smoke control area. Emission limits for exempted appliances are detailed in BS PD 6434 which covers residential combustion (< about 44kW output).

Emission limits for 'grit and dust' are applied to larger appliances (> about 240 kW output) irrespective of whether they are located in a smoke control area. Assessment of emissions from appliances >about 44kW for CAA exemption is generally by interpolation between the BS PD 6434 limits and the grit and dust emission limits.

SCIENCE SHORTS

Truck chasing to study particles

German researchers have been 'chasing' trucks in a bid to establish various properties of traffic-related aerosol particles.

Researchers say: "The main influence of traffic on the aerosol properties results in soot particles coated with organic matter, having a modal diameter around 100 nm ("soot mode"). The abundance of these particles was found to be highest in the inner city traffic.

"Nucleation mode particles (around 30 nm) have been observed occasionally during truck chasings on motorways. These particles consisted mainly of organic compounds but included possibly also a sulphuric acid core."

Fuel specific emission ratios were derived for a subset of 18 truck-chasing experiments, yielding $(8.3 \pm 5.8) \times 10^{15}$ /kg for particle number, 224 ± 136 mg/kg for black carbon, 125 ± 125 mg/kg for organic matter, 17 ± 12 g/kg for NO and 18 ± 14 g/kg for NO_x.

In situ measurements of particle number concentration, chemically resolved size distributions and black carbon content of traffic-related emissions on German motorways, rural roads and in city traffic J. Schneidera et al, *Atmospheric Environment*, Vol. 42, pp4257-4268.

Cancer risk

Workers with exposure to traffic pollution may have an increased risk of contracting cancer, say Italian researchers.

214 healthy Florence residents were studied, two thirds of them residents, one third workers. Cancer predictive DNA makers in non smoking workers exposed to traffic pollution was higher. **DNA adducts and PM₁₀ exposure in traffic exposed workers and urban residents from the EPIC-Florence City Study, Domenico Palli et al, *Science of the Total Environment* Vol. 403 pp105-112.**

TRAFFIC POLLUTION

Asthma caused by traffic

A multinational team of researchers believe that traffic related air pollution causes asthma.

While there are many studies that suggest that traffic pollution can aggravate existing asthma, there is little evidence that such pollution actually causes the asthma in the first place.

217 children were selected from the Southern California children's health study which is

taking a long term view of 10-18 year old children. Nitrogen dioxide monitors were placed outside children's homes for two weeks in summer and two weeks in autumn as a marker of traffic pollution. Previous studies have tended to rely on modelled exposure to pollutants which can misrepresent pollutant concentrations.

Asthma was found to be linked to pollution – a 6.2ppb rise in annual residential

nitrogen dioxide led to a 29% higher likelihood of having asthma.

Traffic related air pollution and asthma onset in children: a prospective cohort study with individual exposure measurement, Michael Jerrett et al, *Environmental Health Perspectives*, Vol. 116, number 10, pp1433-1438.

TRAFFIC POLLUTION

Birth impacts in Canada

Air pollution has been found to affect birth outcomes even at relatively low levels.

Canadian researchers studied over 70,000 births in Vancouver between 1999 and 2002 and estimated residential exposures of the mothers during pregnancy.

Residence within 50m of a highway was associated with a

26% increase in small babies and an 11% higher risk of low weight births. All pollutants except ozone were implicated (ie NO, NO₂, PM_{2.5}, PM₁₀, black carbon, carbon monoxide, and sulphur dioxide). Fine particle PM_{2.5} was linked to pre term births.

Researchers concluded: "The overall importance of proximity

to highways, even in an area with relatively low levels of ambient air pollutants, suggests opportunities for urban planning approaches to prevention."

A cohort study of traffic related air pollution impacts on birth outcomes, Michael Brauer et al, *Environmental Health Perspectives* Vol. 116, no 5, pp680-686.

RESPIRATORY EFFECTS

Pollution triggers wheezing in infants

Air pollution can cause wheezing in young children, Danish researchers believe.

Once again (see above), while it is known that air pollution can worsen existing respiratory illnesses, there are few studies to suggest that pollution actually causes them in the first place.

Daily recording of symptoms were taken for 205 under-three year olds in Copenhagen. These

were compared to levels of PM₁₀, ultrafines, NO₂, NO_x and carbon monoxide from centrally located monitors.

Researchers said: "Significant positive associations were found between concentrations of PM₁₀, NO₂, NO_x, CO and wheezing symptoms in infants (0-1years) with a lag of 3-4days. Only traffic-related gases showed effects up to the age of three,

albeit reducing after the age of one year.

"Air pollution related to traffic is thus significantly associated with triggering of wheezing symptoms in the first three years of life," concluded researchers.

Ambient air pollution triggers wheezing symptoms in infants, Z Andersen et al, *Thorax*, Vol. 63 pp 710-716.

PARTICLES

APHENA compares US and Europe PM

The health impacts of particles have been compared in America and Europe.

The APHENA study (Air pollution and health: a combined European and North American approach) was set up to compare multicity time series data on particle effects. In all, data was considered from 124 cities in Europe and 112 in North America.

Researchers found: "Risk estimates from Europe and the US were similar, but those from Canada were substantially higher. The combined effect of PM₁₀ on all cause mortality across all ages for cities with daily air pollution data ranged from 0.2% to 0.6% for a 10µg/m³ increase in ambient PM₁₀ concentration. In both regions, a higher proportion of

older people and higher unemployment were associated with increased air pollution risk."

Acute effects of ambient particulate matter on mortality in Europe and North America: Results from the APHENA study, Evangelia Samoli et al, *Environmental Health Perspectives*, Vol. 116, No 11, pp 1480-1486.

SCIENCE SHORTS

GENETICS

Genes modify particle effect

Genes could alter the way that particles affect health.

A team led by Annette Peters found used fibrinogen (a marker for heart impacts) measurements to determine pollution impacts within the Airgene project which took over 5,000 fibrinogen measurements from 854 heart attack survivors in five European cities. PM₁₀ levels were found to be related to these, and the effect was found

to be 8-11 times greater among those with a particular type of gene.

Researchers conclude: "Ambient particulate air pollution has been associated with inflammatory responses, but little is known about the extent to which individual responses vary due to genetic predisposition. Subjects with variants in the fibrinogen gene cluster may have increased risks

not only due to constitutionally higher fibrinogen concentrations, but also due to an augmented response to environmental stimuli such as ambient particulate matter."

Fibrinogen genes modify the fibrinogen response to ambient particulate matter, Annette Peters *American Journal of Respiratory and Critical Care Medicine* Vol. 179, pp. 484-491, (2009).

TRAFFIC POLLUTION

Traffic prompts child respiratory problems

Swedish researchers suggest that moderate levels of ambient traffic pollution can prompt respiratory symptoms in young children.

Over 4,000 parents were quizzed on the health of their children across four Swedish districts. Questionnaire results were backed up with medical

examinations.

Air pollution was found to increase president wheeze for one year olds, allergic sensitisation for four year olds and lower lung function at four years old.

Researchers concluded: "This study provides evidence that exposure to moderate levels of

air pollution from traffic in the first year of life may increase the risk of airway disease in preschool children."

Traffic related air pollution and childhood respiratory symptoms, function and allergies, Emma Nordling et al, *Epidemiology*, Vol. 19, No 3 pp401-408.

TRAFFIC POLLUTION

Long term traffic risk affects heart

Living near a busy road can affect the heart, North Carolina researchers believe.

The team studied 13,309 middle aged men and women between 1987 and 1989 in four US urban areas. GIS data was used to establish proximity to traffic and major roads and

compared to coronary heart disease risk.

During the 13 year follow up, some 976 subjects developed coronary heart disease. Those in the highest traffic quartile were 32% more likely to have heart trouble than those in the lowest traffic quartile.

Prospective analysis of traffic exposure as a risk factor for incident coronary heart disease: the atherosclerosis risk in communities study, Haidong Kan et al, *Environmental Health Perspectives*, Vol. 116, no 11, Nov 2008, pp1463-1468.

PARTICLES

Birmingham mass closure blames nitrates

Particles have been closely studied at three locations near Birmingham in a bid to find out more about particle composition.

PM₁₀, PM_{2.5} and PM₁ were measured at the three sites which were chose to represent urban background, urban roadside and rural locations. Samples were chemically analysed and subject to mass closure analysis.

Researchers concluded: "The mass and composition data for

PM_{2.5} and PM₁ are intercompared and perhaps surprisingly the differences are accounted for more by components typical of fine fraction such as ammonium sulphate and ammonium nitrate than those residing in the coarse fraction such as sea salt and calcium and iron rich dusts.

"A comparison of the composition of 24hr samples collected on days when average PM₁₀ exceeded 50 µg/m³ with data for all days demonstrate the

immense importance of nitrates, which together with their strongly bound water, account for on average 39% of PM₁₀ and 46% of PM_{2.5} during episode conditions, which is more than double their contribution to the overall dataset."

Pragmatic mass closure study for PM₁₀, PM_{2.5} and PM₁ at roadside, urban background and rural sites, Jianxin Yin and Roy Harrison, *Atmospheric Environment* Vol. 42 pp980-988.

Home address data leads to errors

Using home addresses for epidemiology studies may lead to misclassification.

The Cincinnati Childhood Allergy and Air Pollution Study (CCAAPS) is a prospective birth cohort set up to determine if exposure to high levels of diesel particles during early childhood increases the risk for developing allergic diseases.

In order to estimate exposure, a land-use regression (LUR) model was developed using geographic data as independent variables and particle monitoring data.

The model predicted 74% of the variability in sampled values with four variables: wind direction, length of bus routes within 300 m of the sample site, a measure of truck intensity within 300 m of the sampling site, and elevation. The model was subsequently applied to all locations where the child had spent more than eight hours per week from through age three.

By age two, one third of the children were spending significant time at locations other than home and by 36 months, 39% of the children had changed their residential addresses. The mean cumulative diesel particle exposure estimate increased from age 6 to 36 months from 70 to 414 µg/m³ days.

Researchers say: "Findings indicate that using birth addresses to estimate a child's exposure may result in exposure misclassification for some children who spend a significant amount of time at a location with high exposure to diesel exhaust particles."

Patrick H. Ryana et al, *Science of The Total Environment* Vol. 404, pp139-147

Biodiesel cuts aldehyde

Use of biodiesel reduces aldehyde emissions, Taiwanese researchers suggest.

Effects of biodiesel blend fuel on aldehyde emissions from diesel engine exhaust, Chiung-Yu Peng et al, *Atmospheric Environment* Vol. 42 pp906-915.

If there was any need for further proof that the Government is in denial about air quality, it is in environment secretary's Huw Irranca-Davies Parliamentary reply to a question on air quality: "Air quality limit values are now met across 99% of the UK, delivering significant health benefits to the population. The remaining areas of non-compliance are extremely small."

Could somebody please mention to him that those 'extremely small' areas are where most people tend to live?

Medic Chris Griffiths reported on the ambitious programme to monitor the health of children in Tower Hamlets and Hackney at the recent LAQN meeting.

One test was collecting saliva, and this proved surprisingly difficult: "Yes, you may think that it is quite easy to get Tower Hamlets kids to spit but we resorted to showing them pictures of ice creams to get them salivating..."

Interesting couple of days at the IEH annual air pollution research meeting held at Cranfield last month. Such events are useful for reminding one how academic academics can get when amongst their own.

For instance much discussion centred

on whether NO₂ led to health effects at ambient concentrations. No one in the room wanted to contradict the view that NO₂ was simply a marker for something else (eg particles), and that by happy chance, tackling NO₂ should reduce those nasties. Sssssh, don't tell the Government, stuff like this would allow them to shove in several runways at Heathrow without a fuss!

But spare a thought for poor air quality researchers who are battling red tape.

Jon Ayres, now at Birmingham University, lamented the work of the ethics committee which rules on what can and can't be done in the name of research. "We've lost half our air quality epidemiological databases at a stroke," he said. "Perhaps someone should do a risk assessment of the entire ethics committee to establish the impacts of their decisions."

This spring there has been a flurry of reports on better regulation. Before your eyelids start drooping with anticipated boredom, prepare for a rant.

With the Government positioning itself as industry-friendly, there's this huge drive to cut red tape, so it duly sets up yet another quango (the Local Better Regulation Office) with a bevy of

mindless reports attempting to justify better regulation. Most of it seems to be endless surveys producing questionable data some of which can be used to support the Government's position.

Take an opening paragraph from the overarching report: "This report comprises the first map of the local authority regulatory services landscape." Trouble is there's not a map in sight.

Deregulation has now become mindless dogma. Industry can live with a bit of regulation if it means there is clarity and certainty. Streamlining various planning policy statements by cutting back on their content does little for certainty but plenty for planning lawyers.

We've seen air quality action plans 'deregulated' which succeeded in knocking air quality right off the agenda (thank goodness there seems to be some backtracking on this).

We are in the middle of a credit crunch caused by abject failure of regulation of the financial system. This can be directly tracked back to the 'bonfire of regulation' and 'red tape reviews' of past decades, and now we are paying for it dearly.

Let us hope that the obsession to deregulate environmental health responsibilities does not create a similar time bomb in the future.

AIR QUALITY EVENTS 2009

19th-20th May

ULTRAFINE PARTICLES – SOURCES, EFFECTS, RISKS AND

Mitigation Strategies, European Federation of Clean Air and Environmental Protection Associations conference to be held in Brussels, <http://www.efca.net>

20th May

SCOTTISH AIR QUALITY TECHNOLOGY WORKSHOP

Air Monitors workshop to be held in Rutherglen, www.airmonitors.co.uk

20th May

CHEMICAL AND BIOCHEMICAL SENSORS: MOVING FROM

Measurement to control, AAMG conference to be held in London, <http://rsc-aamg.org/Pages/Meetings/ChemSensors.html>

9th June ****correction****

INVESTIGATION OF AIR POLLUTION STANDING CONFERENCE

Iapsc conference to be held in Sheffield. Website www.iapsc.org.uk. Apologies for getting the details wrong in the last edition.

23rd-25th June

12TH CONFERENCE ON COMBUSTION GENERATED NANOPARTICLES

to be held in Zurich www.lav.ethz.ch/nanoparticle_conf/index

15th-17th September

MEASURING AIR POLLUTANTS BY DIFFUSIVE SAMPLING

and other low cost monitoring techniques, AAMG international conference with posters and exhibition to be held in Krakow, Poland <http://rsc-aamg.org>

17th September

BIOMASS EVENT

Epuk event to be held at the Royal Society in London
Cary Keay 01273 878776 www.environmental-protection.org.uk

12th November

AIR QUALITY UPDATE

EPUK conference to be held in Birmingham,
Cary Keay 01273 878776 www.environmental-protection.org.uk

2010

12-16th September

15TH WORLD CLEAN AIR AND ENVIRONMENTAL PROTECTION CONGRESS

to be held in Vancouver, Canada <http://iuappa.com/index.htm>.

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CREDITS



Editor: Jack Pease tel 01737 642283

mobile 07590 488432 (fax 01372 700400)

email jackpease@empublishing.org.uk

Marketing: Jackie Luff tel 01737 645348

email jackie.luff@empublishing.org.uk

Website: www.air-quality-bulletin.org.uk

Address for correspondence: PO Box 592 Redhill RH1 3WN

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