

AIR QUALITY

November 2007 Issue 19

BULLETIN

EUROPEAN POLICY

Mixed news for EU directive

The European Café air quality directive has passed through a further stage in the European legislative process.

The directive has been diluted from its original form and despite intensive lobbying from environmental interests, last month's Environment Committee in Europe failed to toughen it. The directive therefore retains its five year extension period to achieve limits and exemptions for industry under the IPPC. There continue to be greater loopholes as to where the directive applies in relation to particles.

Against this, there has been some tightening – the Committee voted to reduce limits for PM₁₀ to 33µg/m³ on

average from 2010, down from the current limit value of 40µg/m³. For PM_{2.5}, the parliamentary committee agreed on a target value of 20µg/m³ from 2010 that will become legally-binding in 2015. The Council wants 25µg/m³.

Pressure group the European Environment Bureau explains that as it stands, the directive will mean air quality standards need not be observed in places where there is no permanent population, in workplaces, and in areas without air monitors.

EEB expressed its concern: "We're dismayed that air polluters have been given five more years (until 2013) to clean up their act."

It also notes that the Directive

designates the most recent CEN standards as reference methods for monitoring. It argues this could have implications for anyone considering establishing new monitoring sites. This has already had an impact on the PAH network where the 4th Daughter Directive (DD) requirements have necessitated the replacement of the samplers at the 24 existing sites and the establishment of 10 additional sites. The daughter directive has also resulted in the relocation of some of the sites in the heavy metals network and the establishment of 11 new sites.

The directive could get strengthened or weakened when it is considered by Parliament in December.

NGOs

NSCA is dead. Long live EPUK

Environmental Protection UK is the new name for the National Society for Clean Air (NSCA). NSCA was the UK's longest established environmental organisation having been set up in 1898 with the goal of abating city smoke.

The change is the culmination of efforts of chief executive Phil Mulligan who was brought in to revamp the organisation which has had financial and staffing difficulties over the last couple of years. Mulligan has secured agreement from members and trustees for a new mission based on its *Future Focus* document.

EPUK was launched at the House of Lords by air quality

minister Jonathan Shaw, who gave a lacklustre performance in one of his first speeches in his new role. He said: "Tackling issues such as air quality, land quality and noise and statutory



environmental protection uk

nuisance is key to protecting public health, the natural and built environment, quality of life, wellbeing and social justice. It is vital that we work together, to make a real difference on the ground."

Phil Mulligan explained that EPUK will focus on air quality and climate change, noise and land quality. "Our new vision

and mission, set out in our five year strategic plan *Future Focus*, and our new name and brand will help us to more firmly establish our role as a leading innovator in, and commentator on, environmental practice and policy.

EPUK president Lord Julian Hunt added: "Our approach has always been firmly based on broad partnerships, including scientists, government, industry and environmentalists. We have promoted scientific understanding, public debate and innovation in policy. EPUK will continue our work of developing consensus in how practical progress in environmental quality can be achieved."

IN BRIEF

Citizens' jury rules on air quality

A citizens' jury has told air quality minister Jonathan Shaw what should be done about pollution.

The Defra citizen's jury, one of many commissioned by the Government in a bid to appear to be listening to the people, focused on air quality issues. Each jury is made up of 20 or more members of the public and typically cost £50,000-£100,000 to run.

For the Defra jury, three representatives handed over their report *Articulating public values in environmental policy development* at a meeting with the minister and the air quality policy team led by AEQ head Martin Williams. Defra will now consider the report and respond to its findings.

Twenty two members of the public were recruited last year from a range of rural, urban and city environments across the West Midlands to take part in a discussion on air quality. They were asked to consider what improvements they would like to see in air quality and how these should be achieved.

The jury identified the questions they wanted answered, and heard evidence from a range of air quality experts, with an opportunity to cross-examine 'witnesses'. They formulated recommendations for action based around six themes – education, technology, transport, industry, regulation, and lifestyle choices.

Air Quality Bulletin attended the session – full report next month.

● The citizen's jury report can be viewed on www.defra.gov.uk/environment/airquality/publications/citizens-jury/index.htm

Heathrow AQ strategy

We're also too short of space to cover BAA's Heathrow air quality strategy released this month.

● Full report next month

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3 UK is now criticised on particles by the European Commission

4 Defra sets out biofuels position statement

5 London charge a missed opportunity

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RESEARCH

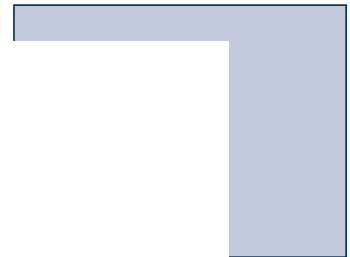
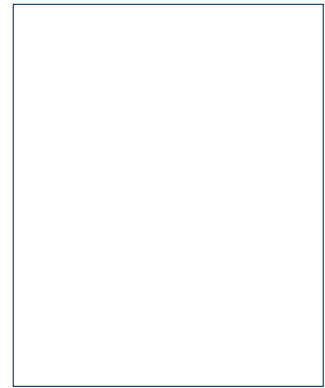
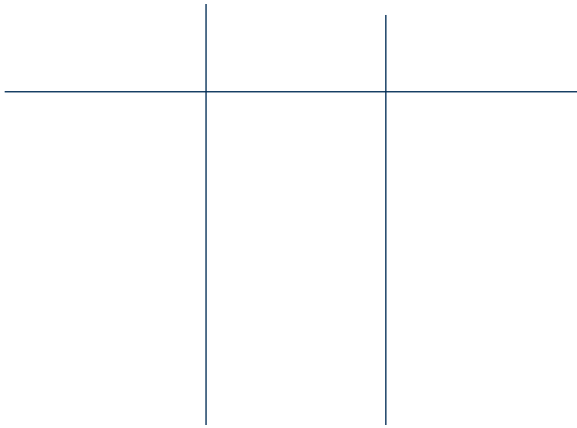
10 Air pollution is as big an impact as smoking

COMING EVENTS

HOT AIR

12 Veggie oils, road plans and Halloween woes

Effect
30-50%
20%
5%
4%
2%
2%



Partnerships



IN BRIEF

Climate response

The Government has published a summary of responses to its consultation on a draft Climate Change Bill.

● www.defra.gov.uk/corporate/consult/climatechange-bill/

Low carbon homes

Guidance has been released on zero carbon homes.

Such homes may incorporate combined heat and power plants which may reduce carbon use but increase emissions of local pollutants. Tax incentives have been introduced to encourage low carbon homes and are outlined.

● www.planningportal.gov.uk/uploads/code_for_sustainable_homes_techguide.pdf

Agency retrunks roads

The Government has changed its mind on three roads that were to be detrunked based on the intervention of the Highways Agency.

The following will therefore remain the responsibility of the Highways Agency:

- M32 (Bristol to M4 Junction 19);
- A36/A46 (from M4 near Bristol to M27; near Southampton); and
- M65 (Junctions 8 to 10).

The move may make it harder for authorities to implement action plan commitments. Bristol, for example, wanted to introduce priority lanes and enforce speed limits on the section of motorway in the city.

Biodiesel trials halted

National Express has announced that it has suspended its 'first generation' UK biodiesel bus trial due to concerns over whether the benefits outweigh the risk to the sustainability of food crop sources.

National Express called a halt to the trial on its UK buses until so called 'second generation' biofuels, which use non food crops such as wood chips and straw, are available or issues relating to the sustainability of the production have been addressed.

ALTERNATIVE FUELS

Defra in biofuels stock-take

Defra has outlined the "risks and opportunities" of biofuels in terms of air pollution and global warming.

Biofuels have been touted as the solution to current fossil fuel based energy problems, but high food prices and greater understanding of whole life impacts has led to a backlash against support for biofuels. Defra says the climate change and air pollution benefits depend on the type and source of the biofuel.

On health, it says: "Emissions from the combustion of biofuels depends on several factors, including the type of biofuel, the level of blend with fossil fuel and the particular vehicle in which it is used. There is a high degree of variation reported in research literature in this area which makes it difficult to place accurate figures on their health impacts. However, trends for the

main types of biofuels are as follows:

First-generation biodiesel: For low proportions of (up to 20%) biodiesel in diesel, the main trends seen in vehicles' exhaust emissions relative to standard fossil diesel are:

- Reductions of particulate matter, carbon monoxide (CO) and VOC;
- A slight increase in NO_x emissions.

Although biodiesel tends to emit fewer particulates, these are likely to be composed of different substances than those from conventional diesel. This will result in biodiesel particulates having different health effects from those from conventional fuel.

Second-generation biodiesel: This is a different product from first generation biodiesel, and is chemically similar to high quality conventional diesel, but

with very low sulphur and aromatics and low particulates; **Bioethanol (first- and second-generation):**

For low proportions of (up to 10%) bioethanol in petrol, the main trends seen in vehicles' exhaust emissions relative to standard fossil petrol are no significant changes in emissions of NO_x and most VOCs and a large increase in emissions of acetaldehyde, a VOC ozone precursor.

There is evidence from other countries to show that higher proportions of (up to 100%) bioethanol in petrol leads to a substantial increase in ozone formation from acetaldehyde, although it has not yet been verified which areas of the UK would be susceptible to this effect.

● The statement can be viewed on www.dft.gov.uk/pgr/roads/environment/rtfo/289579

BIOFUELS

Quantitech launch easy to use tester

Quantitech is launching two easy-to-use mid-infrared analysers for biofuels analysis.

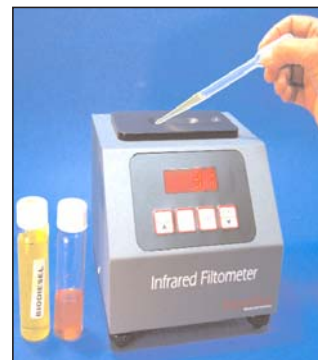
The instruments have been specifically designed for on-site analysis and can be operated by users having limited or even no knowledge of infrared analytical techniques. Since tax incentives, pollution and Government regulations are often based on the percentage of biofuel, it is important to have an accurate measurement method.

The first – the InfraCal

Filtometer – is a low-cost, single wavelength analyser that is ideal for measuring the blend ratio of biodiesel in diesel fuel or ethanol in petrol.

The second instrument, the InfraSpec VFA-IR Spectrometer, is a spectral range analyser capable of monitoring more than one component. It measures the % biodiesel in diesel fuel as well as total glycerides during the biodiesel reaction process.

● More details on website www.quantitech.co.uk



Easy to test biofuel percentage

VEHICLE EMISSIONS

Hard shoulder running claimed to improve air

Modelling of the impacts from introducing variable speed limit controlled traffic on the M42 shows air quality gains.

Active traffic management on the M42 motorway east of Birmingham includes using the hard shoulder as a fourth lane of traffic. A new report suggests that hard shoulder running has increased the observed capacity of the motorway by an average of 7% when compared to the

before case. Speed compliance on the hard shoulder has been 98% or better at the 50mph speed limit.

Vehicle emission modelling and air quality measurements have shown that vehicle emissions have changed:

- Carbon monoxide – reduced by 4%;
- NO_x – reduced by 5%;
- Particulate Matter – reduced by 10%;

- CO₂ – reduced by 4%;
- Fuel consumption – reduced by 4%;
- Hydrocarbons – 3% increase.

Active traffic management has also resulted in a minor reduction in noise of between 1.8dBA and 2.4 dBA.

● *M42 active traffic management results – first six months* can be viewed on www.dft.gov.uk/pgr/roads/tpm/m42activetrafficmanagement

VEHICLE EMISSIONS

Charge a 'missed opportunity'

Environmental Protection UK (EPUK – formerly the NSCA) says plans for an emissions related congestion charge in London may be a missed opportunity.

Consultation recently ended on the Mayor's plans to incorporate engine size into the congestion charge scheme (*AQB September p2*).

EPUK welcomes the plans but fears the projected CO₂ savings of implementing the scheme are small, which will give it very poor cost effectiveness. Many might take up low emission cars, and given the discounts, drive their car more, undermining congestion relief benefits.

"Further to this we feel the proposals are a missed opportunity to improve air quality in London. Whilst the proposals are technology neutral on CO₂ tail-pipe emissions, they do not consider air quality and other environmental aspects. In particular we are concerned that the proposals will lead to a rise in diesel vehicles in central London, which have significantly greater emissions of local pollutants than their

petrol equivalents."

EPUK continues: "We suggest that the scheme should be re-developed with broader aims, to include local environmental quality, and use criteria that will help to implement these aims whilst limiting risk to the congestion reduction heart of the scheme."

VED band	A	B	C	D	E	F	F+	G
CO ₂ emissions (g/km)	Up to 100	101 to 120	121 to 150	151 to 165	166 to 185	186 to 225	226+	226+
Proposed level of Congestion Charge	£0*	£0*	£8	£8	£8	£8	£25	£25
Date of proposed implementation	4 February 2008		Unaffected				6 October 2008	

GLA will clobber high polluters through the charge

VEHICLE EMISSIONS

Car ban 'only hope' for London emissions

Emissions targets for London stand little chance of being achieved unless the Greater London Authority (GLA) bans cars from both inner and outer London, according to a report published today by the London School of Hygiene & Tropical Medicine (LSHTM) and the Oxford University Transport Studies Unit.

Current policies suggest that London is on course to reduce land transport emissions by only 10%-23%.

Their calculations show that a car-free inner London scenario equates to a 49% reduction in emissions. Because most London car trips are within

outer London, changes in inner London boroughs alone were not found to be sufficient to meet the GLA emissions target. The car-free inner and outer London model was found to bring about a 72% reduction in emissions, with active transport making up 53% of all trips.

Researchers highlight the many benefits, in terms of public health and safety, that the adoption of the car-free scenario would achieve. Not only would the former car users benefit in terms of improved health as a result of greater physical activity, but as active transport in the form of walking or cycling increased, more people

would be willing and able to comfortably walk or cycle longer distances.

Further research looks at the personal health benefits to four typical car users from switching to walking and cycling and occasional taxi use. By doing so, they would expend an average of 139,300 kJ of energy a year, equivalent to an average of 4.5 kg of fat. A woman might reduce her risk of breast cancer by 25% and increase her life expectancy by between one and two years, while a man would enjoy a 20-40% reduction in the risk of premature mortality and around a 30% reduction in risk of type 2 diabetes.

RESEARCH

Nanoparticle threat leads to research

The threat to health caused by nanoparticles is to scrutinised in two studies being released.

The first will identify physicochemical factors controlling the capacity of nanoparticles to penetrate cells of the respiratory epithelium, especially those of first contact on inhalation of the particles.

Defra explains: "One of the major concerns regarding the possible toxic effects of nanoparticles is the capacity of these materials to translocate into

cells. This may be a necessary step in the movement of particles deposited in the lung into the blood and thence to other tissues. Research on the mechanisms involved in translocation across the respiratory epithelium is needed."

The second study will look at whether long nanoparticles could behave in a similar way to asbestos fibres. Defra explains: "There is concern over the potential adverse effects of

human exposure to nanoparticles but special concern has been expressed regarding nanoparticles that are fibrous in shape. This concern is based on the potential for such fibre-shaped nanoparticles to behave like asbestos fibres. Exposure to airborne asbestos fibres is associated with a number of severe lung diseases including fibrosis (asbestosis), lung cancer and mesothelioma."

• www.defra.gov.uk/science/funding/competitions.htm

IN BRIEF

Sheffield Beacon

As part of Sheffield City Council's Beacon activities, the council is holding two events on air quality this month.

The events (which are free and held in Sheffield) are:

- Sheffield Clean Air Partnership – Thursday 15th November;
- Community air quality Monitoring – Weds 21st Nov. www.beacons.idea.gov.uk/idk/core/page.do?pagelid=6250584

Long range emissions

The Annual European Community LRTAP Convention Emission Inventory report 1990-2005 has been published.

The report presents an overview of air pollutant emission data reported by the member states between the years 1990 to 2005. Across the EU-27, the reported emissions of NO_x in 2005 have decreased by more than 34%, and SO₂ by around 70% since 1990.

- <http://reports.eea.europa.eu>

Inspire consultation

The Commission is consulting on the shape of the Inspire directive which seeks to harmonise data provision (*AQB October p4*).

- www.ec-gis.org/inspire/public_consultations/metadata/index.cfm

WHO reports

A meeting report has been published for the World Health Organisation's meeting on the health effects of particles held in Bonn earlier this year.

The workshop agreed the need for further large-scale studies in Europe combining source-specific air quality information, epidemiological studies and toxicological analysis. Further, they agreed that data collection on air quality should include particle speciation and extend to source apportionment. It should also aim at better spatial and temporal resolution in PM exposure assessment.

- *Health relevance of particulate matter from various sources* www.euro.who.int/Document/E90672.pdf

IN BRIEF

Euro V incentive

The Department for Transport has announced the details of a scheme to extend tax incentives to encourage hauliers and bus operators to buy cleaner Euro V vehicles.

The Reduced Pollution Certificate (RPC) scheme will be extended so that hauliers and bus operators first registering a Euro V compliant vehicle before 1 October 2009 can claim a discount of up to £500 a year on Vehicle Excise Duty (VED).

A vehicle will only be eligible for the discount if it meets the Euro V emissions standard and is fitted with the onboard diagnostic systems and torque control mechanisms that check and control emissions of nitrogen oxides. This will ensure the Euro V standard is maintained throughout the life of the vehicle.

The RPC scheme began in 1999. In the financial year 2006/07 8426 buses and 29,102 lorries had RPCs. RPC's cut vehicle tax by up to £500 a year, the latest Euro V standard will bear down more on NO_x than PM₁₀.

Scania skips treatment

Truckmaker Scania reports that it now has an engine that can meet Euro 5 standards without exhaust aftertreatment. Euro 5 become mandatory with in the European Union in October 2009.

Scania is the first truck manufacturer to achieve Euro 5 without exhaust gas aftertreatment by relying on improved fuel injection.

Motorcycle emissions

Vehicle technology specialist Ricardo has tested a number of motorcycles against existing and proposed standardised drive cycles.

Four of the 12 motorcycles tested, did not meet current emissions legislation for motorcycles.

● *Motorcycle exhaust emissions factors and test cycles programme – final report* can be viewed on www.dft.gov.uk/pgr/roads/environment/research/cqvcf/RicardoMotorcycleEmissions.pdf

CLEANER VEHICLES

Low carbon car report released

The King Review of low-carbon cars has been released to coincide with the Pre Budget Report. It examines vehicle and fuel technologies which could help to decarbonise road transport over the next 25 years.

It says: "At low cost and by 2030, per-kilometre emissions could be reduced by 50 per cent – equivalent to a 30 per cent reduction in the absolute level of emissions. These significant reductions in CO₂ from road transport are achievable in the short term through progress on

fuels, bringing new technologies to market and smart consumer choices such as buying a low-carbon vehicle."

On air quality, the report says: "NO_x, CO and hydrocarbons cannot be ignored, and in some cases there can be trade-offs.

"Standard diesel currently results in lower CO₂ emissions but higher NO_x emissions than petrol; and ethanol is generally a cleaner-burning fuel than petrol, producing less CO₂, but results in higher concentrations of SO₂ and other local

pollutants.

However, in many cases, CO₂ and other harmful emissions will tend to decline together, Even where trade-offs occur, because of the much larger amounts of CO₂ generated in combustion of carbon-based fuels, the CO₂ impact will normally be dominant."

● *Review of low-carbon cars. Part I: the potential for CO₂ reduction* can be viewed on www.hm-treasury.gov.uk/pbr_csr/reviews/pbr_csr_07_king_index.cfm

VEHICLE EMISSIONS

Filter-less diesel meets petrol emissions

UK vehicle technology firm Ricardo claims it has developed a diesel engine that is as clean as petrol without the need to use aftertreatment.

The development is important as US emission standards for diesels have been set at the same level as those for petrol. Vehicle manufacturers are keen to avoid use of aftertreatment catalysts which require use of

an additive that needs topping up.

Ricardo says this positions diesel alongside petrol hybrid and fuel cell powered vehicles as future high fuel-economy, environmentally friendly automotive products capable of meeting U.S. Super Ultra-Low Emission (SULEV) and Tier II Bin 2 requirements ie NO_x levels approximately one-sixth

those of Euro 5.

These technologies include advanced air handling systems, two-stage series-sequential turbocharging, advanced exhaust gas recirculation, and application of closed-loop cylinder pressure-based engine controls. If a lean NO_x trap is used, the engine could achieve NO_x levels less than one-tenth of the Euro 5 levels.

VEHICLE EMISSIONS

Motor firms boast emission benefits

SMMT, the motor manufacturers body, has highlighted the progress made in improving emissions of vehicles.

Using cards loosely based on the 'top trumps' game, it compares the emissions performance of old and new models of cars. For instance a 2007 Fiesta emits less than two per cent of the NO_x, HC and CO emissions of its 1976 predecessor. SMMT has calculated that it would take the following number of 1.25 petrol engined Fiestas to generate the same level of emissions as one 1976 Fiesta model: On NO₂ – 76 cars; on CO – 71 cars; and on hydrocarbons – 51 cars.

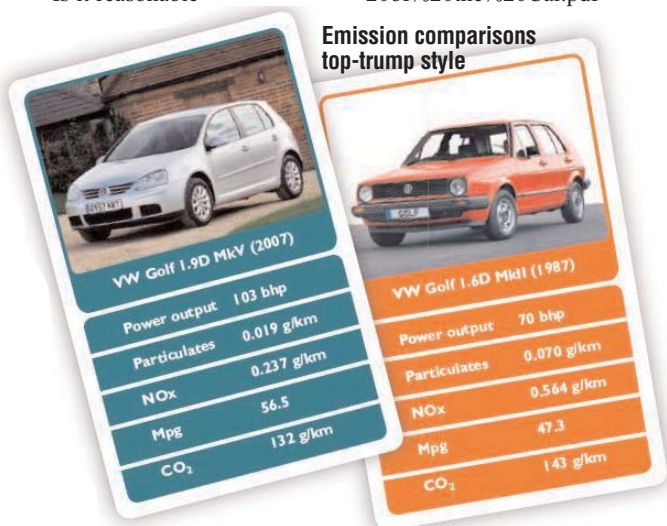
But it added: "More pollution abatement technology and safety systems have played a large part in creating larger, heavier (and less aerodynamic) cars. For car makers it is proving increasingly difficult to

balance these objectives – the need to reduce emissions, improve safety, give customers the comfort features they demand, keep prices down and all within the constraints of a competitive auto sector.

"Is it reasonable

for regulators to impose ever tighter limits in a spiral of diminishing returns, at ever greater cost to manufacturers?"

● More comparisons on <http://smmtlib.findlay.co.uk/articles/news/News/Evolution%20of%20the%20Car.pdf>



Planning for Agency traffic

The Highways Agency has published its spreadsheet of air quality management areas prompted by its motorways and trunks roads.

The Highways Agency has for some time been known to have a 'hitlist' of air quality management areas triggered by its roads.

It has now published this, along with its view as to which ones it sees as a priority

(those authorities in bold below).

The list provides interesting reading, not least for the varied actions included in local authority air quality action plans – from do-nothing to junction closures.

Speed limits are a recurring theme, as are

traffic reductions, actions that the Highways Agency are unlikely to endorse given that it is judged on moving large volumes of traffic, quickly.

● The list can be viewed at www.highways.gov.uk/knowledge/1798.aspx

Authority	Poll't	Location of the air quality management area	Local authority 'wish list' for action affecting Agency roads
Barnet	NO ₂ PM ₁₀	M1: J1-J4 within borough. A1: Small section at junction with M1	Speed restrictions
Barnsley	NO ₂	J35a-J38 within borough (100m either side of central reservation and up to 200m at J37 Dodworth/A628)	Speed reduction to 50mph, variable messaging/traffic management schemes
Birmingham	NO ₂	M6: J5-J7 within borough. A38: Minworth N to junction with M6, sliproad onto M6	5 - 20 minute response time for M6 incidents, improved incident contingency planning, improved scheme diversion routing, M42 active traffic management, evaluate active traffic management for M6, M1J21 improvements
Blaby	NO ₂	S of J21 btwn Enderby and Narborough, J21-21a btwn Thorpe Astley & Kirby Muxloe	Assess impact of M1 widening, redesign of J21, Variable speed limits & use of hard shoulder, variable message signing, improved screening
Blackburn w. Darwen	NO ₂	M65 Earcroft, A666 Blackburn Rd / M65 J4 slip	Action plan not set
Bolsover	NO ₂	M1 Nr J28, Carter Lane East, South Normanton	Speed restrictions, reductions in traffic volume
Bolton	NO ₂ PM ₁₀	M61 J2 to N of J6 in borough, corridor (variable)	(Gtr Manchester action plan) refers to speed controls
Brentwood	NO ₂	Nags Head Lane at M25 junction Brook St roundabout at M25 / A12 junction Greenshaw/Porters Close nr A12 (Brentwood BP) Warescot Rd/Hartswood Av/Ongar Rd nr A12 B1002 Roman Road, Hey Bridge nr A12 Fryerning Ln, Pemberton Av, Trimble Close, nr A12	Action plan not set
Bristol CC	NO ₂ PM ₁₀	M32: J1 to city centre; M5/M49: W of J18 to E of J18a, incl M5/M49 jn at Avonmouth	Improve speed enforcement, speed restrictions, detrunking M32
Bromsgrove	NO ₂	M42: J1 Lickey End	Work with Agency on direct options for J1 M42, junction improvements, speed restrictions, closure of junction, introduction of tolls, reduction in traffic & trucks
Broxbourne	NO ₂ PM ₁₀	M25: Arlington Cres, Parkside, 13-21 High St, Waltham Cross, J25 (Holmesdale tunnel portal) M25: 33 to 55 Teresa Gardens, Waltham Cross, M25: Tyle Kiln Cot., Burntfarm Ride, J24-25 (N of)	Liaise with Agency on environmental impact assessments for M25 projects (Congestion Study M25 J25 & orbit multi-model study)
Broxtowe	NO ₂	M1: J25-26, Trowell, Nottm - Tiree Cls, Iona Drive M1: J25-26, Trowell, Nottm - Derbyshire Ave M1: J25-26, Trowell, Nottm - Nottingham Road M1: J26 Nuthall, Nottm - Nottingham Rd, Back Ln	Action plan not set
Bury	NO ₂ PM ₁₀	M60: Corridor around W of J17- E of J18 M62: East from M60 J18 to boundary M66: Corridor from start to J4	(Gtr Manchester) Council to work with Agency on M60 route management strategy, refers to speed controls
Cannock Chase DC	NO ₂	A5: Watling St, Bridgtown area between A34 Walsall Rd to A460/South Staffs boundary	Smarter traffic lights (MOVA) at Walkmill Lane, Ped. crossings, Jctimps at Delta Way, review of road hierarchy & speed limits
Chichester DC	NO ₂	A27: Properties on Stockbridge roundabout	Action plan not set
Congleton BC	NO ₂	M6: J18-19 near Cranage, two properties	Monitoring, modelling, RMS, HGV lanes, ramp metering, traffic officers, congestion busting w/shops, M6 widening/expressway
Dartford BC	NO ₂ PM ₁₀	A282: Dartford Tunnel Approach Road, J1a to 300m south of 1b, corridor approx 250m wide	Speed restrictions, improved screening, assessment of impact of Dartford tolls, variable message signing
Derby CC	NO ₂	A5111 (A6): In city, between Alvaston Islands (Alvaston Bypass)	Expansion of urban traffic control (Agency to assist), travel plan (Agency to assist)
Doncaster MBC	NO ₂	A1(M): J36 corridor along A18 into town centre M18: Bawtry/Hantley Wood, at junction with A638	Variable message signs
Dover BC	NO ₂	A20: Townhall St, from York St roundabout nr Western docks to a point c.140m from the Eastern Docks	Jn improvements to reduce Townwall St congestion, dual section of A2 to Lydden, strategic signage to move freight onto dualled A2, new exit slip road onto A20 from Eastern Docks
Eastleigh BC	NO ₂	M3: J12-14	Action plan not set

continued overleaf

AIR QUALITY FEATURE

● Highways Agency AQMAs, from previous page

Authority	Poll't	Location of the air quality management area	Local authority 'wish list' for action affecting Agency roads
Enfield LB	NO ₂ PM ₁₀	M25: J24 to east of J25 within borough	Road widening through Holmesdale tunnel to improve vehicle movements,
Erewash BC	NO ₂	M1: Between J24 & J25 Long Eaton, east of M1 North of J25 Sandiacre, east of M1	Variable speed limits, ramp metering, traffic management and calming using gateways, integrate motorway & urban traffic control systems, conversion to hardshoulder to running lane at jct, hardshoulder crawler lanes, active traffic management to reduce congestion, motorway goods vehicle low emissions zone
Grave-sham BC	NO ₂ PM ₁₀	A2: Corridor either side of A2 within borough	Work together with Agency on direct options for A2, realignment & widening of A2, speed regulation to 50mph, 14% reduction in trucks, 10.5% reduction in overall flows
Harrow LB	NO ₂ PM ₁₀	M1: West of J4 within borough	No measures for Highways Agency within draft consultation version
Hereford-shire CC	NO ₂	A49(T): Corridor through Hereford Town Centre	'Hereford Intelligent Transport System' on A49 in Hereford, alteration of traffic management at Belmont roundabout, network management duties for the A49 in Hereford
Hertsmere BC	NO ₂	M25: Charleston Paddocks, South Mimms, nr J23 M25: 31-39 Blanche Lane, South Mimms, nr J23 M1: 12 Grove Place & caravans, Aldenham, nr J5	Work with Agency on multi-modal studies, support Agency for measures to reduce air pollution on M1 & M25
Hillingdon LB	NO ₂	J3 to 4b within borough J14 to 15 within borough	Public transport, reduced speed limits, road user charging, variable message signs, green travel plans
Hounslow LB	NO ₂ PM ₁₀	M4 Heston and Cranford wards Brentford and Chiswick wards	Smooth traffic flows, HOV & freight priority lanes, RMS – VMS, reduced speed limits, M4 and M4 spur in tunnel with scrubbing
Hull CC	NO ₂	A63(T): Hessle Road & Castle Street east to River Hull	Variable message signs
Hunting-donshire	NO ₂	A14: Huntingdon, NE of A14 from Spittals Jct to Town Bdge; Houses in Brampton near junction of A1/A14; Houses between Hemmingford & Fenstanton	Action plan not set
Leeds CC	NO ₂	M621 199-103 Dewsbury Rd, Holbeck, south of city centre near J3	A1 upgrading to motorway status, East Leeds Link Road Reference to route management strategy for M1/M621
Luton BC	NO ₂	M1 Section to north and south of J11 in borough	Action plan not set
Maidstone BC	NO ₂	M20 J6 to 7, corridor either side	Speed restrictions, enhanced screening, assessment of impact of introducing M20 tolls, advisory signage
Manch-ester CC	NO ₂ PM ₁₀	M60: West of J5 to J4 M56: South of J6 to J1	(Gtr Manchester action plan) SEMMS Quality Bus Corridor, council to work with Agency on M60 RMS, speed controls
N Warw-ickshire	NO ₂	M6/M42/A446 Farmhouse near junction of all three roads, Stonebridge	Liaise with Highways Agency on measures impacting on air quality
NW Leic-estershire	NO ₂	M1 Small section N of J23a nr Kegworth	Action plan not set
Northamp-ton BC	NO ₂	M1 J15 to north of J15a, approx 50m corridor SW	None
Notting-ham CC	NO ₂	A52(T) Dunkirk/Clifton Boulevard including QMC, btwn A6200 & A6005.	Action plan not set
Oldham MBC	NO ₂ PM ₁₀	M60: within borough; A627(M): Start to before first junction; A663: M60 J21 to junction with A627(M)	(Gtr Manchester action plan) Council to work with Agency on M60 RMS, speed controls; LEZ, travel plans, alternative fuels
Oswestry BC	NO ₂	A483 Gate House, at junction of A483 & Albridge Lane	Dualling and realignment
Ports-mouth CC	NO ₂	A27: A27 Cosham	No specific measures as expected to meet by 2010. Other general measures in action plan will address.
Reigate & Banstead BC	NO ₂	M25: J7 to west of J8, 30m either side M23: near J9, near J8 (Merstham), 30m either side A23(T): Horley, M23 J9 east to A23 A23: Hooley, jn with Dean Lane	Safety and lane discipline review, improved signage/road markings
Rochdale MBC	NO ₂	M62, M66, M60, A627M: All within in borough (exc. sm. far E section of M62), 200m corridor either side	(Gtr Manchester action plan) refers to speed controls, low emission zone, travel plans, alternative fuels
Rother-ham MBC	NO ₂	M1: nr J33, Brinsworth & Catcliffe; west of J34, Meadowhall; btwn J30 & 31, Wales Bar	Speed restrictions and enforcement, advisory signs (plus town centre action plan – travel plans)
Runny-mede BC	NO ₂ PM ₁₀	M25: J11 N to J13, 55m either side; J11 S to boundary at New Haw/ Byfleet, 70m either side	Speed restrictions, enhanced screening, advisory signs
Rushcliffe BC	NO ₂	A52(T) Nottingham Knight roundabout to boundary	Action plan not set
Rushmoor BC	NO ₂	M3 J4-4a, 51m either side of centreline	Speed regulation and enforcement, HOV lanes, crawler lanes, tolls, signage, enforce 'drive on the left', tree planting
St Albans CC	NO ₂	M25: Frogmore/Colney St, between J21 & 22 M1/M10/A4147: Beachtree cottages at junction	Speed regulation and traffic management
Salford MBC	NO ₂ PM ₁₀	M60, M61, M62, M602: For NO ₂ , corridor around all in borough. for PM ₁₀ , area near M60 J13	(Gtr Manchester action plan) council to work with Agency on M60 RMS, speed controls, LEZ, travel plans, alternative fuels
Sandwell MBC	NO ₂	M6, M5, A4123: Entire length within borough	Action plan not set
Seven-oaks DC	NO ₂ PM ₁₀	M20: From M25 J3 to border with Tonbridge M25: From Surrey to Dartford border, Incl J3-5 M26: from M25 J5 to border with Tonbridge A20(T): Swanley bypass (M25 J3 to Bromley border)	Reduction in all vehicle emissions by 35%, reduction in HGV's by 10%, reduction in speed to 80kph (50 mph),

● Highways Agency AQMAs, from previous page

Authority	Poll't	Location of the air quality management area	Local authority 'wish list' for action affecting Agency roads
Sheffield CC	NO ₂	M1 Area north of J34n and south of J34s	Speed restrictions, variable message signage
Shrewsbury & Atcham	NO ₂	A49(T) Bayston Hill btwn Sharpstones Ln & Burgs Ln	Cycling facilities along A49, traffic management measures along A49
Slough BC	NO ₂	M4 100m corridor N of carriageway J5-7 and S of carriageway; J5-Sutton Lane.	Smooth flows on to M4 at J5, reduce queuing at J5 of M4, work with council to reduce emissions from M4
South Beds DC	NO ₂	A5 Jn of Dunstable High St and Church St (A505) in central Dunstable	Dunstable bypass to relieve A5, motorway widening M1 J10-13, improved traffic management on A5
South Bucks DC	NO ₂	M25: 50m corridor either side, M40: 30m corridor either side, M4: 20m corridor either side	Action plan not set
South Cambs DC	NO ₂	A14 Corridor from Bar Hill to Impington (varying width)	Action plan not set
South Hants DC	NO ₂	A38 The Old Parsonage, Dean Prior south of Buckfastleigh	Action plan not set
South Northants	NO ₂	A5 Central Towcester, Saracens Head crossroads to Silverstone Brook	Action plan not set
South Staffs DC	NO ₂	M6: Woodbk Hs, Tedd'y Rd, Penkridge nr M6 J12 M54: Bursnips Rd, Essington, near M6/M54 jn M54: A460 Cannock Rd, Featherstone, near M54 A5: Oak Farm, A5 east of M6 (proposed)	Action plan not set
Southampton CC	NO ₂	M271 At end, south of J1 where meets A33	Action plan not set
South Tyneside	NO ₂	A19 south of Lindisfarne roundabout north along Tyne Tunnel approach	Action plan not set
Spelthorne BC	NO ₂	M25: south of J13-J14 within borough, M3: east of J2-J1 within borough, A30: J with M25 E to boundary	Road system design to reduce congestion
Stockport MBC	NO ₂ PM ₁₀	M60 N of J25 to J4 within borough	(Gtr Manchester action plan) council to work with HA on M60 RMS, speed controls, LEZ, travel plans, alternative fuels
Stoke-on-Trent CC	NO ₂	A500(T), A50: Entire length within borough	No measures for HA
Surrey Heath BC	NO ₂	M3 From J4 to N of Ravenswood roundabout, either side of carriageway	Action plan not set
Tameside MBC	NO ₂ PM ₁₀	M60: N of J23 Ashton to S of J24, M67: J1 to jn with A57, A57(T): Jn with M67 to A628, A628(T): Jn with A57 to boundary	Action plan not set
Tewkesbury BC	NO ₂	M5 near J10, 15 Withybridge Gardens near J11, Comus, Bamfurlong (proposed)	Action plan not set
Three Rivers DC	NO ₂ PM ₁₀	M25: Chorley Wood – south of J18 to north of River Chess, 74m either side; Chandlers Cross – west of Chandler's Lane to J19, 74m either side; Kings Langley – where crosses railway, 74m either side	Speed regulation and traffic management
Thurrock BC	NO ₂ PM ₁₀	A13: North Stifford, A282: 2 hotels, Weston Avenue, Lakeside, M25: Premier Hotel, J31; Thurrock Hotel, Ship Ln, nrJ31; Gatehope Drive, Irvine Gdns, S Ock. J29-30; Kemp's Farm Cott., Dennis Rd, S Ock. J29-30	M25 Orbit strategy
Tonbridge & Malling	NO ₂	M20 39m corridor around centreline between J4-5, (New Hythe Lane, Larkfield to Hall Road, Aylesford)	Speed restrictions, advisory signage, enhanced screening
Trafford MBC	NO ₂ PM ₁₀	M60 south of J6 to north of J10	(Gtr Manchester action plan) LA to work with HA on M60 RMS, refers to speed controls, LEZ, travel plans, alternative fuels
Wakefield MBC	NO ₂	M1: J38-42 within borough, M62: J29-33 within borough, A1: M62 J33 to Wentbridge	n/a
Walsall MBC	NO ₂	M6 J8 to north of J10 within borough	n/a
Warrington BC	NO ₂	M6, M62, M56: 50m either side of motorways within borough	Feasibility of VMS for AQ information, evaluate effect of speed restrictions, assess impact of planning applications, address signage issues for motorway diversions, RMS for M6 and M62
Watford BC	NO ₂	M1 J5-6 Ravenscroft, Gossamers & Eastlea Ave, Meriden	n/a
Waverley BC	NO ₂	A3 through Hindhead	n/a
West Dorset DC	NO ₂	A35 through Chideock (15m corridor)	n/a
Wigan MBC	NO ₂	M6, M58: Corridor around motorways in borough	n/a
Wokingham DC	NO ₂	M4 60m corridor either side	(Gtr Manchester action plan) LA to work with HA on M60 RMS, M6 motorway speed strategy, reduce traffic on M6, junction
Wolverhampton MBC	NO ₂ PM ₁₀	M54 J2 (although junction is outside borough)	n/a
Wycombe DC	NO ₂	M40 J3-5 12m corridor either side expanded in places near junctions to 30m	Motorway speed strategy, M40 Handy Cross layout changes, reductions in traffic volume, multi-model studies

SCIENCE SHORTS

Fruit no help

Fruit and vegetables do not appear to reduce oxidative DNA damage among a sample of over 200 eastern European street policemen.

Those who ate a lot of fruit appeared no better off than those who didn't. Researchers said: "The contribution to the genotoxicity and carcinogenicity in humans following exposure to air pollution present in the urban environment appears not be related just to one factor and consideration of the influence of a combination of factors such as oxidative DNA damage, PAH DNA adducts, antioxidant status and genetic susceptibility is required."

The relationship between biomarkers of oxidative DNA damage, PAH DNA adducts, antioxidant status and genetic susceptibility following exposure to environmental air pollution in humans Rajinder Singh et al, *Mutation Research*, Vol. 620, (2007) pp83-92.

Did ban help?

Australian researchers have studied whether a Lebanese ban on diesel had any impact on child health.

Health impacts on children less than 17 years old were studied, including admissions for respiratory complaints, asthma, bronchitis, pneumonia and upper respiratory tract disorders for the period before and after the ban.

Researchers found: "A significant drop in admissions for respiratory symptoms and upper respiratory tract infection from one year pre-ban to one year post-ban was recorded." Conclusions were hampered by the lack of air quality monitoring data in Lebanon. But researchers concluded: "The study offers rare evidence that a ban on diesel powered vehicles in an urban area may be associated with significant reductions in emergency admissions for asthma and upper respiratory tract disorder."

Did a ban on diesel fuel reduce emergency respiratory admissions for children? Abbas El-Zein et al, *Science of the Total Environment*, Vol. 384 (2007), pp134-140.

PUBLIC HEALTH

Air pollution as bad as smoking

Turkish researchers believe that the impact of air pollution may be as bad as smoking on the condition of the placenta.

92 pregnant women were studied, a third smokers, a third exposed to air pollution, and the last third who were controls that neither smoked nor were exposed to significant air pollution. Samples from their placentas were tested for zinc and cadmium and associated

placental damage.

Both birthweight and placental weight of those in the air pollution exposed group were lower than the smokers or non exposed groups. Zinc and cadmium levels were highest among smokers, with control group being lowest.

Researchers said: "To the best of our knowledge this is the first study to compare level in placentas of those who

smoke with those who were exposed to air pollution. It has established that the consequences of exposure to air pollution were as harmful as the effects of smoking."

The effects of air pollution and smoking on placental cadmium, zinc concentration and metallothionein expression, Hulya Cetin Sorkun et al, *Toxicology* Vol. 238 (2007) pp15-22.

URBAN LANDSCAPE

Do trees cut particle pollution?

UK researchers have proposed a model that can be used to calculate how many trees are required to mop up pollution.

The researchers say: "Modelling the capture of trees across two UK local authorities has shown that trees are capable of reducing PM₁₀ concentrations across the whole authority. Reductions of 7-20% can be achieved, but at a cost of planting huge numbers of trees. Appreciative reductions also depending on the availability of suitable planting areas, for

example built up or industrial areas, which are often absent of suitable planting areas, are where reductions in PM₁₀ are particularly needed. However smaller reductions of on average 2.5-7% can be achieved if a quarter of every available space were planted in each grid square across the authority."

But the researchers also warn that planting trees on this scale will need to take heed for personal safety issues and the increase in biogenic VOC emissions which leads to ozone

formation.

"For any new developments that contribute to the local PM₁₀ concentrations, mitigation by planting trees can be assessed, and in some cases reductions can be sufficient to meet air quality objectives by PM₁₀."

Estimating the reduction of urban PM₁₀ concentrations by trees within an environmental information system for planners, W Bealey et al, *Journal of Environmental Management*, Vol. 85 (2007) pp44-58.

GENETICS

Prague air leads to DNA damage

DNA damage in Prague policemen may be caused by poor air.

Inhalation exposure was measured using fixed site and personal monitors and compared to blood samples taken from 54 outdoor traffic policemen and indoor controls.

PM_{2.5} and PAHs were monitored.

Those working outside were found to have far more DNA damage than those working inside. Damage was considerably more in January than in September, reflecting

higher levels of PAH contained in PM_{2.5}.

Impact of air pollution and genotype variability on DNA damage in Prague policemen Bozena Novotna et al, *Toxicology Letters*. 2007 Jul 30; Vol. 172(1-2): pp37-47

VEHICLE EMISSIONS

Real world bus tests reveal biodiesel impacts

'Real world' tests on school buses using 20% mix biodiesel showed a significant emission worsening.

US researchers intentionally used in service buses with locally-sold 20% biodiesel. Lidar and other remote emission sensing equipment were used to estimate emissions from the buses.

'Before' tests were carried out on 200 school buses using standard diesel, after tests were then carried out with the 20%

blend.

Particulate was found to increase by up to 80% after the switch prompting researchers to scrutinise the fuel supplied. It was found to have high glycerine and a low flash point due to errors in production.

"The results of our study underline the importance of the programme since the potential emission benefits from biodiesel may be reduced or even reversed without appropriate fuel quality control

on real world fuels."

Aside from particles, cold start carbon monoxide emissions and hot stabilised hydrocarbon emissions were also higher, with other emissions not significantly different.

A case study of real world tailpipe emission for school buses using a 20% biodiesel blend, Claudio Mazzoleni et al, *Science of the Total Environment*, Vol. 385, (2007), pp146-159.

SCIENCE SHORTS

CHILD HEALTH

Particles prompt increased asthma risk for mums-to-be

Exposure to active and inert particles during pregnancy can provoke reactions in pregnant mothers that lead to increased likelihood of their babies developing asthma in later life.

The reactions during pregnancy are more acute than if not pregnant. This may be due to increased concentrations of pregnancy hormones which impacts on the function of lung macrophages (which clear particles from the lung wall).

Harvard researchers instilled pregnant mice with particle suspensions with lung inflammatory responses measured 48 hours after

exposure. Offspring were subsequently tested for hyper responsiveness and allergic inflammation.

Researchers concluded: "Non-pregnant females had the expected minimal response to 'inert' TiO₂. In contrast, pregnant mice showed robust and persistent acute inflammation after both TiO₂ and DEP. Genomic profiling identified genes differentially expressed in pregnant lungs exposed to TiO₂. Neonates of mothers exposed to TiO₂ (and DEP, but not PBS) developed AHR and AI, indicating that pregnancy exposure to both

'inert' TiO₂ and DEP, caused increased asthma susceptibility in offspring.

"We found that pregnancy enhances lung inflammatory responses to otherwise relatively innocuous inert particles; and exposures of non-allergic pregnant females to inert or toxic environmental air particles can cause increased allergic susceptibility in offspring."

Pulmonary exposure to particles during pregnancy causes increased neonatal asthma susceptibility, Alexey V. Fedulov *Am J Respir Cell Mol Biol.* 2007 Jul 26; [Epub]

MONITORING

Large errors for particle monitors

Side by side comparisons of particle monitors in the US suggests that errors are larger than thought.

Standard network PM_{2.5} monitors were located side by side with more specialised monitors at a suburban site in Maryland. Two were from the US EPA speciation trends network (a Met One Speciation Air Sampling System) and Thermo Scientific Reference Ambient Air Sampler), two Desert Research Institute sequential filter samplers and a Teom 1400a.

Researchers found that daily concentrations of PM_{2.5} and the main species were significantly different between 5% and 100% of the time. They concluded: "The uncertainty estimates used by either the speciation trends network or the Desert Research Institute are likely to be too low to account for the potential variability in the PM_{2.5} measurements and to some extent this will impact on the conclusions of trend analysis and receptor modelling based on these data.

"With the current state of

ambient monitoring it is reasonable to expect uncertainties of at least 20% for PM_{2.5} sulphate and ammonium. Further evaluation for these sampling systems is recommended through side by side measurements at more locations and for longer periods of time."

A side by side comparison of filter based PM_{2.5} measurements at a suburban site: A closure study, J Hains et al, *Atmospheric Environment* Vol. 41 (2007) pp6167-6184

TRAFFIC EMISSIONS

Trace elements tracked near motorways

California researchers say that trace element concentrations near a busy motorway are small but could be significant.

Monitoring near a motorway with a high concentration of diesel truck traffic was carried out and compared to a background monitor one kilometre away. Concentrated samples were collected to allow analysis over a period of hours.

Sulphur was the most abundant (138 ng/m³), sodium

((129 ng/m³), Iron (89 ng/m³) in the ultrafine mode. Researchers added: "The results of the study showed that the freeway significantly contributes to the mission of antimony, molybdenum, copper, phosphorus, barium, calcium and iron in the PM_{0.18} size mode and antimony, copper, barium and iron in the PM_{0.18-2.5} range.. The results of this study show that trace elements constitute a small fraction of particle mass

in the nanoparticle size range, but these can and should be characterised due to the toxicological impacts of some of the metals studied, despite their small concentration."

Fine, ultrafine and nanoparticle trace element compositions near a major freeway with a high heavy duty diesel fraction, Leonidas Ntziachristos et al, *Atmospheric Environment*, Vol. 41 (2007) pp5684-5696.

Chinese PM costs

Chinese researchers have totted up the costs of pollution in the country – renowned for poor air quality.

Based on ambient PM₁₀ concentrations in 111 cities in China – the most comprehensive study to date – the researchers costed the impacts at £15bn a year.

Researchers say: "Government should make public the economic costs incurred by air pollution in each administrative district and assess air pollution costs as an important negative index in the government achievements. It could prohibit the local governments from fanatically and unilaterally pursuing rapid economic development. Second, China's standard emission charge, which is still much lower than the marginal cost of pollution treatment, should be increased. This will encourage factories and enterprises to invest in highly effective and advanced pollution control technologies."

Minsi Zhang, Journal of Environmental Management, 2007 Jun 14th (epublication).

Fat emissions

Cooking smells contribute significant organic compounds to the atmosphere, Taiwan researchers claim.

Measurements were made of gaseous and particle emissions from different types of restaurants including Chinese, western and barbecue. The relative emissions were barbecue (1990), Chinese (570) and Western (64).

Researchers focussed on one particular compound which is toxic – trans,trans-2,4-decadienal. 83% of this is carried in the particulate phase.

Removal efficiencies of extraction systems were assessed – efficiencies of electrostatic precipitators, activated carbon and wet scrubbers were 64%, 86% and 71% respectively.

Emission of trans,trans-2,4-decadienal from restaurant exhausts to the atmosphere, His-Hsien Yang et al, *Atmospheric Environment* Vol. 41 (2007) pp5327-5333.

Halloween brings much talk about doom and death, so it was fitting to come across a macabre air quality note from Defra's local air pollution control people.

AQ Note 19 tells local authorities that regulators should consider a 'soft touch' if there is an emergency (eg a flu pandemic) causing mass casualties. In a somewhat understated way, it points out that an emergency causing mass fatalities "may have implications for the number of trained staff that can be called upon" – and on spare parts for crematorium filtration equipment.

We think its great that Defra is thinking ahead – but we suspect that if there were bodies piling up in the streets, the last thing local authority regulators will do is reach for AQ note 19 to decide whether to prosecute any crematorium that makes too much smoke. Remember the foot and mouth pyres?

So the Highways Agency has prevented Bristol from getting its hands on 'its' motorway, the M32 that feeds to the centre of the city.

The council had been wanting to put a speed limit, enforcement and a priority lane on the motorway in a bid to improve air quality. The Agency, which sees its role as cramming as much traffic onto its

road travelling as fast as possible, of course would not have liked to see such a precedent.

So much for working with local authorities to improve air quality.

Our list of what local authorities have asked the Highways Agency to do is fun to read.

As with Bristol, many have proposed speed limits and flow reductions. Others have asked for junction closures. No chance! Those councils proposing new road building in their action plans can expect more welcome support.

At the other end of the spectrum, some include in their action plan the need to get drivers to keep left unless overtaking. Hmmm – this may be common sense but perhaps such micromanagement wasn't envisaged for action plans.

And we trust the Agency will knock heads together when council action plans contradict each other. We note that Dover wants to upgrade the A2 at its end to take trucks away from its seafront AQMA. Further up the A2, Gravesham's action plan demands a 14% reduction in trucks on top of a 10% overall flow reduction.

Well if you don't want trucks on the A2, you have to send them down the M20.

Ooops, Sevenoaks, in its action plan, is asking for a 10% cut in trucks on that bit!

Our research column (p10) highlights real-world problems that have been found with biodiesel vehicles. It seems that in practice, biodiesel sold at the pump may not be quite the quality it is supposed to be.

Which makes all the more worrying the little-known taxation change made earlier this year which makes it entirely legal for the public to use up to 2,500 litres of cooking oil in their diesel cars without paying any duty. Previously this was an offence.

With some supermarkets knocking out cheap cooking oil at a few pence per litre, this is an attractive proposition, and sure enough home made distillation stills and storage equipment can be bought on Ebay.

The catch for air quality is obvious – there will be no control whatsoever on fuel quality. And the cooking oil can only be used on older style diesels with low pressure injection (these types of diesels have poorer fuel economy and far higher emissions).

Perhaps the only good thing to come out of this is that particle emissions will smell nicer.

AIR QUALITY EVENTS 2007

2007

7th November

AIR QUALITY UPDATE SEMINAR

EPUK (ex NSCA) Autumn spring update seminar to be held in Birmingham, Contact Lucy Salter EPUK, 01273 878770

15th November

SHEFFIELD CLEAN AIR PARTNERSHIP

Beacon knowledge sharing meeting to be held in Sheffield, further details www.beacons.idea.gov.uk/idk/core/page.do?pageId=6250584

21st November

COMMUNITY AIR QUALITY MONITORING

Beacon knowledge sharing meeting to be held in Sheffield, further details www.beacons.idea.gov.uk/idk/core/page.do?pageId=6250584

27th November:

ADMS 4 USER GROUP MEETING

This year's ADMS 4 User Group Meeting will be held on Tuesday 27th November at The Studio in the centre of Birmingham. www.cerc.co.uk/

3rd December

IAPSC

Investigation of Air Pollution Standing Conference meeting to be held in Austin Court, Birmingham. Sue Powditch 0870 190 6551

13-14th December

THE IMPORTANCE OF INDOOR AIR

Society for Chemical Industry conference to be held in London website <http://rsc-aamg.org/Pages/Meetings.html>

2008

21st February

NSCA SW CONFERENCE

Watershed, Central Bristol, email david.muir@bristol.gov.uk

24th January

AIR QUALITY IMPACT ASSESSMENT

EMAQ seminar to be held in Birmingham www.emaq.aeat.com

3rd-4th April

AIR QUALITY SPRING WORKSHOP

EPUK (ex NSCA) spring workshop, contact Lucy Salter, EPUK 01273 878770

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