www.ealing.gov.uk
Pollution Control Team

# The Borough Air Quality Bulletin

A Local Agenda 21/Operational Services Initiative

Summer 2004

## IN THIS ISSUE



**Ealing Borough Air Quality Bulletin**

Published quarterly by the Environmental Quality Team
Residential Services
Housing and Environmental Health
London Borough of Ealing
Perceval House
14/16 Uxbridge Road
London W5 2HL

*Edited by Richard Ward*
*Tel: 020 8825 8111*
*Fax: 020 8825 7732*
*E-mail:* wardr@ealing.gov.uk

***www.ealing.gov.uk/services/pollution+control/***

# 7 Up and Running

Ealing's mobile air quality monitoring unit has had a good spring clean and has found a new home at Blair Peach Primary School in Beaconsfield Rd, Southall. Funding received from the Department for Environment Food and Rural Affairs (Defra) has allowed the Environmental Quality Team to spruce up the unit and now ensures its operation for at least the next five years. Ealing 7 as it will now be known, will no longer be 'mobile' but will be sited at the school for the long term. As an urban background site, the air quality it measures is representative of the background concentrations (where the majority of residents live). It will also provide valuable data regarding any impact that Heathrow may have on the residents in Southall, or that any major development planned for the Southall Gasworks site will have.

The unit is equipped with analysers to monitor fine particles ($PM_{10}$) and oxides of nitrogen, the two pollutants that concern us most in Ealing. It also has sensors for recording temperature, humidity, wind speed and direction. The unit will continuously monitor air quality and send the data it collects down a phone line to ERG-Kings College London, who process it for us. You can access real time air quality data from this, and Ealing's 3 other continuous monitoring sites, from ERG's web site at http://www.erg.kcl.ac.uk/london/asp/home.asp

# Slight $NO_2$ Improvement

Third year results from our five-year nitrogen dioxide diffusion tube survey are now available and show a marginal improvement on last years levels. The survey involves 100 tubes at 86 sites around the borough that are changed monthly and analysed. The results are likely to be heavily influenced by the weather conditions experienced during 2003 that provided ideal conditions for the build up of pollution across London. Last years levels were significantly higher than the previous years, largely for similar reasons. Thirteen of the sites have been in existence since 1997 but long-term trends have so far proved indecipherable.

Levels measured at the majority of sites during 03/04 suggest widespread exceedance of the $NO_2$ annual average Objective which should be met by December 2005 and that 36 sites may well fail the EC Daughter Directive Objective which should be achieved by 2010. So far, 2004's weather appears more amenable to an improvement in $NO_2$ levels so it will be interesting to see if next year's results reflect this.

We aim to keep readers informed regarding air quality management in Ealing and to bring you up to date on general air quality issues. If you have any comments on how to improve this bulletin or if there are any topics you would like to see included, then please get in touch with the Editor.

## LEZ pledge from the Mayor

Mayor Ken Livingstone has pledged his backing to the introduction of a Low Emission Zone for London. In his first press conference after being re-elected in June, the Mayor said that he had already instructed Transport for London to draw up plans for a Low Emissions Zone covering the whole of the Greater London area, with a view to having it in place by 2007. Buses, lorries and taxis that fail to meet new emission standards would be barred from the zone. The Mayor is due to meet with bus companies over the summer months to discuss how they can start a new procurement programme that will ensure the replacement of older buses with less polluting ones. The Mayor also pledged to provide free bus travel for under 18's in full time education, in order to tackle the congestion resulting from the school run.

## BA emission increase

British Airways may have marred the chance of a third runway at Heathrow airport by revealing that its aircraft caused more pollution last year, despite Government demands for an improvement.

In its annual Environmental Report for 2003/04, British Airways say that emissions of carbon dioxide and nitrogen oxides from their fleet of aircraft rose over the year, following a gradual decrease during the proceeding 4 years. Their nitrogen emissions fell by 18% between 1998 and 2002, but then edged up by 4% last year while their carbon dioxide emissions rose by 300,000 tonnes to 15.4m. The recent increase is blamed on a recent programme of retiring older aircraft coming to an end. However, in December the Government stipulated that in order for a third runway to be built at Heathrow, nitrogen emissions had to be brought under control. Without a significant improvement in such emissions, Heathrow will breach European laws on air pollution, which come into force in 2010.

**Clark A. 2004. Runway hopes hit as BA admits to more pollution. The Guardian. 15th July 2004.**
**http://www.guardian.co.uk/business/story/0,,1261457,00.html**

## Pollution bad for the unborn

The World Health Organisation is set to publish a report later this year that states that air pollutants damage the lungs of children in the womb.

After a review of recent research on the effects of air pollution on children's health and development, A WHO team of researchers conclude that pollutants can impair lung growth in the womb. This is confirmed by studies on animal. The findings were presented to a conference of European health and environment ministers in Budapest in June. The main culprit is fine particles, which are emitted mainly from road vehicle exhausts. Although pollution has been known to cause some other forms of growth retardation in the unborn, this is the first confirmation of damage to the lungs of foetuses. The WHO says the findings are significant, and show the need for urgent action to protect foetuses.

**Kirby A. 2004. Poor air 'harms lungs of unborn' BBC. 23rd June 2004.**
**http://news.bbc.co.uk/1/hi/health/3832183.stm**

## Air Quality on the Internet

Here is a selection of air quality sites on the Internet:-

Ealing Council's Pollution Control Team
http://www.ealing.gov.uk/services/pollution+control/default.asp

Department for Environment, Food and Rural Areas
http://www.defra.gov.uk/environment/index.htm

National Society of Clean Air and Environmental Protection http://www.nsca.org.uk

The Air Quality Management Site
http://www.air-quality-management.co.uk/

Atmospheric Research & Information Centre (at Manchester Metropolitan University)
http://www.docm.mmu.ac.uk/aric/eae/

Friends of the Earth
www.foe.co.uk

Local Agenda 21 Pollution and Public Health Project Group
www.LA21.org

OMNI - Ealing Council's interactive website.
www.seiph.umds.ac.uk/o2/ealing/index.htm

Environmental Research Group - Kings College London. London Air Quality Network.
http://www.erg.kcl.ac.uk/london/asp/home.asp

The UK National Air Quality Information Archive
http://www.airquality.co.uk/archive/index.php

# Research Latest

## Better Driving = Less Pollution

Vehicle emissions can be reduced dramatically simply by adopting better driving techniques according to recent research from Belgium. By teaching drivers in the ways of 'eco driving' styles, by keeping the vehicle in as low a gear as possible and driving in a calm way, significant cuts in a range of pollutants were identified. Carbon monoxide emissions from petrol cars were reduced by 59%, hydrocarbons by 39% and oxides of nitrogen by 47%. For diesel cars, carbon dioxide was cut by 37%, oxides of nitrogen by 29% and particulates by 31%.

Mierlo et al. 2004. Driving styles and traffic measures - influence on vehicle emissions and fuel consumption. Proceedings of the Institute of Mechanical Engineers. Part D. Vol 218. pp43-50. January 2004.
Air Quality Management. April 2004. Issue number 100.

## Pollution blamed for asthma….

A French study to investigate the role of traffic related air pollution in the development of childhood asthma appears to indicate that rather than just worsening the symptoms of asthma, traffic pollution may actually be causing it.

Looking at 217 pairs of children in 5 urban areas and control areas, researchers were able to construct an index of lifelong exposure to traffic fumes using information on traffic density near to home and school addresses. Generally, they found that lifetime exposure was not associated with asthma. However, when they looked at the 0 to 3 years age period they found significant associations between exposure at this age and asthma. The results are the latest of a number of findings in recent years that show that the first few years of life are a critical period for the development of postnatal asthma in relation to exposure to environmental agents. The researchers involved in this latest study go as far as to suggest that traffic related pollution might have contributed to the asthma epidemic that has taken place during the past decades among children.

Zmirou et al. 2004. Traffic related air pollution and incidence of childhood asthma: results of the Vesta case-control study. Journal of Epidemiology and Community Health. 2004. Vol 58. pp18-23.
Air Quality Management. June 2004. Issue number 102.

## And Cancer….

Norwegian research hints at the conclusion that air pollution may cause lung cancer. 16,209 men from Oslo were followed from 1972 to 1998 and their health was assessed in relation to annual air pollution levels at their addresses for those years. During the follow up period, 418 of these men developed lung cancer. Allowing for age, smoking habits, and other factors, the researchers found that for a $10\mu g/m^3$ increase in $NO_x$ levels at the home address, there was an 8% increase in the risk of developing lung cancer. For Sulphur dioxide, there was a 1% increase in risk per $10\mu g/m^3$ rise. They state that exposure to $NO_x$ or $SO_2$ is unlikely to be the cause of the cancer on its own, but should rather be considered as indicators of urban air pollution. $NO_x$ levels might in fact indicate exposure to particles, carcinogens, or carcinogens bound to particles. The main source of $NO_x$ in Oslo was emissions from vehicles, while for $SO_2$ it's heating. Therefore the findings favour the view that traffic related pollution increases the risk of developing lung cancer.

Nafstad etal. 2003. Lung cancer and air pollution: a 27 year follow up of 16 209 Norwegian men. Thorax 2003. Vol 58. pp1071-1076
Air Quality Management. June 2004. Issue number 102.

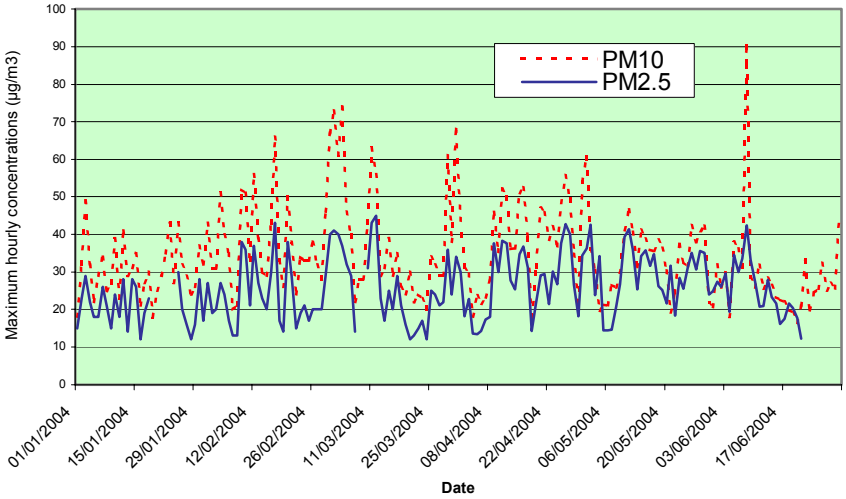
## But not heart disease….

To confuse matters slightly, a study from Imperial Collage London found no indication that prolonged residence in areas with relatively high levels of particulate pollution causes a significant increase in heart disease. Researchers randomly selected women from 11 wards around the country where Black Smoke measurements have been collected for over 30 years. Postal questionnaires were received from 1,166 women aged 45 years or older who had lived within 5 miles of their current address for at least 30 years. The researchers found no clear increase in prevalence of productive cough or medically diagnosed ischaemic heart disease with long-term residence in places with highest levels of particulate pollution. They also found that asthma was lower in wards with the highest Black Smoke measurements. They conclude that due to studies from the US that found the opposite, that there is a need for further evaluation of the long-term impact of particulate pollution on health in the UK.

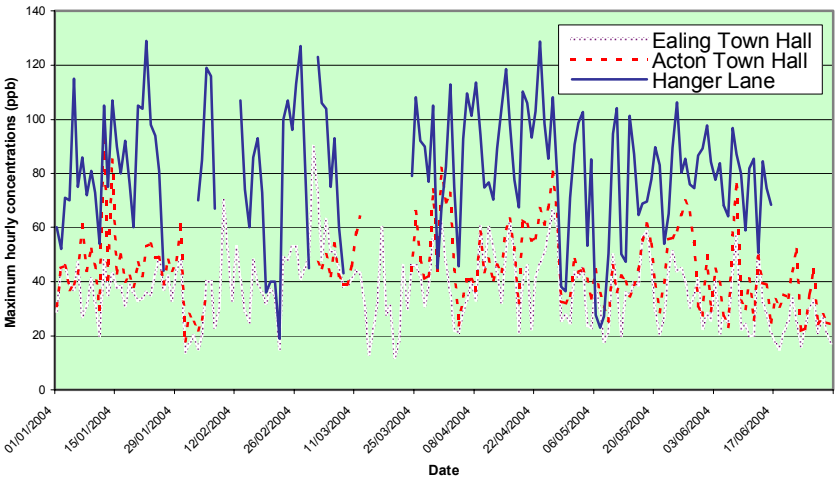
Solomon et al. 2003. Cardio-respiratory morbidity and long-term exposure to particulate air pollution. International Journal of Environmental Health Research. Vol 13, Number 4 / December 2003.

# Air Pollution Results Jan to June 2004

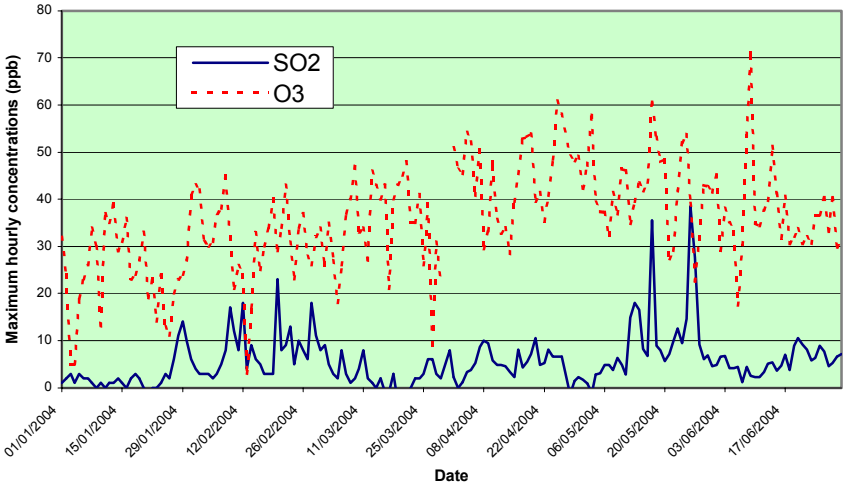
**Particulate concentrations measured at Acton Town Hall**




**Nitrogen dioxide (NO2) levels measured in Ealing**




**Sulphur dioxide & ozone levels at Ealing Town Hall**




2004 has been a relatively benign year in relation to air pollution so far. Cold, calm conditions and light winds led to MODERATE $PM_{10}$ around the 2nd of March, while warm, sunny conditions, in combination with precursor pollutants brought in on light winds from the continent, allowed $O_3$ to build up at the end of April.

Hot sunny weather on the 8th June resulted in the highest $PM_{10}$ and $O_3$ levels so far, although only $O_3$ attained a MODERATE banding.

Other pollutant levels remained LOW for the six-month period.

## Daily Forecasts

A daily air pollution forecast is published every day on the Residential Service's website, as well as recent air pollution levels. You will also find details of Ealing's Air Quality Review and Assessment, the results of Ealing's public consultation on air pollution and other related topics, including back issues of the Air Quality Bulletin.

### Pollution Bandings

| | low | moderate | high | v.high |
|---|---|---|---|---|
| $O_3$ | <50 | 50-89 | 80-179 | >180 |
| $SO_2$ | <100 | 100-199 | 200-399 | >400 |
| $NO_2$ | <150 | 150-299 | 300-399 | >400 |
| $PM_{10}$ | <50 | 50-74 | 75-99 | >100 |

Measured as:

| | | |
|---|---|---|
| Ozone | ($O_3$) | hourly mean |
| Sulphur dioxide | ($SO_2$) | 15 minute averages |
| Nitrogen dioxide | ($NO_2$) | hourly mean |
| Particulates | ($PM_{10}$) | running 24 hour mean |