UK Nitrogen Dioxide Network 2003

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Prepared by **netcen** as part of the Air Quality Research Programme of the Department for Environment, Food and Rural Affairs, the Scottish Executive, the Welsh Assembly Government and the Department of Environment in Northern Ireland.

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Executive Summary

This is the eleventh in a series of annual reports on the UK Nitrogen Dioxide Diffusion Tube Network (the NO_2 Network), covering the calendar year 2003. The network measures nitrogen dioxide (NO_2) in urban areas throughout the UK, in a collaborative project involving the Department for Environment, Food and Rural Affairs, the Scottish Executive, Welsh Assembly Government, the Department of Environment in Northern Ireland and Local/Unitary Authorities. Measurements are carried out using passive samplers (Palmes type diffusion tubes) at over 1200 sites. The network has two principal aims:

- to objectively assess the spatial and temporal distribution of NO_2 concentrations in a variety of urban environments in the UK,
- to highlight areas where elevated concentrations of NO_2 occur and which may justify a more detailed investigation using automatic monitoring techniques.

UK annual mean NO_2 concentrations for 2003 were 43 μg m^{-3} at roadside locations and 24 μg m^{-3} at urban background locations (These are the mean of the individual annual means at all sites, and no bias adjustment factors have been applied to these statistics). These UK average concentrations are higher than those measured in 2002 (39 μg m^{-3} at roadside and 22 μg m^{-3} at urban background): indeed they are the highest Network averages recorded since the late 1990s. In 2003, the average NO_2 concentration at roadside locations rose above 40 μg m^{-3} (the Air Quality Strategy objective for annual mean NO_2 concentrations) for the first time since 1999.

These higher mean concentrations were thought to be the result of meteorological conditions during 2003, which led to several periods of poor air quality, particularly in the spring and summer. High levels of pollutants including particulate matter and ozone, together with NO_2, were recorded across the UK. The results for 2003 illustrate how national average NO_2 concentrations may be affected by factors such as meteorology. However, although 2003 was an unusual year with respect to air quality, it is not considered to have been exceptional.

Until 2003, UK average concentrations at both site types had been decreasing gradually since the mid-1990s. A statistically significant downward trend in annual mean concentrations from 1993 to 2002 had been identified, in the case of both roadside and urban background sites. A similar pattern was shown by automatic measurements of NO_2 undertaken by the Automatic Urban and Rural Network. Although the Network data showed that NO_2 concentrations increased slightly in 2003, linear regression analysis shows that despite this increase, the downward trend between 1993 and 2003 remains statistically significant at the 95% confidence level.

For the first time, the effect of applying bias adjustment factors has been investigated. Bias adjustment factors obtained for analytical laboratories participating in the NO_2 Network's Field Intercomparison co-location study were applied to each site's annual mean. This had the overall effect of reducing the overall UK annual average NO_2 concentrations for 2003 from 43 μg m^{-3} to 35 μg m^{-3} at roadside locations, and 24 μg m^{-3} to 20 μg m^{-3} at urban background locations.

In 2003, three roadside sites in the Network were found to have an annual mean concentration equal to or greater than 91 μg m^{-3}. This concentration represents a revised indicator for the EC Directive limit value for NO_2 (EC 85/203), which is not fully repealed until 2010.

It is estimated that 126 roadside sites, and two urban background sites in the UK NO_2 Network may be at risk of exceeding the EC Daughter Directive objective for 2010. This estimate is based on measured concentrations during 2003, and emission estimates and projections.

A total of 282 roadside sites, and 17 urban background sites, measured annual average NO_2 concentrations in excess of 40μg m^{-3}, during 2003. This concentration is an Air Quality Strategy objective, to be achieved by the end of 2005. Based on current predicted emissions reductions, it is estimated that almost all urban background locations will meet the Air Quality Strategy objective by the end of 2005: however, exceedence at roadside sites in 2005 may be widespread.

Contents

1 Introduction

The UK Nitrogen Dioxide Diffusion Tube Network (the NO_2 Network) is operated by netcen on behalf of the Department for Environment, Food and Rural Affairs (Defra), the Scottish Executive, the Welsh Assembly Government and the Department of Environment in Northern Ireland. The Network was established in 1993. Its objective is to assess the spatial and temporal distribution of nitrogen dioxide (NO_2) concentrations in a variety of urban areas of the UK, ranging from the major cities to smaller towns. This is done using NO_2 diffusion tubes: low-cost passive samplers ideal for indicative monitoring.

The current Network and previous more limited surveys[1,2] have acted as screening tools for identification of areas with high NO_2 concentrations. Areas identified in this way have been prioritised for further monitoring, with more sophisticated automatic techniques.

This report for 2003 is the eleventh in a series of annual reports[3-12] of the UK Nitrogen Dioxide Diffusion Tube Network. It briefly documents the organisation and infrastructure of the network, which is more thoroughly covered in the previous reports. Concentrations measured in the UK during 2003 are presented in this report, together with national and regional statistics, and comparison with previous years' findings.

In this report, pollutant concentrations are expressed in microgrammes per cubic metre ($\mu g\ m^{-3}$). This is the unit used in the Air Quality Strategy. In reports for years prior to 1999, concentrations were expressed in part per billion by volume (ppb). To convert between these two units, the relationship is as follows:

1ppb = 1.91µg m^{-3} at 20°C and 101.3KPa

During 2003, the Network comprised a total of 1219 NO_2 diffusion tube monitoring sites, operated by 300 Local Authorities. Analysis of the diffusion tubes was carried out by 26 analytical laboratories, all of which took part in the NO_2 Network's Quality Assurance and Quality Control (QA/QC) systems. See Appendix A for more information on the Network's QA/QC. Ratification of the network's dataset was based on the data quality procedures set out in Section 2.2.

The full dataset for 2003 is included with the report on this CD ROM (or, for printed copies, on the CD ROM inside the back cover - see instructions on the plastic insert holding the CD). This and previous years' data are also available on Defra's Air Quality Archive on the World Wide Web, at www.airquality.co.uk.

2 Monitoring Details

2.1 ORGANISATION OF THE NETWORK

Netcen, an operating division of AEA Technology Environment, acts as the co-ordinating body for the UK NO_2 Network and provides the framework under which monitoring of NO_2 by participating Local Authorities takes place. Diffusion tubes exposed by Local Authorities are analysed by analytical laboratories and the results forwarded to netcen for central collation and processing. In providing a centrally managed system for the monitoring of NO_2 on a national scale, netcen's responsibilities involve the provision of the following services and deliverables:

- A framework for monitoring and instructions to participants in the form of the site operators' Instruction Manual[13], issued to all site operators and also available on the Air Quality Archive on the World Wide Web at http://www.airquality.co.uk/archive/reports/cat06/no2instr.pdf
- Central collation, checking and processing of data
- Data interpretation, advice and report production
- QA/QC systems for assessment and control of laboratory performance. These are detailed in Appendix A.

Monthly measurements are routinely performed at four locations within each Local Authority, in order to estimate the spatial distribution of NO_2 concentrations:

- **Roadside,** 1-5m from the kerb of a busy road (2 sampling locations).
- **Urban Background** (2 sampling locations), >50m from any busy road and typically in a residential area.

(Prior to 2001, the Network included a third site category, "Intermediate", comprising sites 20-30m from a busy road: this site category was discontinued at the end of December 2000, as it had been found to produce little additional information). Most Local Authorities operate two Roadside and two Urban Background sites, and the composition of the Network is now approximately 50% Roadside and 50% Urban Background sites. "Roadside" sites were formerly known as "Kerbside". The name was changed for better consistency with the "Roadside" site category as defined for automatic monitoring sites by the Local Air Quality Management Technical Guidance LAQM.TG(03)[14].

2.2 DATA QUALITY PROCEDURES

The following data quality assurance and control procedures were applied to the dataset in order to eliminate data with unsatisfactory accuracy, erroneously low measurements and data from sites with very low data capture:

- Data from laboratories whose performance failed to meet the required criteria in both the Health and Safety Laboratory's WASP programme for diffusion tubes *and* the Network Field Intercomparison Exercise are omitted from the network dataset. Three laboratories failed to meet the criteria in 2003 (see Appendix A for details of the criteria).
- All data below 3.82 μg m^{-3} (2 ppb) have been eliminated, as such low values usually only occur in rural or remote locations. Such results are unlikely to be genuine at the urban sites comprising the Network.
- Tube changes must take place within $\pm$ 2 days of the dates specified in the exposure calendar supplied to all Local Authorities. Data are rejected if this is not the case.
- Annual averages are only calculated for sites with at least six months data from any period during the calendar year. Annex 1 of LAQM.TG(03) reports that, for urban non-roadside sites, six (consecutive) month mean NO_2 concentrations are usually within $\pm$ 15% of the annual mean[14], which is within the estimated uncertainty usually quoted for diffusion tube measurements.

2.3 FACTORS AFFECTING DIFFUSION TUBE PERFORMANCE

NO_2 diffusion tubes are an *indicative* monitoring technique: although ideal for screening studies and for identifying areas of high concentration, they do not offer the same accuracy as the automatic chemiluminescent analyser (which is defined by the EU as the reference method of measurement for this pollutant). Early research indicated that NO_2 measurements made with Palmes type diffusion tubes typically overestimated relative to chemiluminescent analyser measurements by up to around 30%[15,16]. However, NO_2 diffusion tubes are affected by several mechanisms which may cause them to exhibit positive bias (over-read), or negative bias (under-read) relative to the reference technique.

Over-read may be attributed to the individual and combined effect of three interfering factors;

- the shortening of the diffusive path length, by turbulence at the open end of the tube caused by wind[15,16].
- blocking of UV light by the tube material, resulting in reduced NO_2 photolysis in the tube[17]
- the interfering effects of peroxyacetyl nitrate (PAN)[16].

Some factors causing under-read are as follows:

- Increasing exposure period. It has been reported that the average of four consecutive one-week, or two consecutive two-week exposures is systematically greater than one four-week exposure[18,19]. This is thought to be caused by degradation of the absorbed nitrite over time[18].
- Insufficient extraction of nitrite from the grids.
- The photochemical degradation of the triethanolamine-nitrite complex by light. However, this has been largely minimised, by the widespread use of opaque diffusive end caps[5].
- In the specific case of tubes prepared using a 50% v/v solution of TEA in water, it has been reported that there may be a mechanism reducing NO_2 uptake, resulting in negative bias[20]. Such tubes are no longer widely used in the Network. Tubes prepared using other methods (10% or 20% v/v solution of TEA in water, 50% solution of TEA in acetone) appear not to be affected.

Extensive validation exercises have been performed on the NO_2 diffusion tube methodology[15,21], which have shown a good agreement between diffusion tubes and the chemiluminescent technique.

2.4 UNCERTAINTY OF DIFFUSION TUBE MEASUREMENTS

Uncertainties in diffusion tube measurements may arise

(i) during both the sampling phase, while the tubes are being exposed in the field, (as discussed in section 2.3 above) and

(ii) after exposure, at the analytical stage.

The Network's QA/QC programme addresses both of these stages.

The Health and Safety Laboratory's WASP programme, which forms a key part of the Network's QA/QC, tests the ability of the participating analytical laboratories to accurately analyse diffusion tubes which have been "doped" with a set amount of nitrite. On the basis of the results from 2003, the average (median) precision of the analysis (based upon an assessment of the relative standard deviation of the standardised result) was 7%, though some of the better-performing laboratories achieved within 5%. The results from this scheme are presented in Appendix A.

Laboratories must also participate in a Field Intercomparison, designed to test how the diffusion tubes themselves perform under actual exposure conditions, as well as the performance of the analytical laboratories. Diffusion tubes from each laboratory are co-located on a monthly basis with an automatic monitoring site in Defra's Automatic Urban and Rural Network (AURN). The automatic chemiluminescent NO_x monitoring equipment at the site provides a reference measurement, with which the diffusion tube results can be compared. For laboratories with at least 9 months of data, the precision of the annual mean NO_2 concentration measured by the diffusion tubes was estimated to be around ±12%, based on the RSD of the median standardised result (see Appendix A).

As explained above, diffusion tubes may also exhibit under- or over-read compared to the reference method. In the 2003 Field Intercomparison (Appendix A), the relationship between the diffusion tube mean and the automatic analyser mean was assessed for all laboratories that participated on a monthly basis. Individual laboratories' results ranged from an average under-read of 21% to an average over-read of 38%. The median was 16%±8%. The mean precision of the bias, calculated at the 95% confidence interval, ranged from ±5% for the most consistent, to ±25% for the least consistent, with a median of 8%.

2.5 BIAS ADJUSTMENT FACTORS

Because of their low cost, unobtrusive nature and ease of deployment, diffusion tubes have, in recent years, become widely used by Local Authorities for air quality monitoring as part of the ongoing Review and Assessment process. In some cases, due to financial constraints, space limitations or difficulties in providing a power supply, they may be the only monitoring technique that a Local Authority can use at a particular location.

However, as explained in sections 2.3 and 2.4, diffusion tube measurements may exhibit substantial bias compared to the reference method. Clearly, this is a problem in any situation where diffusion tube results are to be compared with air quality standards or objectives. Furthermore, diffusion tubes analysed by different laboratories may exhibit very different bias, even when the tube preparation technique, tube materials, and analytical techniques are broadly the same. The reasons for this are still not fully understood.

As a result, Defra's Technical Guidance LAQM.TG(03) recommends that Local Authorities making use of nitrogen dioxide diffusion tubes in their Review and Assessment should carry out their own investigation of diffusion tube bias, then apply an adjustment factor to the annual mean if required. This investigation should be based on a co-location study of at least nine months' duration, with diffusion tubes exposed in triplicate at a suitable automatic monitoring site (their own, or alternatively a suitable AURN site). Alternatively, they can use a combined bias adjustment factor based on several studies, obtained from the Review and Assessment website.

Until now, bias adjustment factors have not been used in NO_2 Network reports. This is primarily because, until recently, reliable bias adjustment factors were not available for a substantial proportion of the laboratories participating in the Network. Therefore, the Network dataset could not be adjusted for bias with sufficient confidence. Also, one of the main objectives of the Network is to investigate long-term trends, and as the bias exhibited by any one laboratory's diffusion tubes may change over time, it is not valid to apply bias adjustment factors retrospectively to previous years' data.

However, bias adjustment factors are now available for a substantial proportion of the laboratories participating in the network (though still not all). Therefore, as part of the 2003 report we have included an investigation of the effect of applying appropriate bias adjustment factors (BAFs) to the Network dataset. Two sources of bias adjustment factors (BAFs) have been used:

(i) The NO_2 Network's Field Intercomparison (part of the Network's QA/QC which consists of an ongoing monthly co-location study, with diffusion tubes from each participating laboratory exposed at an automatic monitoring site – see Appendix A). The site used was Wigan Leigh - a typical Urban Background monitoring station, affiliated to the Defra Automatic Urban and Rural Network (AURN).

(ii) The spreadsheet of BAFs compiled by Air Quality Consultants, and made available on the Defra Review and Assessment website at http://www.uwe.ac.uk/aqm/review/ .This spreadsheet is compiled from co-location studies carried out by Local Authorities throughout the UK, as part of their Review and Assessment process. The results included in this spreadsheet are a mixture or roadside and urban background sites.

Where there is no valid BAF from either of these sources, in some cases it has been possible to obtain a BAF from a Local Authority study, or from other work by the laboratory itself.

All data presented in this report are unadjusted except where specified, and where BAFs have been used we have stated the source.

3 Results and Discussion

3.1 DATA CAPTURE

Data capture rates are shown as percentages in Table 1 below. A total of 1219 sampler sites monitored nitrogen dioxide concentrations during 2003.

Table 1 Percentage of Sites Returning Valid Monthly Measurements from the UK NO_2 Network 2003

	Percentage Data Capture (%)												
	Jan	***Feb***	***Mar***	***Apr***	***May***	***Jun***	***Jul***	***Aug***	***Sep***	***Oct***	***Nov***	***Dec***	***Annual***
All Sites	88	90	88	88	86	87	84	85	86	82	82	84	94
Roadside	87	89	87	88	87	86	85	85	85	82	80	83	94
Urban Background	88	91	90	87	84	87	83	85	86	82	84	86	95

Annual averages are calculated for each site with at least 6 or more months' valid data. Therefore, "Annual" data capture figures in this table are higher than those for the individual months.

Data may be lost for a number of reasons, the most common being missing or damaged tubes, and exposure periods differing from those specified by more than two days. Also, in 2003, 100 sites had part (or all) of their annual dataset rejected, as a result of three laboratories failing to demonstrate satisfactory performance in the Network's new tighter QA/QC procedures (see Appendix A).

3.2 SPATIAL DISTRIBUTION OF NO_2 CONCENTRATIONS

3.2.1 National Average Roadside and Urban Background NO_2 Concentrations

(i) Unadjusted

Overall UK annual average NO_2 concentrations for 1993-2003 are shown in Table 2. UK annual concentrations during 2003 were higher at roadside locations (43 μg m^{-3}) than at urban background locations (24 μg m^{-3}). This is consistent with the expected urban pollutant distribution assuming road traffic as the major emissions source. Table 2 shows that annual average concentrations from this network are the highest for several years: trends are discussed in more detail in section 3.3.

Table 2 National Annual Average NO_2 Concentrations from the UK NO_2 Diffusion Tube Network 1993-2003 (Unadjusted Values)

	Annual Average NO_2 Concentration ($\mu g\ m^{-3}$)										
	1993	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Roadside	44	46	48	46	44	44	43	39	39	39	**43**
Urban Background	27	27	27	27	25	23	23	22	22	22	**24**

Table 3 presents the ratio of annual average NO_2 concentrations at roadside sites to annual average NO_2 concentrations at background sites. The ratio of roadside to urban background average concentration appears to have remained consistent over the past 5 years.

Table 3 Average NO_2 Concentration Ratios by Location Type from the UK NO_2 Diffusion Tube Network 1993-2003 (Unadjusted Values)

	1993	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*
Roadside : Urban Background	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8

(ii) With Bias Adjustment

The effect of applying bias adjustment factors to the annual means was investigated. There were two main sources of BAFs available to us;

1. the NO_2 Network Field Intercomparison, and
2. the spreadsheet of combined bias adjustment factors from co-location studies carried out by Local Authorities and other organisations throughout the UK (including netcen), prepared by Air Quality Consultants Ltd (AQC Ltd) and made available via the Defra Review and Assessment website at http://www.uwe.ac.uk/aqm/review/ .

We have used BAFs from these two sources and compared the results, based on the following approaches:

Approach 1: to use bias adjustment factors from the NO_2 Network's own Field Intercomparison where available. This intercomparison (described in more detail in Appendix A section A3) was carried out using triplets of tubes from each participating laboratory, co-located on a monthly basis at an automatic monitoring site affiliated to the Defra Automatic Urban and Rural Network (AURN). This site's data were therefore subject to the stringent QA/QC procedures of the AURN. Also, each triplet of diffusion tube results was screened for obvious outlying values. The quality of the data on which these bias adjustment factors are based is therefore known to netcen. However, for reasons explained in appendix section A3, some laboratories only participate in the intercomparison on a quarterly basis (the minimum required for QA/QC purposes). Therefore, this source only yields bias adjustment factors for 14 of the 26 participating laboratories. However, these laboratories are responsible for analysis of tubes from a substantial proportion (75%) of all Network sites. In "Approach 1" we have used ***only*** these netcen-generated BAF's, and where there is no BAF from this source, we have omitted the data completely.

Approach 2: to use the combined BAFs from the AQC Ltd spreadsheet where available. Where there is no BAF from this source (which is the case for just three laboratories), we have used a BAF obtained directly from a Local Authority study or the laboratory themselves. In this approach, netcen have no information on data quality for co-location studies carried out by other organisations (such as data capture obtained by the automatic analyser, whether the diffusion tubes were exposed singly or in triplicate, whether outlying tube values in triplets were included, etc.) Of course, this does not mean the data quality is inferior – only that we have not been able to verify it ourselves.

In each case, the appropriate bias adjustment factor for each participating laboratory was identified, and applied to the 2003 annual mean NO_2 concentration for each sites operated by Local Authorities using that laboratory.

Both the above approaches had the effect of reducing the UK annual concentrations, i.e. on average across the UK there is a tendency for diffusion tubes to over-read. Using Approach 1, the effect of applying bias adjustment was to reduce UK annual means from 43 $\mu g\ m^{-3}$ to 35 $\mu g\ m^{-3}$ (roadside) and from 24 $\mu g\ m^{-3}$ to 20 $\mu g\ m^{-3}$ (urban background). Using Approach 2, the effect of bias adjustment was to reduce UK annual means from 43 $\mu g\ m^{-3}$ to 41 $\mu g\ m^{-3}$ (roadside) and from 24 $\mu g\ m^{-3}$ to 23 $\mu g\ m^{-3}$ (urban background). Table 4 shows the effect of this.

Table 4 UK Annual Average NO_2 Concentrations from the UK NO_2 Diffusion Tube Network 2003: Effect of Applying Bias Adjustment Factors from 2 main Sources

	Roadside, $\mu g\ m^{-3}$	Urban Background, $\mu g\ m^{-3}$
Unadjusted	43	24
Approach 1 BAFs *(Field Intercomp. Only)*	35	20
Approach 2 BAFs *(AQC Ltd Spreadsheet & others)*	41	23

Application of the netcen Intercomparison BAFs resulted in a greater reduction in the overall UK annual means than application of the combined BAFs from the spreadsheet. It is clear that the choice of bias adjustment factor can make a substantial difference to the result – in some cases (as in the case of the UK annual mean roadside NO_2 concentration above), the difference between meeting the AQS Objective of 40$\mu g\ m^{-3}$, or not doing so.

However, bias adjustment factors are themselves calculated using diffusion tube and automatic analyser measurements. There is considerable uncertainty on any calculated diffusion tube bias adjustment factor. In the NO_2 Network's QA/QC field intercomparison, (appendix A, section A3), the 95 % confidence interval of the mean monthly percentage bias was used as an indication of the uncertainty of annual bias adjustment factors. In some cases this uncertainty is substantial, though users of diffusion tubes are not at present required to address this in their Review and Assessment.

3.2.2 Geographic Distribution of NO_2 Concentration

Figure 1 presents a map of annual average NO_2 concentrations at all roadside monitoring locations in the UK during 2003. Each site is represented by a dot: no attempt has been made to interpolate the data, as these roadside sites are only likely to be representative of their immediate vicinity. The highest values occurred mainly in the UK's major conurbations.

Figure 2a presents a 10 km by 10 km interpolated plot of average urban background NO_2 concentrations during 2003. This interpolated plot was produced using the same algorithm used in previous years' reports. The areas with higher NO_2 concentrations are generally consistent with the geographical distribution of the major conurbations within the UK, such as the Greater London and Thames Estuary area, and the area surrounding Leeds and Sheffield. It should be noted that these maps are *not* representative of NO_2 concentrations at roadside locations or rural areas.

Figure 2b and 2c are based upon bias-adjusted annual means using approaches 1 and 2 above. Approach 1 (application of BAFs from the NO_2 Network Intercomparison only) clearly reduces the concentrations; the orange coloured areas (30-40 $\mu g\ m^{-3}$) evident in Fig. 2a are reduced in Fig 2b to just a very small area over London, and much of the rest of the UK is shown as having urban background concentrations less than 20 $\mu g\ m^{-3}$. Approach 2 (combined BAFs) has a less marked effect, with the Yorkshire and London orange coloured areas (30-40 $\mu g\ m^{-3}$) reduced but not eliminated. Although the overall effect of applying BAFs is a reduction in measured NO_2 concentration over most of the UK, a very small area in the range 30-40 $\mu g\ m^{-3}$ appears in Figure 2c, in the Midlands: the result of one or more laboratories whose tubes are used in the area having a combined BAF greater than 1.0 (thus their data are scaled up rather than down).

3.2.3 Regional Analysis

Table 5a and 5b present the regional annual average NO_2 concentration for the Government Office and Devolved Administrative Regions in the UK, for all years of the Network. Annual average NO_2 concentrations for each region during 2003 ranged from 27 $\mu g\ m^{-3}$ to 61 $\mu g\ m^{-3}$ at roadside locations. Concentrations at urban background locations ranged from 14 to 35 $\mu g\ m^{-3}$.

When comparing average NO_2 Network data between regions, some caution is needed. This is because there is some inter-regional variation in the mix of analytical laboratories used. For example many Scottish Local Authorities use laboratories in Scotland, while those in London and the South East typically use analysts based in southern England. Inter-laboratory differences may therefore contribute to observed regional differences. However, the region with the highest average roadside concentrations in 2003 was London (61 $\mu g\ m^{-3}$), followed by Yorkshire and the Humber (48 $\mu g\ m^{-3}$), and the Eastern region (46 $\mu g\ m^{-3}$).

The region with the highest average urban background concentrations in 2003 was also London (35 μg m^{-3}), followed by Yorkshire and the Humber (28 μg m^{-3}) and the Eastern region (27 μg m^{-3}). Lowest average urban background concentrations (less than 20 μg m^{-3}) were measured in Scotland, the South West and Northern Ireland.

Most regions, though not all, showed small increases in annual mean roadside NO_2 concentrations between 2002-2003. The exceptions were Northern Ireland (no change from 2003) and North West and Merseyside (a small decrease). The biggest change was the large increase for London: an increase of 33%, from 45 μg m^{-3} to 61 μg m^{-3}.

Table 5a Summary of Regional Annual Average NO_2 Concentrations in the UK from the UK NO_2 Diffusion Tube Network 1993-2003; Roadside.

Roadside

	Annual Average (µg m^{-3})										
	1993	***1994***	***1995***	***1996***	***1997***	***1998***	***1999***	***2000***	***2001***	***2002***	***2003***
North East	34	25	34	32	36	36	34	32	31	32	37
North West & Merseyside	53	50	50	48	48	50	52	43	43	44	41
Yorkshire & The Humber	46	53	55	50	52	48	45	43	44	45	48
East Midlands	50	52	53	52	50	48	49	45	41	38	39
West Midlands	32	38	50	50	46	46	44	43	43	40	45
Eastern	48	52	52	50	44	42	48	44	41	42	46
London	50	57	55	57	50	48	50	45	47	46	61
South East	40	44	46	46	42	42	45	43	43	40	45
South West	42	46	40	42	42	38	37	35	37	33	39
Wales	38	38	40	38	36	36	37	32	31	33	38
Scotland	42	42	44	36	36	38	34	32	32	38	39
Northern Ireland	38	40	42	40	36	36	33	29	27	27	27

In the case of urban background sites, the pattern was similar, with most regions showing a small increase. Again, there was a substantial increase for the London urban background category, from 29 μg m^{-3} to 35 μg m^{-3}). Long term regional trends will be discussed in section 3.3.

Table 5b Summary of Regional Annual Average NO_2 Concentrations in the UK from the UK NO_2 Diffusion Tube Network 1993-2003; Non-Roadside.

Urban Background (& Intermediate up to 2000)

	Annual Average (µg m^{-3})										
	1993	***1994***	***1995***	***1996***	***1997***	***1998***	***1999***	***2000***	***2001***	***2002***	***2003***
North East	23	23	27	23	21	21	20	20	19	22	21
North West & Merseyside	36	32	31	32	32	31	30	25	24	24	24
Yorkshire & The Humber	32	36	36	29	34	29	27	27	26	26	28
East Midlands	34	34	29	34	32	31	29	28	25	24	24
West Midlands	23	25	29	32	27	27	25	25	24	22	25
Eastern	31	34	32	32	29	27	30	29	25	25	27
London	36	40	38	38	36	36	35	32	29	29	35
South East	27	27	29	25	25	25	26	25	24	23	25
South West	23	23	23	23	25	23	20	19	17	16	19
Wales	23	23	23	31	19	19	18	16	15	17	20
Scotland	25	23	25	21	19	17	16	16	15	17	19
Northern Ireland	21	21	21	19	17	15	16	15	14	14	14

Note: the averages for 2001 onwards are based on Urban Background sites only.

3.3 TEMPORAL VARIATION AND TRENDS

3.3.1 Seasonal Patterns

Table 6a presents the monthly average NO_2 concentrations observed during 2003. There is a seasonal pattern, with the highest concentrations occurring in winter months for all location types. Table 6b shows the ratio of winter mean (October to March) to summer mean (April to September) for the years since 1993. Winter:summer ratios for 2003 are consistent with those measured in recent years.

Table 6a Monthly Average NO_2 Concentrations from the UK NO_2 Network 2003

	NO_2 Concentrations ($\mu g\ m^{-3}$)											
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
All sites	36	28	31	28	24	22	25	24	33	34	38	38
Roadside	43	35	39	37	33	30	33	33	43	42	47	45
Urban Background	29	21	22	18	15	14	16	16	23	25	30	31

Table 6b Winter: Summer Ratios of UK Average NO_2 Concentrations 2003

	Winter:Summer Ratio										
	1993	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
All sites	1.17	1.20	1.18	1.21	1.28	1.29	1.20	1.28	1.38	1.31	1.31
Roadside	1.05	1.05	1.03	0.99	1.09	1.14	1.06	1.13	1.24	1.19	1.16
Urb. Background	1.28	1.37	1.33	1.29	1.46	1.45	1.34	1.44	1.66	1.54	1.62

As noted in Section 2.3 above, some meteorological factors (including wind-induced turbulence around the open end of the tube, and blocking of UV light by the tube material) can affect diffusion tube NO_2 measurements. It is therefore possible that, in addition to seasonal variation in actual NO_2 concentration, there could be seasonal variation in diffusion tube accuracy. Indeed, one study produced by Air Quality Consultants (a compilation of diffusion tube co-location studies throughout the UK[19]), has reported that the diffusion tube result may be higher (relative to the automatic analyser result) during August to November than during the rest of the year. However, further investigation is required.

3.3.2 UK Trends

Annual mean NO_2 concentrations for all site types, 1993 to 2003, are shown in Table 7 below. UK annual mean concentrations for both roadside and urban background sites have increased slightly during 2003, compared with the previous few years. It has been reported that 2003 was an unusual year in terms of air pollution[22]. The summer was particularly hot and sunny, and there were several periods when meteorological conditions resulted in long-range transport of polluted air masses from mainland Europe. These factors resulted in several episodes of poor air quality (particularly in the spring and summer), with high levels of oxides of nitrogen, PM_{10}, and (especially in the summer months) ozone. However, although 2003 was an unusual year, it was not considered exceptional, or to be outside the limits of expected year-to-year variation[23]. Local Authorities have been advised that 2003 data should **not** be ignored when assessing likelihood of exceeding Air Quality Objectives[23].

Previous reports in this series have used linear regression analysis (Theil's non-parametric analysis) to show that there is a statistically significant downward trend, at the 95% confidence level, in annual mean NO_2 concentrations over the years 1993-2002 at both roadside and urban background site categories. Despite the increase in mean NO_2 concentrations during 2003, this downward trend has remained statistically significant at the 95% confidence level.

Table 7 Annual Average NO_2 Concentrations as measured by the UK NO_2 Diffusion Tube Network

	Annual Average NO_2 Concentration (μg m^{-3})										
	1993	***1994***	***1995***	***1996***	***1997***	***1998***	***1999***	***2000***	***2001***	***2002***	***2003***
Roadside	44	46	48	46	44	44	43	39	39	39	43
Intermediate	32	32	34	32	31	29	29	27	-	-	-
Urban Background	27	27	27	27	25	23	23	22	22	22	24
Intermediate & Urban Background	29	29	29	29	27	25	25	23	-	-	-

Figure 3 illustrates how the UK annual mean NO_2 concentration, as measured by this diffusion tube network, has changed between 1993-2003. A paired-sample t-test has been used to confirm that the roadside and urban background annual means are significantly different. Both site categories show a small but consistent year-on-year decrease between the mid 1990s and 2000. Also visible is a small increase in 2003, for both site categories. Figures 4a and 4b show interpolated plots of background NO_2 concentration. This series of maps illustrates how ambient concentrations have generally decreased over the years of operation of the Network; however, it also clearly shows the increased NO_2 concentrations measured in 2003 compared with recent years. It is particularly noticeable that modelled urban background concentrations throughout most of Wales, Scotland, Northern Ireland and parts of south west England were above 19 μg m^{-3} for the first time in several years.

3.3.3 Regional Trends

Tables 5a and 5b above, and Figures 5a and 5b, show how annual mean NO_2 concentrations for the twelve regions, as measured by the NO_2 Network, have changed since the Network began operation in 1993. Roadside NO_2 concentrations in most regions increased slightly between 1993 and 1995, before decreasing in subsequent years. However, not all regions exhibited this pattern (exceptions being the North West and Merseyside, South East and North East – Figure 5a).

As discussed above, most (though not all) regions showed an increase in roadside NO_2 concentration in 2003. For some (such as Scotland, Eastern and Yorkshire and Humberside) 2003 was the second consecutive year to show an increase. However, the most notable increase was for London, where the annual mean roadside concentration increased from 46 μg m^{-3} to 61 μg m^{-3}.

Figure 5b shows a general downward trend in intermediate and urban background NO_2 concentrations, between 1995 and 2002 in most regions. (Readers are reminded that the intermediate sites, which formerly comprised approximately one-third of this category, ceased operation at the end of 2000. This contributed to the decreases seen in all twelve regions between 2000 and 2001 for this joint site category.) Urban background concentrations in London increased more than any other region in 2003 (up from 29 to 35 μg m^{-3}) though this increase was not as large as that recorded for the roadside category.

4 Comparison With Limit Values And Objectives

Ambient concentrations of nitrogen dioxide are covered by EC Directives, and by the UK's own Air Quality Strategy (AQS). Prior to 2001, within Europe this pollutant was covered by the 1985 NO_2 Directive (85/203/EC)[24]. This has been superseded by a new EC Directive (the 1st Daughter Directive, 1999/30/EC [25]) which came into force on 19 July 2001. However, the 1985 NO_2 Directive remains in force until fully repealed in January 2010, so demonstration of compliance is still required. In the UK, the Air Quality Regulations (2000) for England[26], Wales[27], and Scotland[28], and the Air Quality Limit Values Regulations (Northern Ireland) 2002[29] , include standards and objectives for NO_2. These are explained in the Air Quality Strategy (January 2000)[30]. Therefore, the following air quality standards for NO_2 were applicable to the UK in 2003:

1. **1985 NO_2 Directive, EC 85/203**
   - Limit Value of 200 μg m^{-3} (105 ppb) as the 98th percentile of hourly averages.
   - Guide Value of 135 μg m^{-3} (70.6 ppb) as the 98th percentile of hourly averages.
   - Guide Value of 50 μg m^{-3} (26 ppb) as the 50th percentile of hourly averages.

2. **1st Daughter Directive, 1999/30/EC**
   - 200 μg m^{-3} (105 ppb) as an hourly average, not to be exceeded more than 18 times in a calendar year, to be achieved by 1 January 2010
   - 40 μg m^{-3} (21 ppb) as an annual average, to be achieved by 1 January 2010
   - 30 μg m^{-3} as an annual average for *total NOx*, for protection of vegetation in rural areas only. To be achieved by 19 July 2001

3. **AQS Objectives**
   - 200 μg m^{-3} (105 ppb) as an hourly average, not to be exceeded more than 18 times in a calendar year, to be achieved by 31 December 2005.
   - 40 μg m^{-3} (21 ppb) as an annual average, to be achieved by 31 December 2005.
   - 30 μg m^{-3} as an annual average for *total NOx*, for protection of vegetation in rural areas only. To be achieved by 19 July 2001

In the case of the AQS Objectives and Daughter Directive, "exceedence" is defined as "greater than" as opposed to "greater than or equal to".

Both the UK Air Quality Regulations and the EC Daughter Directive contain air quality standards for annual mean NO_2, which can be directly compared with diffusion tube measurement data. Appendix B identifies individual monitoring locations with annual average concentrations greater than the AQS objective of 40 μg m^{-3} (to be achieved by 2005).

4.1 COMPARISON WITH THE 1985 EC DIRECTIVE FOR NO_2

The Limit and Guide Values of Directive 85/203 refer to hourly NO_2 measurements over a calendar year. Diffusion tube data cannot, therefore, be directly compared with these values. However, as explained in earlier reports a scaling factor of 2.2 has been derived for the UK[10], which can be used to scale the 98th percentile Limit Value, to produce surrogate statistics for annual average concentrations. This approach produces an EC Directive Limit Value surrogate statistic of approximately 91 μg m^{-3}. During 2003, three roadside sites measured annual average NO_2 concentrations equal to or greater than 91 μg m^{-3}. This is the first time since 1998 that this value has been exceeded. The sites were BIRSTALL X 5N, RICHMOND UPON THAMES 5N and GLASGOW 1N. BIRSTALL X 5N and GLASGOW 1N both had annual means above 80 μg m^{-3} in 2002: RICHMOND UPON THAMES 5N started operation towards the end of 2002, so 2003 is its 1st full year of data.

4.2 COMPARISON WITH THE EC DAUGHTER DIRECTIVE LIMIT VALUES FOR NO_2

The first EC Daughter Directive (1999/30/EC) has set an annual mean Limit Value for NO_2 of 40 μg m^{-3}, to be achieved by 2010. In 2003, 282 roadside sites (49% of all roadside sites), and 17 urban background sites (2.8% of all urban background sites) measured annual average concentrations greater than 40 μg m^{-3}. These proportions are substantially higher than the previous year, which were 35% for roadside sites and 0.9% for urban background sites. This reflects the measured increase in NO_2 during 2003.

The Technical Guidance LAQM.TG(03) provides a method for predicting locations that might have difficulty achieving compliance with AQS objectives or EC Directive Limit Value in future years. Based on modelling exercises and emission inventory predictions, it is estimated that annual mean NO_2 concentration for 2010 will be equivalent to the 2003 concentration multiplied by a factor of 0.780 for roadside sites, and equivalent to the 2003 concentration multiplied by a factor of 0.821 at urban background sites[14]. On this basis, it is estimated that, on average, roadside sites measuring in excess of 51.3 μg m^{-3}, and urban background sites measuring in excess of 48.7 μg m^{-3} during 2003 may be at risk of exceeding the EC Daughter Directive Limit Value of 40μg m^{-3} in 2010. A total of 126 roadside sites had annual mean NO_2 concentrations greater than 51.3 μg m^{-3} in 2003, and have therefore been identified as at risk of exceeding the EC Daughter Directive objective in 2010. Just two urban background sites had an annual mean of 48.7 μg m^{-3} and may be at risk of exceeding the EC Daughter Directive objective in 2010. (It should be noted that while these threshold concentrations have been quoted to one decimal place as per the example in the Technical Guidance, in reality the precision of diffusion tube measurements does not justify this).

The number of sites predicted to exceed the Limit Value was substantially higher in 2003 than the previous year (128 in 2003 compared with 71 in 2002), again reflecting the generally higher NO_2 concentrations measured in 2003.

4.3 COMPARISON WITH THE AQS OBJECTIVE FOR ANNUAL AVERAGE NO_2

The Air Quality Regulations (2000) for England[26], Wales[27], and Scotland[28], and the Air Quality Limit Values Regulations (Northern Ireland) 2002[29] formally prescribe the following air quality objectives for the end of 2005, (as set out by the AQS[30]), as part of UK legislation:

- 200 μg m^{-3} (105 ppb) as an hourly average not to be exceeded more than 18 times in a calendar year, to be achieved by the end of 2005.
- 40 μg m^{-3} (21 ppb) or less, when expressed as an annual average to be achieved by the end of 2005

These regulations trigger the duties of Local Authorities to review and assess the air quality in their locality, both for the present and for the end of 2005. The focus of the review and assessment for the annual average NO_2 standard should be concentrated on non-occupational, near ground level outdoor locations where a person might reasonably be exposed over the relevant averaging period of the objective. For the annual NO_2 objective this includes background and roadside locations in the vicinity of housing, schools, hospitals, etc. Sites located very close to the kerb of a road are *not* included in this description of a relevant location. Many of the roadside sites in this network do not strictly conform to these location criteria. Nevertheless, comparisons of annual average concentrations at all sites are included here for completeness. This practice may result in an overestimation of the number of sites exceeding the annual average NO_2 objective.

It is recognised that at most locations the annual average objective is more stringent than the hourly average objective[13]: therefore in practice most sites that meet the former will also meet the latter (possible exceptions being locations affected by emissions from nearby large stationary sources). Annual average NO_2 concentrations from the UK NO_2 Network have been compared directly with the 40 μg m^{-3} AQS objective. As this value is the same as the Daughter Directive annual mean Limit Value for NO_2 of 40 μg m^{-3}, please refer to section 4.1.2 above for the number of sites with concentrations greater than 40 μg m^{-3} during 2003.

As in the case of the EC Daughter Directive objectives above, threshold concentrations have been estimated for 2003, above which compliance with the AQS Limit Value of 40 μg m^{-3} for NO_2 is unlikely to be achieved in 2005 [13]. It is estimated that, on average, roadside sites measuring in excess of 42.1 μg m^{-3}, and urban background sites measuring in excess of 41.8 μg m^{-3} during 2003 may be at risk of exceeding the AQS objective of 40 μg m^{-3} in 2005. A total of 249 roadside sites had annual mean NO_2 concentrations greater than 42.1 μg m^{-3} in 2003 (an increase on the 2002 total of 172), and are therefore identified as at risk of exceeding the AQS objective in 2005, *if there is relevant public exposure*. Eleven urban background sites (an increase on the 2002 total of three) had annual means greater than 41.8 μg m^{-3} and are therefore also at risk of exceeding the AQS objective in 2005, but again, only if there is relevant public exposure.

This is consistent with the conclusions of the recent consultation draft report produced by the Air Quality Expert Group (AQEG)[31], which acknowledges that there are likely to be some exceedences of objectives and limit values for NO_2.

The fact that NO_2 concentrations were slightly higher in 2003 is reflected in the increased number of sites predicted to possibly exceed AQS Objectives and/or EC Directive Limit Values in 2005 or 2010. However, Defra's advice to Local Authorities is that 2003 was not an exceptional year, and should not be disregarded when making such predictions[23].

5 Comparison With Other Studies

5.1 COMPARISON WITH AUTOMATIC URBAN AND RURAL NETWORK

Oxides of nitrogen are also monitored by the Automatic Urban and Rural Network (AURN), using the chemiluminescent analyser. Figure 6 compares annual mean NO_2 concentrations at the following site categories in the Automatic Urban and Rural Network (AURN) and the NO_2 Network, over the years 1993-2003:

- AURN Roadside sites (1-5m from the kerb).
- AURN Urban Background sites (these are situated at urban background locations in larger towns and cities).
- NO_2 Network roadside, intermediate (upto 2000) and urban background sites.

The annual means for the AURN sites are based on all sites with at least 75% data capture for the year. It should be noted that the two networks differ in three important respects:

- The monitoring methods used are different.
- There are relatively few AURN sites compared with the number of NO_2 Network sites. While the number of AURN roadside sites with valid annual means has risen from 6 in 1997 to 20 in 2003, and the number of AURN urban background sites has risen from 5 in 1993 to 20 in 2003, these totals remain much lower than NO_2 Network site numbers.
- the AURN urban sites, particularly in the earlier years, were located predominantly in major towns and cities, while the NO_2 Network contains a substantial proportion of sites in small towns.

The mean NO_2 concentration at AURN roadside sites is consistently higher than the mean based on all NO_2 Network roadside sites. Similarly, the mean NO_2 concentrations based on all AURN urban centre and urban background sites are consistently higher than the means for all NO_2 Network urban background sites. This is thought to be because the AURN sites are mainly in major towns.

Both networks show a small but consistent general downward trend from the early/mid 1990s, indicating that ambient concentrations of NO_2 in urban areas were gradually decreasing over this period. However, both roadside and urban background site categories in both networks show an increase in 2003 compared with recent years. The two networks showed similar increases: the NO_2 Network and AURN showed increases of 4μg m^{-3} and 3μg m^{-3} respectively at roadside sites, and both

Networks showed an increase of approximately 2μg m^{-3} at urban background sites. The reasons for this increase are likely to be meteorological factors, as discussed in section 3.3.2 above.

5.2 COMPARISON WITH ESTIMATED NO_X EMISSIONS

Estimates of total NO_x emissions in the UK from National Atmospheric Emissions Inventory (NAEI)[32] are given in Table 7 below, and illustrated in Figure 7. show a decrease of 809 ktonnes (33% of the 1993 total) between 1993-2002 (2003 figures are not available yet). Emissions of NO_x from road transport also show a reduction of approximately 39% over the same period, largely due to the increased use of catalytic converters on road vehicles.

Table 7 Estimated NO_x Emissions in the UK 1993-2002[32]

	Estimated NO_x Emission (ktonnes)									
Source	***1993***	***1994***	***1995***	***1996***	***1997***	***1998***	***1999***	***2000***	***2001***	***2002***
Total (all sources)	2391	2311	2188	2190	2022	1938	1810	1718	1647	1582
Total Road Transport	1160	1117	1081	1079	1027	974	910	826	759	711

Although ambient NO_2 concentrations have decreased over the same period, the annual mean NO_2 concentration, as measured by the NO_2 Network, has decreased by less than 20% over the same period, for both roadside and urban background site categories. Estimated total NO_x emissions have therefore shown a considerably greater decrease than ambient NO_2 concentrations. The lack of direct correspondence between reductions in NO_x emissions and ambient NO_2 concentration may be explained by the secondary pollutant nature of NO_2; it is formed by oxidation of NO in the atmosphere. Also, at sites with high NO_x concentrations, atmospheric NO_2 concentrations are largely governed by the amount of oxidant available[1,15]. In urban areas the major atmospheric oxidant is ozone. Hence, for a given quantity of atmospheric oxidant, the percentage reduction in NO_2, as a result of a reduction in NO_x emissions, will be less than the percentage reduction in NO_x.

6 Conclusions

The conclusions from the NO_2 Network for 2003 are as follows:

1. Overall annual average concentrations for 2003 at the sampler locations monitored were as follows: Roadside 43 μg m^{-3}, Urban Background 24μg m^{-3}. These annual averages are slightly higher than those measured in the last three years. Ambient concentrations of NO_2 and several other pollutants showed an increase during 2003 compared with previous recent years: this is likely to have been due to meteorological conditions during the year. However, although 2003 may have been an unusual year, it is not considered exceptional[23].

2. Despite the increase in mean NO_2 concentrations during 2003, the downward trend reported in the 2002 report has remained statistically significant at the 95% confidence level. Future years' monitoring will show whether ambient NO_2 concentrations will resume their previous pattern of small year-on-year decreases in 2004 and subsequent years.

3. The ratio of roadside to urban background UK annual mean concentrations remains consistent with those found in previous years.

4. The effect of applying bias adjustment factors to the annual means was investigated. Using bias adjustment factors exclusively from the NO_2 Network's own Field Intercomparison reduced UK annual means from 43 μg m^{-3} to 35 μg m^{-3} (roadside) and from 24 μg m^{-3} to 20 μg m^{-3} (urban background). Using combined bias adjustment factors from studies throughout the UK (from the spreadsheet available on the Defra Review and Assessment Helpdesk) had the effect of reducing UK annual means from

43 μg m^{-3} to 41 μg m^{-3} (roadside) and from 24 μg m^{-3} to 23 μg m^{-3} (urban background).

5. Although bias adjustment factors have proved useful in allowing diffusion tube data to be compared with air quality limit values and objectives, there is inevitably some uncertainty inherent in such factors. Netcen suggest that, rather than relying on bias adjustment factors, further work is needed in order to address the reasons why diffusion tubes over-read or under-read, and to improve the performance of diffusion tubes so that the need for such adjustment is reduced or eliminated. There is also scope for further investigation of seasonal patterns in diffusion tube performance.

6. The spatial distribution of urban background NO_2 concentrations for 2003 has been plotted by interpolation of annual mean urban background results. Highest interpolated concentrations still correlate well with the major urban conurbations of the UK.

7. The series of interpolated maps of urban background NO_2 concentrations for 1993 to 2003 show that regions of relatively high concentration have reduced over this period.

8. Three roadside sites in the Network were found to have an annual average NO_2 concentration greater than the revised surrogate statistic for the EC Directive (EC 85/203) Limit Value (91μg m^{-3}) during 2003.

9. 126 roadside sites and two urban background sites were identified as being at risk of exceeding the EC Daughter Directive objective for 2010 based on current emissions projection scenarios.

10. 249 roadside sites and 11 urban background sites were identified as being at risk of exceeding the AQS objective for the end of 2005 based on current emissions projection scenarios. This is consistent with the conclusions of the recent AQEG consultation draft report, which predicts some exceedence of NO_2 objectives at roadside locations.

7 Acknowledgements

All of the measurement data presented in this series of reports from 1993 to 2003 have been collected by the participating Local Authorities, at their own expense, and supplied to netcen as part of the study. This contribution and co-operation from the Local Authorities is gratefully acknowledged.

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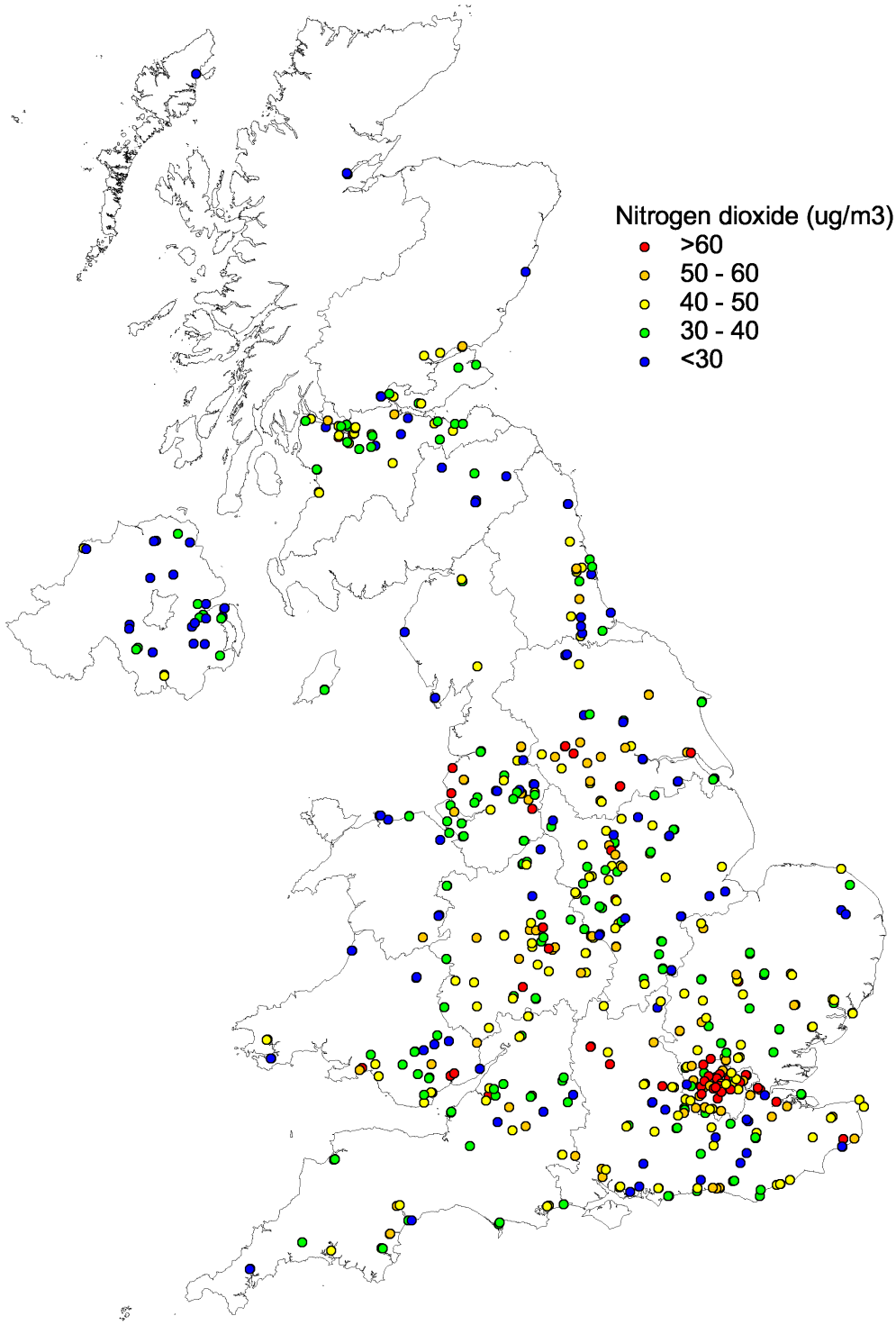

Figure 1 **Annual Average Roadside NO_2 Concentrations in the UK NO_2 Network 2003 (no bias adjustment)**

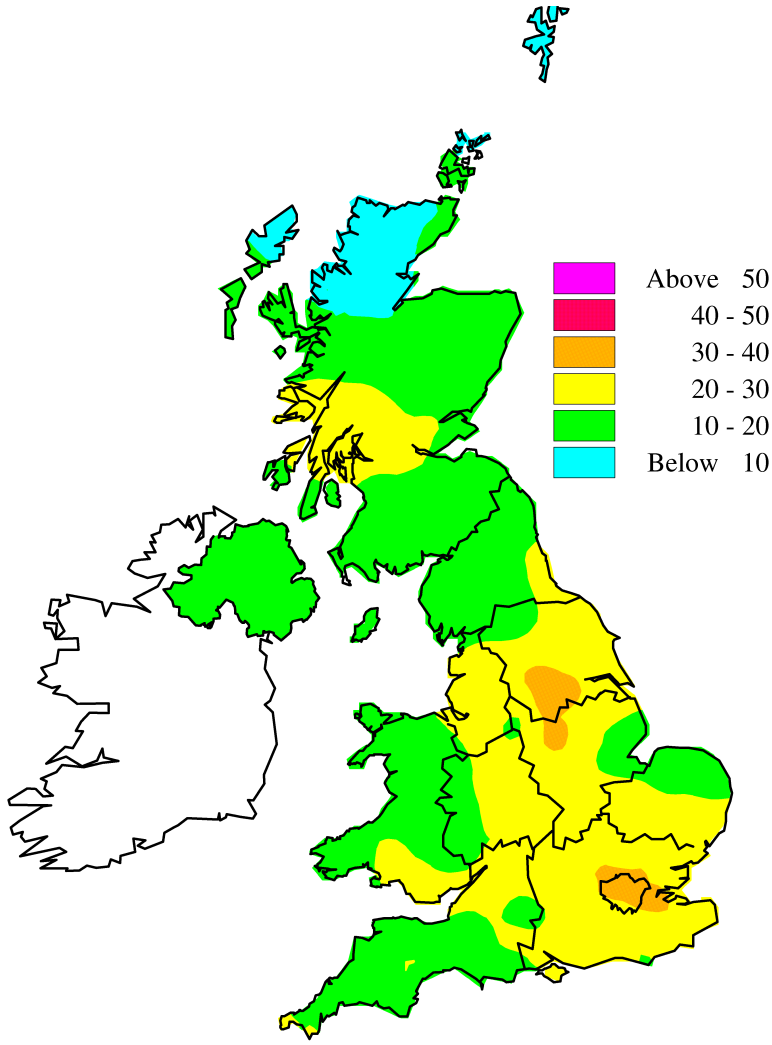

Figure 2a **Interpolated Plot of Annual Average Urban Background NO_2 Concentrations in the UK NO_2 Network 2003 (μg m^{-3}). No bias adjustment.**

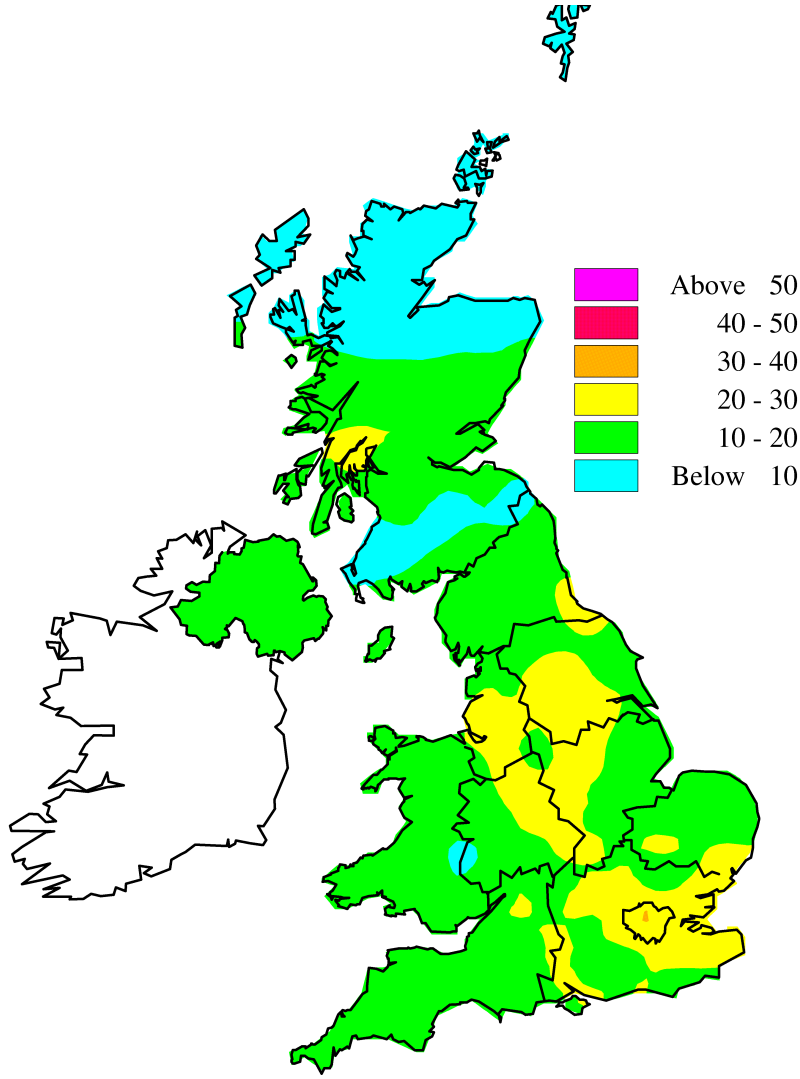

Figure 2b **Interpolated Plot of Annual Average Urban Background NO_2 Concentrations in the UK NO_2 Network 2003 ($\mu g\ m^{-3}$).**
(Approach 1: bias adjustment factors from NO_2 Network Field Intercomparison where available, otherwise data omitted.)

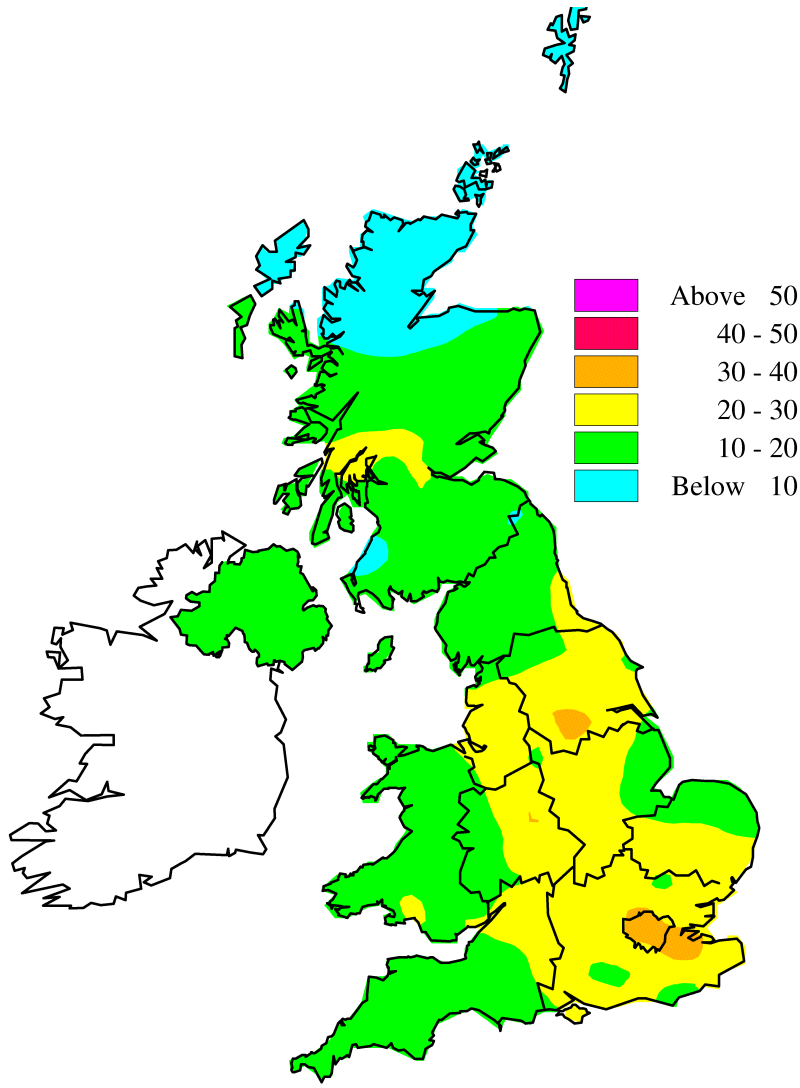

Figure 2c **Interpolated Plot of Annual Average Urban Background NO_2 Concentrations in the UK NO_2 Network 2003 ($\mu g\ m^{-3}$)** *(Approach 2: bias adjustment factors from Review and Assessment Website Spreadsheet where available, otherwise from labs/LA's)*

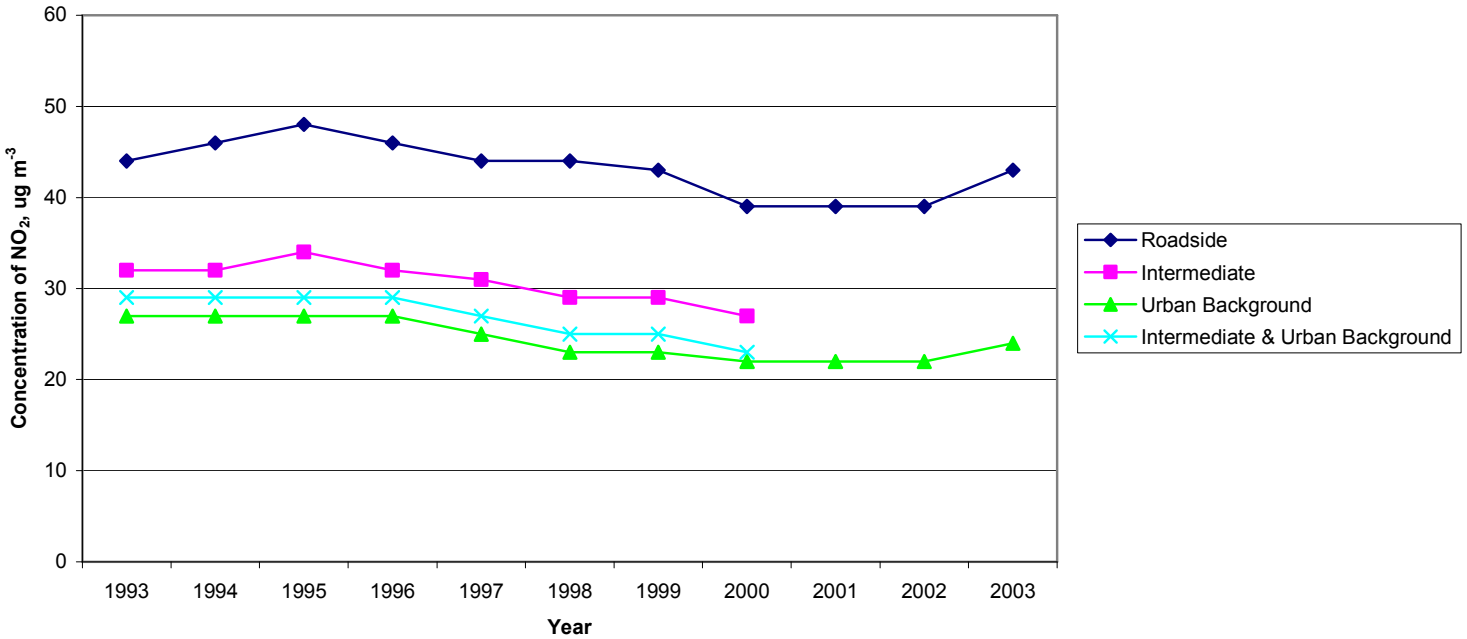

Figure 3 Annual Mean Nitrogen Dioxide Concentration, 1993 – 2003, as Measured by NO_2 Network.

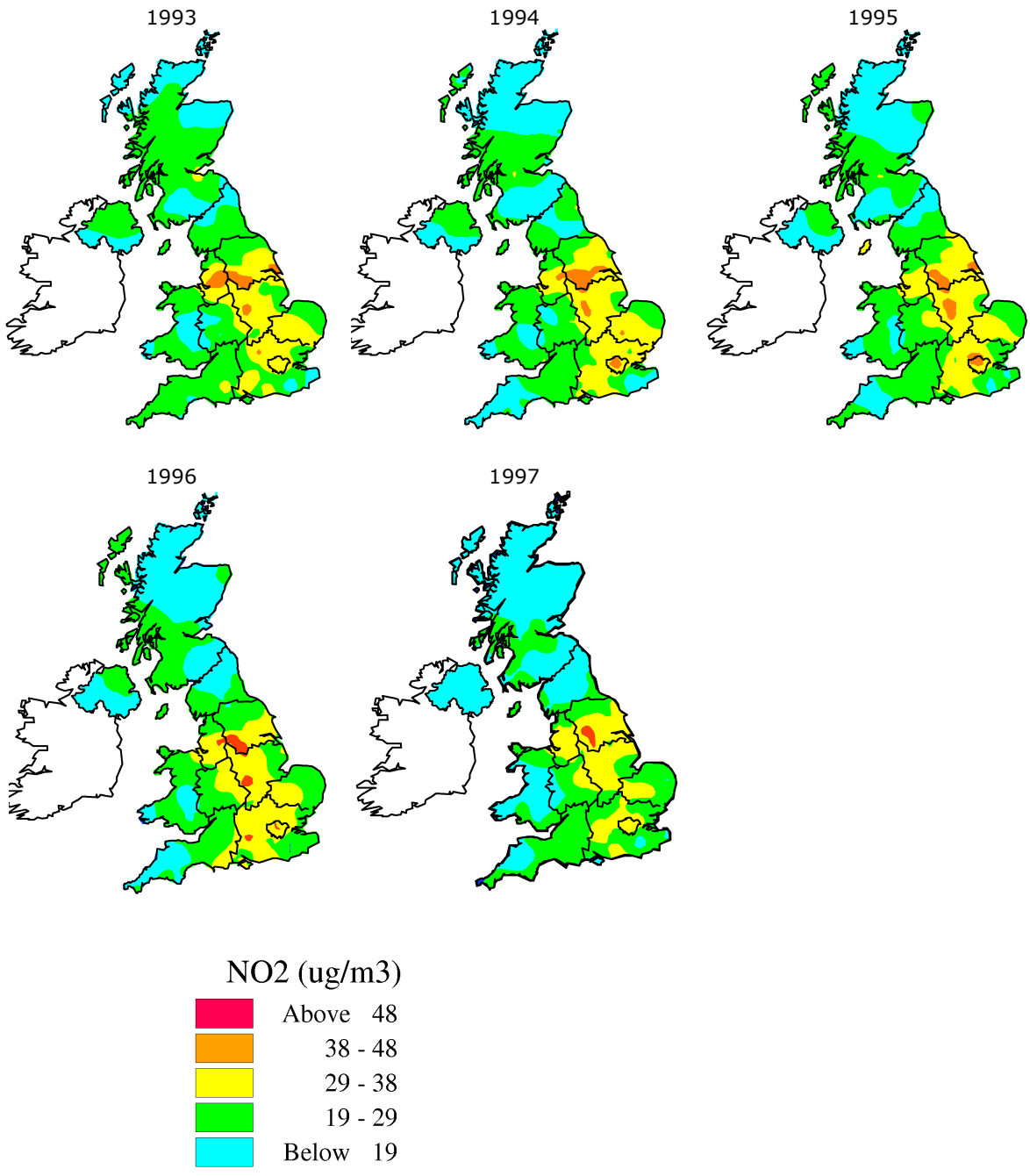

Figure 4a **Interpolated plots of annual average intermediate and urban background NO_2 concentrations in the UK NO_2 Network 1993-1997**

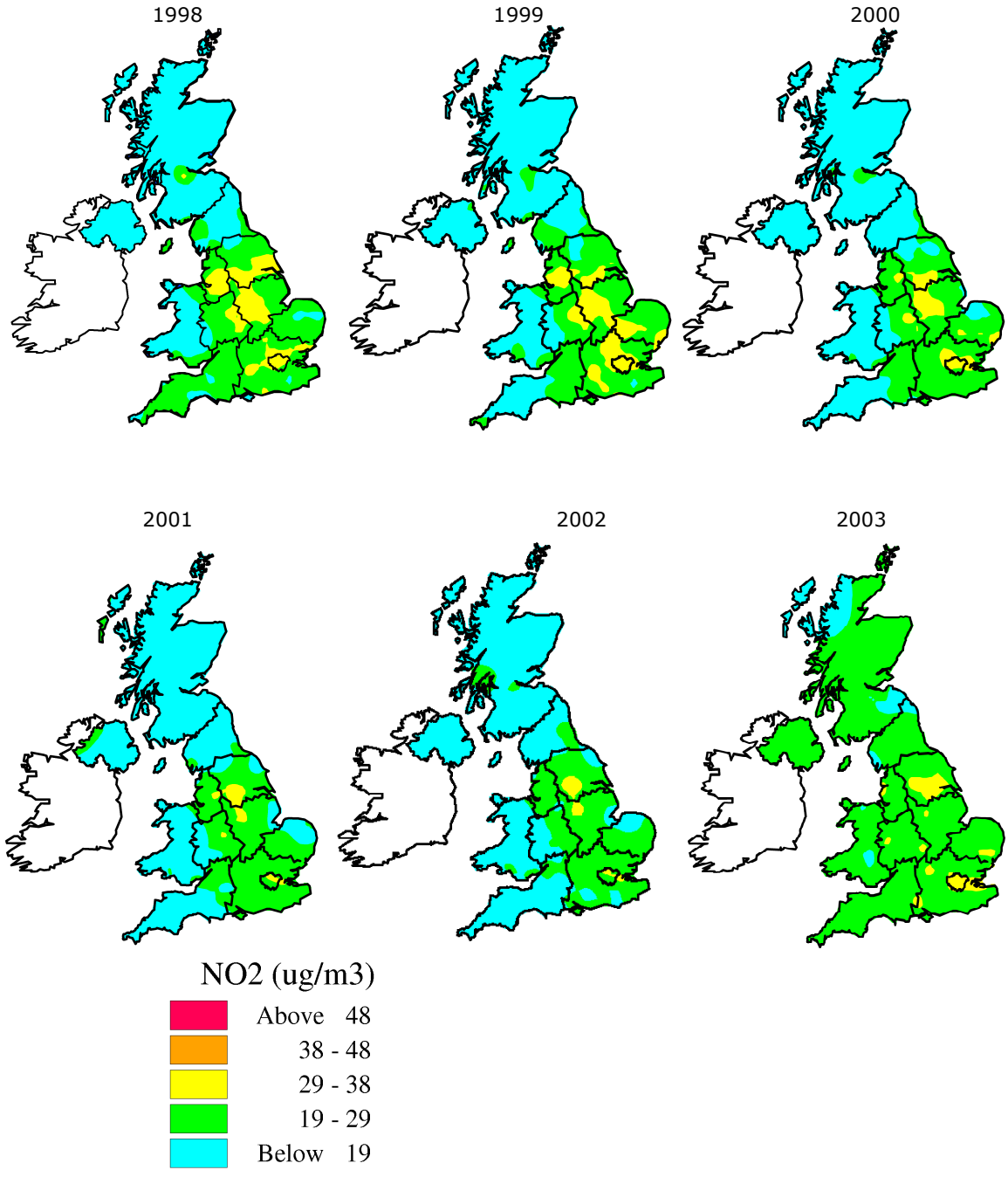

Figure 4b **Interpolated plots of annual average intermediate and urban background NO_2 concentrations in the UK NO_2 Network 1998-2003.**

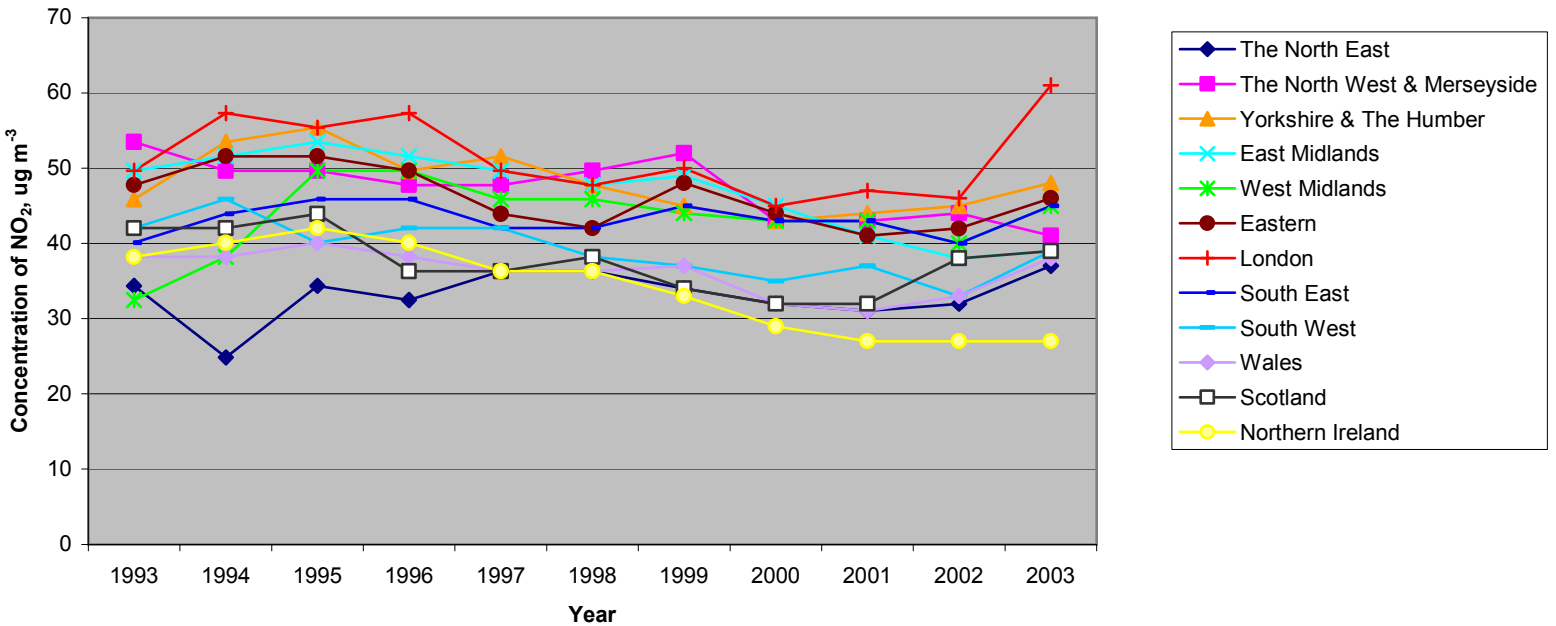

Figure 5a. Regional Average NO_2 Concentrations at Roadside Sites in the UK, as measured by the UK NO_2 Diffusion Tube Network 1993-2002.

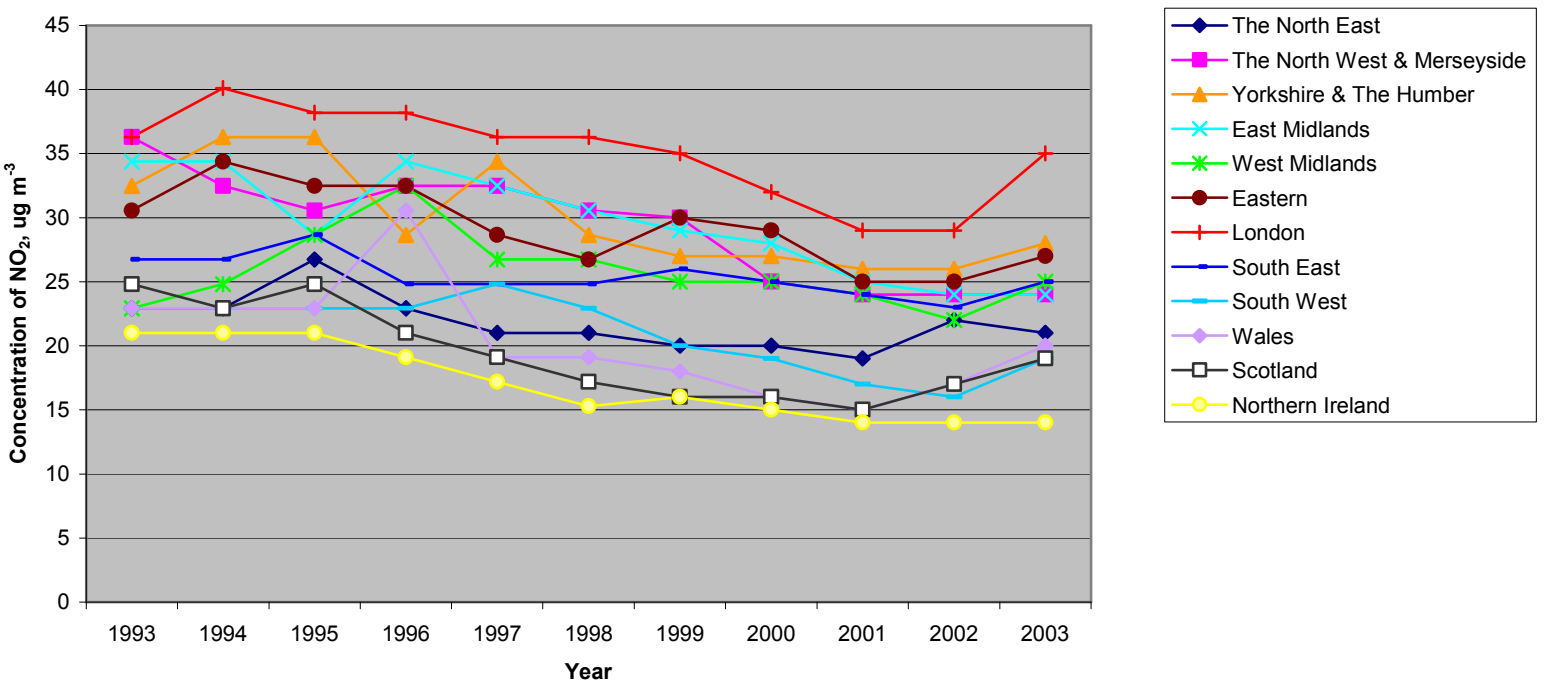

Figure 5b. **Regional Average NO_2 Concentrations at Urban Background Sites in the UK, as measured by the UK NO_2 Diffusion Tube Network 1993-2002.**

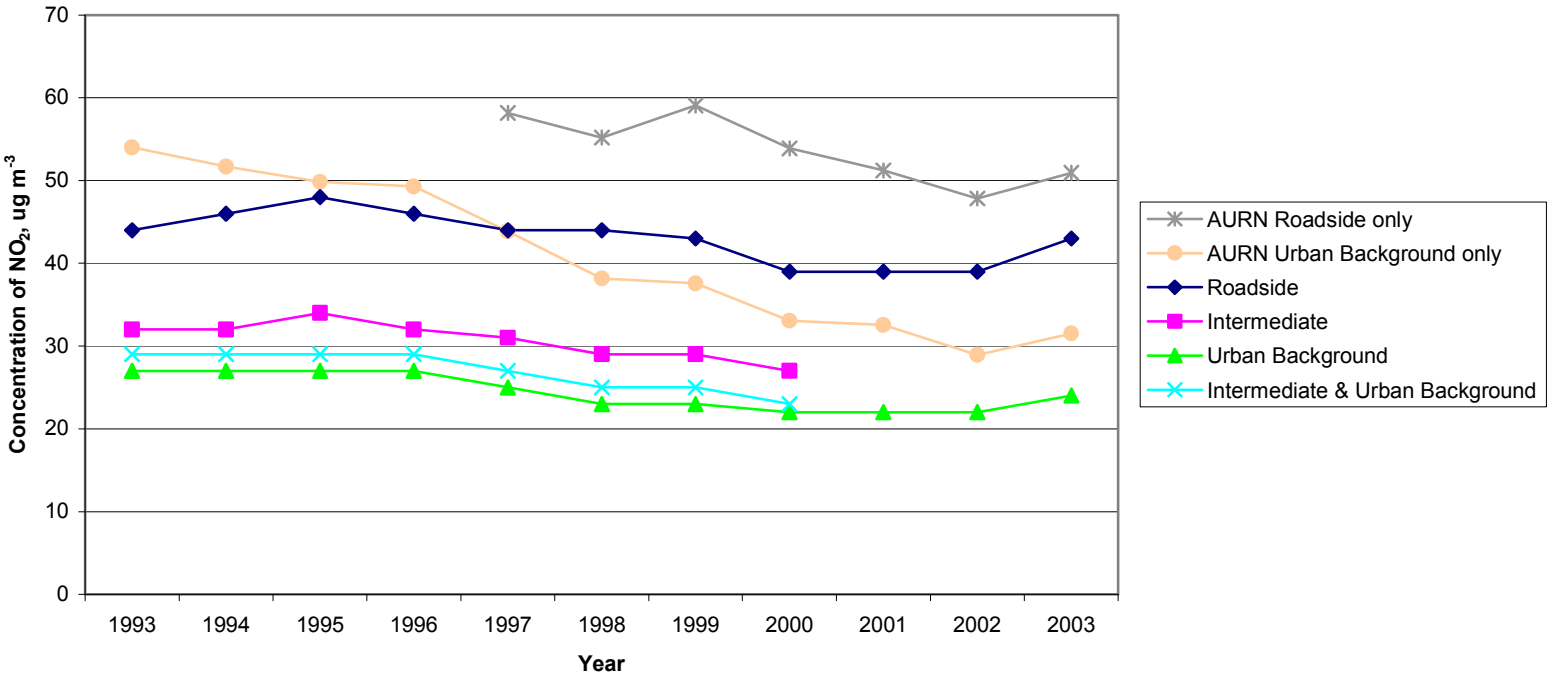

Figure 6 **Trends in Annual Mean NO_2 Concentration, as Measured by the NO_2 Network and by the AURN, 1993 – 2003.**

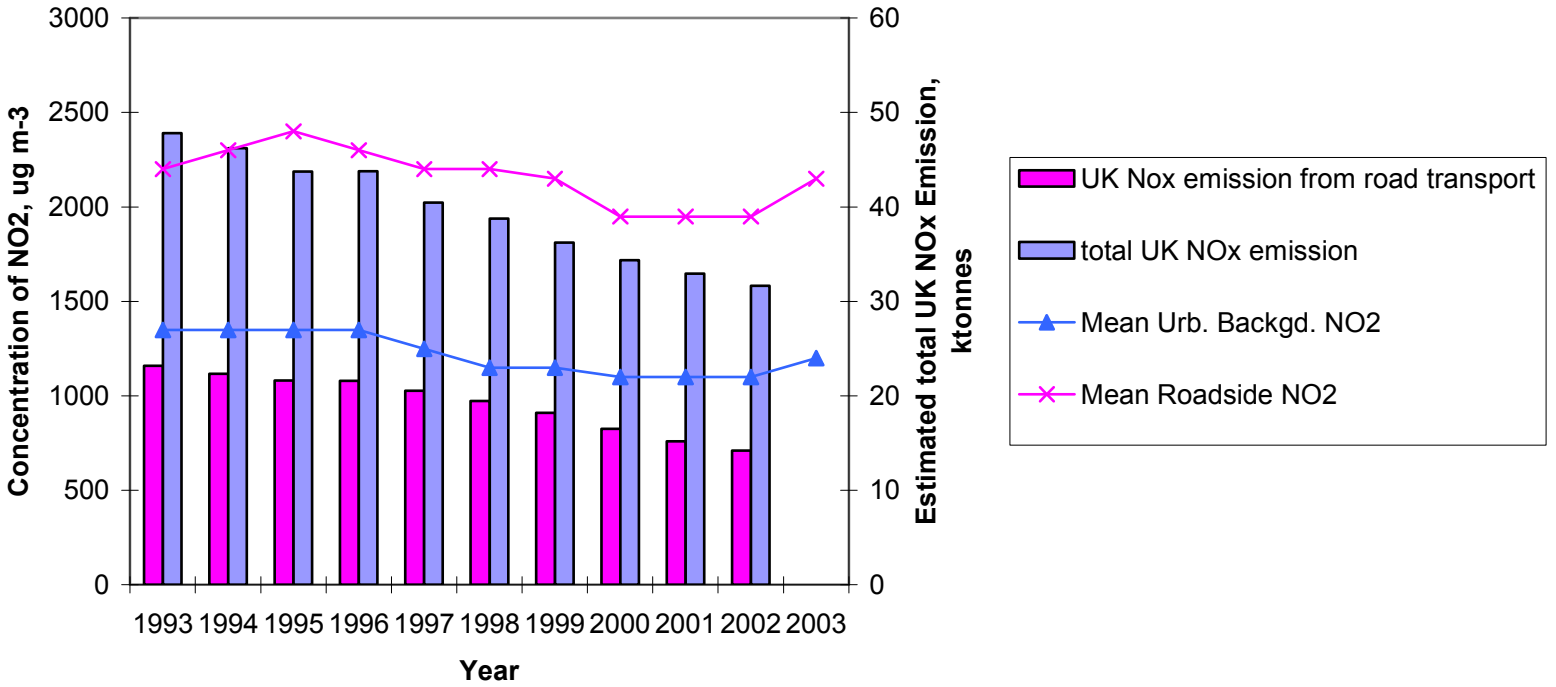

Figure 7 **Annual Mean NO_2 Concentration, as Measured by the NO_2 Network and NAEI NO_x Emission Estimates.**

Appendices

CONTENTS

Appendix A
NO_2 Network QA/QC 2003

A.1 The NO_2 Network QA/QC Programme

The aim of the QA/QC programme is to assess uncertainties and variation in analytical performance. This is an important part of netcen's role, and the number of laboratories involved also makes it a substantial task. There are four parts comprising the NO_2 Network Quality Assurance/Quality Control programme. These are as follows:

1. **The Workplace Analysis Scheme for Proficiency (WASP) programme for NO_2 diffusion tube analysis.** This independent performance testing scheme makes use of artificial analytes (doped tubes) to test the quality of laboratory analyses on a monthly basis. The scheme provides excellent tracking of analytical performance throughout the year and minimises the response time between identification and correction of analytical problems. It is operated independently by the Health and Safety Laboratory (HSL).
2. **The Field Intercomparison Exercise.** Formerly an annual field trial, from November 2002 this has become an ongoing monthly exercise, operated by Health and Safety Laboratory. It is designed to complement the WASP scheme by providing information on the uncertainties arising from both the sampling and analysis phases of diffusive sampling in the field.
3. **QC Solution Testing Scheme** This involves the monthly analysis of a nitrite solution of known concentration by all participating laboratories. Every six months approximately 150ml of a stock nitrite solution is distributed to each laboratory. The laboratories analyse a sample of this stock solution on a monthly basis and return the result to netcen for checking.
4. **Routine Data Screening.** Experienced operators carefully screen the data supplied by our participating Local Authorities. Suspect values and possible errors are highlighted and checked with the site operators.

Criteria for data acceptance are set on the basis of items 1 and 2 above. Laboratories are now required to demonstrate satisfactory performance in **both** these key quality systems; otherwise some or all of the measurement data supplied by these laboratories may be excluded from the NO_2 Network's reported dataset.

A.2 WASP SCHEME FOR NO_2 DIFFUSION TUBES

All laboratories carrying out diffusion tube analysis for the UK NO_2 Network must participate in the Health and Safety Laboratory's Workplace Analysis Scheme for Proficiency (WASP) for diffusion tube analysis. The WASP scheme is different from other parts of the Network's QA/QC in that it is an independent, internationally recognised performance testing programme. The other parts remain informal testing schemes, run purely for the UK NO_2 Network. Contact WASP via Lucy Rix on 01298 218553 or email lucy.rix@hsl.gov.uk for details.

A.2.1 WASP Scheme Performance Criteria

The WASP scheme involves the analysis of a Quality Control (QC) analyte of known concentration by each participating analytical laboratory. Each month a solution doped diffusion tube (Doped Tube) is distributed to participants, who analyse the tube and report the results to HSL. The mass of nitrite on the doped tubes is different each month, and is intended to reflect the range encountered in actual monitoring. HSL advise that the doping levels are accurate, with standard deviation around 0.5%. Table A1 shows the results obtained by the participating laboratories during 2003. Performance scores are assigned to the analyses, based on their deviation from the known mass of nitrite in the analyte, in terms of the standard deviation of all laboratories' results. Results are classified as follows. (HSL's classifications):

Good	≤ 2 Standard deviations from actual value
Warning	2-3 Standard deviations from actual value
Action	≥ 3 Standard deviations from actual value

In 2003, the standard deviation of all laboratories' results ranged from 7% (Round 55) to 38% (Round 48), with a mean of 18% for the year. However, HSL claim that it should be possible for a competent analyst to obtain results within ±10% of the assigned value – well within two standard deviations - so the "Good" classification above is not particularly stringent.

Table A1 Results of Doped Tube Analysis in WASP Scheme, 2003

	Mass of Nitrite Extracted from Doped Tube (ug)											
Laboratory Name	Jan-03 WASP R45	Feb-03 WASP R46	Mar-03 WASP R47	Apr-03 WASP R48	May-03 WASP R49	Jun-03 WASP R50	Jul-03 WASP R51	Aug-03 WASP R52	Sep-03 WASP R53	Oct-03 WASP R54	Nov-03 WASP R55	Dec-03 WASP R56
Bristol City Council Scientific Services	1.28	0.82	0.58	1.44	0.99	1.48	0.83	0.68	1.13	1.93	0.84	1.26
Cardiff Scientific Services	1.49	0.82	3.24	1.58	0.82	0.74	0.18	0.14	0.41	1.25	0.84	1.38
Clyde Analytical Ltd	1.48	0.69	2.84	1.54	1.08	1.70	0.90	0.34	1.07	1.85	0.97	1.33
Dundee City Council	1.56	0.79	2.89	1.64	1.03	1.65	0.86	0.67	1.31	2.05	0.95	1.49
City of Edinburgh Council	1.39	0.83	3.06	1.31	0.98	1.56	0.76	0.59	1.39	2.10	0.84	1.50
GRADKO International Ltd	1.38	0.80	2.75	1.54	1.00	1.61	0.86	0.72	1.31	1.97	0.89	1.39
Casella CRE	1.46	0.84	2.70	1.46	0.98	1.56	0.80	0.72	1.26	1.95	0.86	1.35
Harwell Scientifics	1.75	0.90	2.87	1.53	1.04	1.59	0.77	0.73	1.53	1.93	0.96	1.47
South Yorkshire Laboratories	1.38	0.78	2.69	1.50	0.97	1.56	0.82	0.61	1.27	1.95	0.91	1.38
Worcestershire Scientific Services	1.23	0.72	2.66	1.26	no result	no result	no result	no result	no result	no result	no result	no result
Kent Scientific Services	1.23	0.73	2.97	1.36	0.95	1.32	0.39	0.79	1.08	1.74	0.85	1.26
Lambeth Scientific Services Ltd	1.34	no result	2.39	3.86	0.89	0.94	0.64	no result	0.93	1.81	0.86	1.09
Lancashire County Analyst	1.45	no result	no result	1.50	0.68	1.09	0.60	0.41	1.03	1.64	no result	1.01
Glasgow Scientific Services	1.23	0.79	2.84	1.43	0.97	1.59	0.71	0.64	1.34	0.54	0.92	1.35
Jesmond Dene Laboratory	1.49	0.86	3.19	1.60	0.99	1.68	0.82	0.66	1.30	1.90	1.01	1.54
Somerset Scientific Services	1.44	0.83	2.89	1.45	0.98	1.63	0.81	0.56	1.26	1.88	0.96	1.43
Walsall Metropolitan Borough Council	1.38	0.81	2.58	1.45	no result	0.88	0.52	0.40	0.71	1.42	0.86	1.26
West Yorkshire Analytical Services	1.44	0.79	2.86	1.61	0.96	1.65	0.82	0.60	1.18	1.89	0.77	1.40
University of Essex	1.37	1.23	1.63	0.88	0.95	1.59	0.68	0.57	no result	2.10	0.89	1.32
Milton Keynes Borough Council	1.42	0.74	2.79	1.38	0.92	1.45	0.85	0.56	1.23	1.88	0.86	1.43
Staffordshire County Council	1.29	1.28	3.02	0.00	0.96	1.36	0.74	0.59	1.13	1.66	0.85	1.39
Ruddock & Sherratt	1.23	0.70	2.17	1.65	0.99	1.56	0.88	0.53	1.33	2.00	0.92	1.32
Northampton Borough Council	1.15	0.89	2.53	1.24	no result	1.60	0.64	0.54	1.37	0.93	0.95	1.10
Aberdeen City Council Public Analyst	1.47	0.79	2.98	1.50	0.98	1.74	0.79	0.64	1.35	1.93	0.92	1.48
STL Bridgend	1.38	0.74	2.81	1.48	0.96	1.67	0.85	0.70	1.35	no result	no result	1.51
Kirklees Environmental Services	1.59	0.90	3.04	1.57	1.02	1.68	0.82	0.65	1.37	2.08	0.94	1.64
City of Liverpool Public Analyst	1.24	0.78	2.72	no result	no result	no result	no result	0.72	0.58	1.28	1.03	1.41
Assigned Value	**1.44**	**0.80**	**2.90**	**1.49**	**0.95**	**1.62**	**0.80**	**0.61**	**1.29**	**1.94**	**0.87**	**1.44**

Footnote: Worcestershire Scientific Services ceased to carry out diffusion tube analysis in April 2003
Neither Somerset Scientific nor City of Liverpool carried out analysis for Network sites during 2003.

A.2.2 WASP Performance Criteria used for Network QA/QC

In addition to the monthly performance scores discussed above, netcen carry out their own assessment of laboratory performance for the full year. This is based on the following criteria, which have been agreed with Defra and HSL. (Please note, these apply only to the NO_2 Network).

1. Where a laboratory joins or leaves the WASP programme part way through the year, its data are only acceptable to the NO_2 Network for the months during which it was a participant of the WASP programme.
2. Apart from laboratories joining or leaving WASP during the year, participating laboratories will be allowed to miss no more than 2 of the 12 monthly WASP rounds.
3. If a participating laboratory *does* miss more than 2 rounds in the year, results from the preceding or following year may be taken into account.
4. The year's **single** worst result for the laboratory is discarded. This makes some limited allowance for one-off problems with analytical equipment etc.
5. Each laboratory's monthly standardised results are then combined to give a standard uncertainty for the full year, expressed as a relative standard deviation (%RSD) using the following formula:

$$\%RSD = \left(\sqrt{\frac{\sum_{i=1}^{n} \left(\frac{x_i}{\bar{x}} - 1 \right)^2}{n-1}} \right) \times 100$$

- where x_i are the monthly results obtained by the laboratory, $\bar{x}$ is the assigned value and n is the number of results. (This is based on the standardised result rather than the actual result, because the mass of nitrite added to the tubes is of course different each month*.) The relative standard deviation is also known as the coefficient of variation (CoV) and is equivalent to the standard deviation expressed as a percentage of the mean.*

6. If the relative standard deviation is greater than 25%, the laboratory's performance for the year in the WASP scheme is deemed unsatisfactory.

A.2.3 WASP Programme Performance Test Results 2003

The monthly performance scores for 2003 were assessed according to these criteria. The relative standard deviations are shown in Table A2. One laboratory failed to meet the criteria above for satisfactory performance: Cardiff Scientific Services. However, the problems appeared to be confined to the period June to October 2003, so only data from these affected months were rejected. A further laboratory (Lancashire Scientific Services) failed to complete the required number of WASP rounds: this laboratory's data were rejected.

The median RSD for all laboratories with at least 9 months' WASP results in the year was 7%. A substantial proportion of the laboratories were able to achieve a mean RSD well below 10%, however, several had much larger RSDs. This median RSD is a useful indication of the precision of the analytical phase of the diffusion tube measurement process, and supports HSL's claim that the analyst should be able to obtain results within $\pm$10% of the assigned value.

Netcen plan to tighten their own performance criteria for the WASP scheme for future years, in line with this.

Table A2 Overall Relative Standard Deviations of Standardised Results for Laboratories in WASP, 2003

Laboratory Name	2003 %RSD
Bristol City Council Scientific Services	8.0
Cardiff Scientific Services	**37**
Clyde Analytical Ltd	9.9
Dundee City Council	6.3
City of Edinburgh Council	5.0
GRADKO International Ltd	3.8
Casella CRE	3.7
Harwell Scientifics	10.
South Yorkshire Laboratories	2.9
Worcestershire Scientific Services *	11
Kent Scientific Services	14
Lambeth Scientific Services Ltd	21
Lancashire County Analyst	22
Glasgow Scientific Services	6.6
Jesmond Dene Laboratory	5.9
Somerset Scientific Services	3.3
Walsall Metropolitan Borough Council	23
West Yorkshire Analytical Services	3.9
University of Essex	20
Milton Keynes Borough Council	5.0
Staffordshire County Council	20
Ruddock & Sherratt	9.1
Northampton Borough Council	15
Aberdeen City Council Public Analyst	3.2
STL Bridgend	4.5
Kirklees Environmental Services	7.3
City of Liverpool Public Analyst *	17
Median	7.0

**These 2 laboratories were in operation only part of the year.*

A.3 FIELD INTERCOMPARISON EXERCISE

Although the WASP scheme, and the QC Solutions testing scheme, provide a regular check of each laboratory's performance with respect to analysis of diffusion tubes, neither scheme provides any information on how the diffusion tubes themselves perform under actual exposure conditions. Therefore, a field intercomparison exercise is also undertaken, with the objective of estimating bias and precision, under normal field operating conditions, for diffusion tubes from each laboratory performing analysis in the NO_2 Network. The principle of this intercomparison, is that diffusion tubes from each laboratory are exposed simultaneously, upon purpose-made exposure racks, close to one of the monitoring sites in Defra's Automatic Urban and Rural Network (AURN). The automatic chemiluminescent NO_x monitoring equipment at the site provides a reference measurement, with which the diffusion tube results can be compared.

From 2003, the Field Intercomparison has been operated on a monthly basis, and is managed by HSL. Each laboratory sends a triplet of tubes plus a travel blank, for exposure at an AURN-affiliated automatic monitoring site. The automatic site used throughout 2003 was Wigan Leigh, in the Greater Manchester area. This was an urban background site, in the grounds of Leigh Police

Station, which monitored oxides of nitrogen using the chemiluminescence analyser, defined as the reference method for NO_2. The tubes were exposed on a purpose-built rack within 5m of the inlet to the automatic monitor.

The tubes are exposed simultaneously for each pollution calendar month, before being returned (with the travel blank) to the supplying laboratories for analysis. The travel blanks are isolated in sealed sample bags, and refrigerated throughout the exposure period. The participating laboratories send their analytical results to HSL for collation, and netcen provides the reference value from the AURN site chemiluminescent analyser. HSL calculate the precision and bias of each laboratory's tubes, and report the complete dataset to netcen.

Precision is expressed as coefficient of variation, CoV (also known as the relative standard deviation RSD), equivalent to the standard deviation expressed as a percentage of the mean. The greater the spread of the individual tube results, the larger this value. For monthly triplets of tubes, the mean RSD is typically less than 10%. Where the RSD is substantially larger, this may indicate that the triplet has contained an outlying value.

Bias: the over-read or under-read of the diffusion tubes relative to the reference method (often termed "bias") can be expressed as a percentage.
Bias ('B') is calculated as follows:

$B = (D/C - 1) \times 100$, or alternatively $B = 100 \times (D - C)/C$

where -
- D = average NO_2 concentration as measured by the diffusion tubes, and
- C = average NO_2 concentration as measured by the chemiluminescent analyser.

(It should be noted that there will also be uncertainty on the automatic analyser measurement, typically ±10-15%).

While the majority of laboratories participate monthly, this is not feasible for some of the smaller laboratories, due to economic constraints. Therefore, the laboratories were given the option of participating quarterly (in March, June, September and December) as a minimum sufficient for Network QA/QC purposes. Quarterly participating laboratories were allowed to substitute alternative months by prior agreement. The full year's intercomparison results were compared with the following performance criteria, which were circulated to the participating laboratories.

(i) Minimum Participation

- Quarterly participants must complete at least three of their four specified rounds in the year (they may occasionally be permitted to substitute an alternative month).
- Monthly participants must complete at least nine of their 12 rounds in the year.

(ii) Precision

The mean triplet RSD for the full year should not exceed 10%. (Note: this is the mean of the monthly RSD's obtained for each triplet – not the RSD of the annual mean NO_2). Data won't be rejected if this is exceeded, as the causes may be outside the analyst's control. However, frequent high RSD may indicate a problem and should be investigated by the laboratories concerned.

(iii) Bias, and confidence interval of bias

Correction of annual mean NO_2 concentration for bias, on the basis of co-location studies such as this, has become a common practice. However, this only has validity where there is a reasonably consistent relationship between the diffusion tube result and the automatic analyser result. In this context, the *variability* of the bias (rather than its magnitude) is more important. For the purposes of QA/QC within the NO_2 Network, performance criteria are therefore based on *the 95% confidence interval of the annual mean bias 'B'.*
Performance targets are as follows:

- **For monthly participants, the 95% confidence interval of the mean value 'B' averaged over the 12 months should not exceed ±25%.** This is consistent with the data quality objective of the EU 1st Daughter Directive for indicative monitoring techniques.
- **For quarterly participants, the 95% confidence interval of the mean value 'B' averaged over the 4 months should ideally be within ±25% but must not**

exceed ±30%. (For quarterly participants, the smaller number of measurements will increase the uncertainty: therefore a slightly larger confidence interval is appropriate).

Despite the feasibility of correcting for bias, substantial over- or under-estimation by diffusion tubes is not ideal, and laboratories whose mean bias falls at either extreme end of the range are advised to investigate any possible reasons. In particular, substantial under-read *may* indicate a problem either with grid coating, or with extraction prior to analysis.

A.3.1 Results of Field Intercomparison and Comparison with Performance Criteria

Table A3 shows the results from the intercomparison; the mean of each monthly triplet of tubes is shown. The "reference value" measured by the automatic analyser is shown in the bottom row.

(i) Minimum Participation

Two laboratories (Lancashire Scientific Services and STL Bridgend) failed to complete the minimum number of rounds in the Field Intercomparison. Their data were discarded from the Network dataset. Worcester Scientific Services ceased operation in April 2003, and one other laboratory, Liverpool Scientific Services, participated for only part of the year but did not carry out any analysis for Network sites. **All other laboratories met the minimum participation criteria.**

(ii) RSD (CoV) of Triplets

Table A4 shows the relative standard deviation (or coefficient of variation) for each monthly triplet of tubes exposed during the intercomparison. **The majority of laboratories achieved the target of 10% as a mean RSD for triplets: the mean RSD for all laboratories was 8%.**

(iii) Bias "B" and Confidence Interval of Bias

Table A5 shows the monthly bias "B" for each batch of tubes exposed, together with the confidence interval on the annual mean value of B. This illustrates how the value "B" can vary considerably from month to month. For this reason, it is not recommended to base bias adjustment factors on short-term co-location studies: at least 9 months of data are required.

The bottom row of Table A5 shows the mean value of B for all laboratories. This clearly varies from month to month: B was lowest during spring and early summer, and highest during October – December. Diffusion tubes are known to be affected by environmental factors (such as wind and sunlight): future intercomparisons will hopefully be able to identify whether there is a consistent seasonal pattern.

Annual mean bias for laboratories with at least 9 months data varied from –21% to +38%: a considerable variation. The reasons for such a wide variation between laboratories remain unclear.

The 95% confidence interval on the annual mean bias is also shown: this is the parameter on which our performance criteria are set. This was less than 25% for all monthly participants, and less than 30% for all quarterly participants: **thus all laboratories met the required criteria for confidence interval of bias in 2003.**

The median percentage "bias" B for all laboratories with at least 9 months data was +16%, with a 95% confidence interval of ± 8%.

A.3.2 Information on Uncertainty of Diffusion Tube Measurements

Figure A1 shows the ratio of the diffusion tube and automatic analyser measurements, expressed as a percentage ("B" as discussed above). The parameter plotted is the mean value of "B" for the year. Only laboratories with at least 9 months data have been included. On average, the diffusion tubes overestimated the annual mean (compared to the automatic analyser) by 14%. The error bars show the 95% confidence interval on the mean B. This ranged from ±5% to ±25%, with a median of 8%. The smaller this value, the more consistent the relationship between the two measurement methods (regardless of the actual magnitude of any bias) and the more reliably the bias can be corrected for.

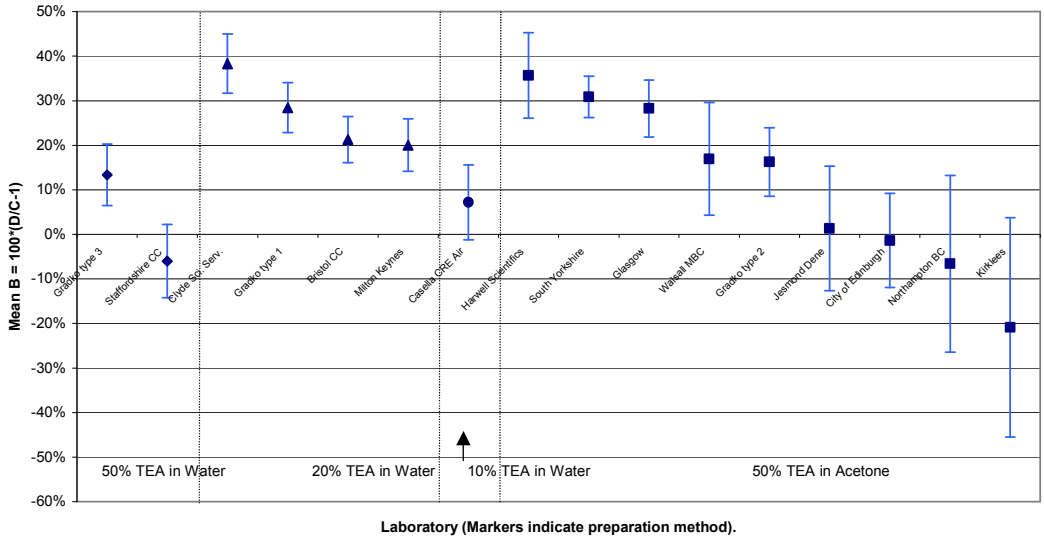

Figure A.1 Relationship Between Diffusion Tube and Automatic Analyser Measurements for Monthly Participants in Field Intercomparison, 2003.

Figure A.1 appears to show that the laboratories whose tubes tend to under-read compared with the reference value also show the largest error bars.

The intercomparison data were used to investigate in more detail whether there is an association between diffusion tube under-read and poor precision. The data from all labs with at least 9 months results show a weak inverse relationship (correlation coefficient $r^2 = 0.44$) between the mean "bias" value B, and mean triplet RSD. It is thought that this relationship may arise from cases where a spurious low result occurs within a triplet (perhaps due to a faulty tube or to incomplete extraction). This would have the effect of both increasing the spread of the three results, and decreasing the mean of the triplet.

The intercomparison data have also been used to provide an estimate of the precision of the annual mean NO_2 concentration, as measured using diffusion tubes. This was done by calculating the relative standard deviation of the monthly standardised results (i.e. the ratio of the mean triplet diffusion tube result to the reference concentration), for the whole year. The same formula was used as that used to assess performance in the WASP scheme (see section 2.3), but in this case without rejecting the "worst" monthly value. Only monthly participants with at least 9 months results were included in this analysis. The RSD of the standardised results for monthly participants are shown in Table A6.

Table A6 Overall Relative Standard Deviations of Standardised Results for Monthly Participants in the Field Intercomparison, 2003

	2003
Laboratory Name	**%RSD**
Bristol City Council Scientific Services	9%
Clyde Analytical Ltd	7%
City of Edinburgh Council	20%
Gradko International type 1	7%
Gradko International type 2	12%
Gradko International type 3	11%
Casella CRE Air	13%
Harwell Scientifics Ltd	16%
South Yorkshire Laboratories	6%
Glasgow Scientific Services	9%
Jesmond Dene Laboratory	26%
Walsall Metropolitan Borough Council	21%
Milton Keynes Council	8%
Staffordshire County Council	18%
Northampton Borough Council	47%
Kirklees Environmental Services *	74%
Median	**12%**

** this laboratory had some suspiciously low results which may have resulted from faulty tubes.*

The values in Table A6 provide an indication of the precision of an annual mean NO_2 concentration measured using diffusion tubes. The median RSD for all participants was 12%, and several laboratories had RSD's well below 10%.

A3.3 Bias Adjustment Factors

Box 6.4 of Part IV of the Environment Act 1995 – Local Air Quality Management, Technical Guidance (LAQM.TG(03)) makes provision for calculation of a bias adjustment factor for diffusion tube results, from co-location studies where diffusion tubes are co-located with an automatic chemiluminescent analyser.

The bias adjustment factor 'A' is the ratio of the automatic analyser result to the co-located diffusion tube result is calculated as follows:

$$A = C/D$$

where -

- D = annual mean NO_2 concentration as measured by the diffusion tubes, and
- C = annual mean NO_2 concentration as measured by the chemiluminescent analyser (the mean measured continuously over the entire period, rather than the average of the individual months).

Annual mean diffusion tube results from other sites can then be corrected for bias relative to the automatic analyser, by multiplying them by this factor. Please refer to LAQM.TG(03) for guidance on the applicability of bias adjustment factors. It should be noted that:

(i) The value of 'A' obtained will be applicable only to tubes prepared by the same technique, analysed by the same laboratory, and exposed for the same period.

(ii) Where bias corrected results are used in reports etc., this should be clearly indicated. The report should say what correction factor was applied and how was this obtained.

Table A7 shows the ratio 'A', for the period January to December 2003. Please note that **LAQM.TG(03) requires bias adjustment factors to be based upon a minimum of 9 months**

co-located measurements, so only monthly participants with at least 9 months' data have been included in Table A7. These values are calculated as specified in LAQM.TG(03).

Table A7 shows the bias adjustment factor A, calculated by two methods. The first is as prescribed by LAQM.TG(03), using the mean measured continuously by the automatic analyser over the entire year or period, rather than the average of the individual months. The second is the mean of the individual monthly ratios of the triplet mean diffusion tube result over the automatic analyser result. In most cases, the difference between these two values is minimal.

Table A7 also shows the 95% confidence interval of the mean value of A. This is a useful indication of the precision with which the bias adjustment factor can be calculated and used.

Netcen have developed a spreadsheet to assist Local Authorities in calculating bias adjustment factors; this includes a calculation of the uncertainty on the values of A and B. The spreadsheet is soon to be made available via the Air Quality Archive and Defra Review and Assessment Website.

Table A3 Mean NO_2 Concentrations, as Measured by Triplets of Diffusion Tubes in Field Intercomparison, 2003

Lab Name	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03	Jul-03	Aug-03	Sep-03	Oct-03	Nov-03	Dec-03	Count	Average ug m^{-3}
Bristol City Council Scientific Services	38	42	43	40	25	30	30	33	43	38	43	40	12	**37**
Cardiff Scientific Services [Q]			40			27			37			53	4	**39**
Clyde Analytical Ltd	39		51	42	29		32	41	47	37	49	48	10	**42**
Dundee City Council Scientific Services			47			31			42			46	4	**42**
City of Edinburgh Council	34	33	35	31	16	23	28	31	43	22	33	35	12	**30**
Gradko International 1	38	50	46	39	27	33	37	34	43	38	45	41	12	**39**
Gradko International 2	39	44	48	30	30	27	30	32	35	34	39	36	12	**35**
Gradko International 3	35	47	36	31	25	27	32	31	33	38	40	39	12	**35**
Casella CRE Air	28	41	49	35	20		26	27	36	37	35	34	11	**33**
Harwell Scientifics Ltd	39	59	50	42	28	35	22	38	47	46	50	48	12	**42**
South Yorkshire Laboratories	40	51	46	39	29	33	31	35	44	42	45	45	12	**40**
Worcestershire Scientific Services [Q]		45	36										2	**40**
Kent Scientific Services [Q]			39			23			39			48	4	**38**
Lambeth Scientific Services Ltd [Q]								21	39		48	45	4	**38**
Lancashire County Analyst [Q]			24										1	**24**
Glasgow Scientific Services	35	49	44	40	26	32	32	36	42	43	46	44	12	**39**
Jesmond Dene Laboratory	36	42	42	28	13	21	17	23	35	32	48	45	12	**32**
Walsall Metropolitan Borough Council		57	40	25	20		29	33	44	41	38	42	10	**37**
West Yorkshire Analytical Services [Q]			27			17			23			25	4	**23**
University of Essex [Q]			29			27			36				3	**31**
Milton Keynes Council	36	50	46	35	25	31	31	30	40	34		46	11	**37**
Staffordshire County Council	30	37	22	33	19	23	21	27	29	33	38	34	12	**29**
Ruddock and Sherratt [Q]		34	28			23			38			40	5	**33**
Northampton Borough Council	32	35	40	25	15	18	28		12	40		42	10	**29**
Aberdeen City Council Public Analyst [Q]			40			31			39	41	43	42	6	**39**
STL Bridgend [Q]			40			33							2	**37**
Kirklees Environmental Services	38	37	13	9	4	22	10	30	13	39	41	38	12	**25**
City of Liverpool Public Analysts [Q]	34	42					27	24	29	28		22	7	**30**
Ref. Value	31	44	36	33	22	25	24	26	33	29	34	32		

"Q" superscript indicates labs which participate quarterly.

Table A4 Relative Standard Deviations for Monthly Tube Triplets in Field Intercomparison, 2003 (%)

Lab Name	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03	Jul-03	Aug-03	Sep-03	Oct-03	Nov-03	Dec-03	Count	Mean
Bristol City Council Scientific Services	0.5	22.9	4.5	4.1	21.8	4.6	6.2	9.4	1.8	6.0	2.2	3.7	12	7.3
Cardiff Scientific Services [Q]			20.0			2.9			11.7			0.8	4	8.8
Clyde Analytical Ltd	n/a		5.7	0.6	1.7		1.3	1.2	1.1	13.4	16.2	1.6	9	4.8
Dundee CC Scientific Services [Q]			2.8			13.4			3.1			9.3	4	7.2
City of Edinburgh Council	6.9	8.0	12.0	10.4	8.7	9.5	27.3	15.9	3.9	n/a	1.5	23.4	11	11.6
Gradko International type 1	2.3	0.7	0.7	2.9	3.4	1.7	2.5	4.0	3.2	2.4	5.5	2.4	12	2.7
Gradko International type 2	9.6	7.5	1.8	13.0	2.7	2.0	3.8	11.6	3.3	4.1	9.0	3.5	12	6.0
Gradko International type 3	5.0	1.4	10.2	4.3	5.6	6.3	4.8	16.3	9.2	4.3	0.8	5.7	12	6.2
Casella CRE Air	20.6	n/a	5.2	3.3	5.0		9.6	6.7	7.4	22.0	6.1	12.6	10	9.8
Harwell Scientifics Ltd	15.0	3.5	7.3	0.5	3.1	6.4	24.4	8.0	3.3	3.8	3.8	8.9	12	7.3
South Yorkshire Laboratories	1.5	1.1	2.5	1.5	0.0	1.7	0.0	2.9	1.3	1.4	2.2	1.3	12	1.4
Worcestershire Scientific Services [Q]			17.1	*Discontinued*									1	17.1
Kent Scientific Services [Q]			13.4			8.6			5.3			4.0	4	7.8
Lambeth Scientific Services Ltd [Q]								16.5	4.6		4.2	10.2	4	8.9
Lancashire County Analyst [Q]			6.6			n/a							1	6.6
Glasgow Scientific Services	10.1	3.3	4.6	2.5	8.1	3.4	7.2	4.2	2.7	2.7	2.1	0.2	12	4.3
Jesmond Dene Laboratory	4.5	12.6	12.4	7.6	14.1	5.1	23.2	14.2	12.8	10.0	2.6	7.2	12	10.5
Walsall Metropolitan Borough Council		1.0	11.5	16.0	10.6		4.0	n/a	2.3	6.2	6.7	6.3	9	7.2
West Yorkshire Analytical Services [Q]			3.7			0.0			3.1			2.3	4	2.3
University of Essex [Q]			15.0			11.1			9.6				3	11.9
Milton Keynes Council	7.0	5.6	3.3	6.5	2.4	8.3	3.8	11.4	3.2	9.1		2.9	11	5.8
Staffordshire County Council	6.1	28.1	14.5	10.2	3.3	3.0	5.0	5.8	20.6	3.4	9.9	8.3	12	9.9
Ruddock and Sherratt [Q]		5.6	14.4			10.2			4.6			0.1	5	7.0
Northampton Borough Council	7.4	n/a	15.1	16.5	n/a	39.2	1.7		25.0	5.6		4.0	8	14.3
Aberdeen City Council Public Analyst [Q]			12.2			2.7			5.4	1.9	2.6	5.9	6	5.1
STL Bridgend [Q]			17.1			4.3							2	10.7
Kirklees Environmental Services	3.7	2.0	8.4	26.6	16.2	4.5	3.4	3.7	8.6	7.8	1.6	0.5	12	7.2
City of Liverpool Public Analysts	6.7	9.7					23.4	20.1	14.3	43.5		5.2	7	17.6
Mean	7.1	7.5	9.3	7.9	7.1	7.1	8.9	9.5	6.9	8.7	4.8	5.4		8.1

"Q" superscript indicates labs which participate quarterly.

N/a – not applicable: indicates that there were less than 3 valid tube results for this month; one or more may have been rejected due to damage, insects in tube etc.

Table A5 Percentage Bias 'B' from Field Intercomparison, Illustrating variation from month to month, and 95% Confidence Interval of Mean

Lab Name	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03	Jul-03	Aug-03	Sep-03	Oct-03	Nov-03	Dec-03	Count	Mean	95% C.I. +/-
Bristol City Council Scientific Services	24%	-4%	20%	21%	14%	19%	25%	25%	29%	30%	26%	26%	12	21%	5%
Cardiff Scientific Services [Q]			11%			8%			13%			65%	4	24%	27%
Clyde Analytical Ltd	26%		41%	27%	33%		32%	58%	42%	29%	44%	50%	10	38%	7%
Dundee CC Scientific Services [Q]			31%			26%			30%			42%	4	32%	7%
City of Edinburgh Council	9%	-25%	-5%	-5%	-28%	-7%	16%	18%	31%	-25%	-2%	8%	12	-1%	11%
Gradko International type 1	22%	14%	27%	19%	22%	31%	55%	32%	31%	30%	31%	28%	12	28%	6%
Gradko International type 2	27%	-1%	33%	-9%	36%	9%	24%	24%	5%	19%	15%	13%	12	16%	8%
Gradko International type 3	13%	8%	1%	-7%	15%	8%	35%	19%	1%	30%	18%	20%	12	13%	7%
Casella CRE Air	-11%	-8%	35%	7%	-9%		10%	5%	14%	26%	4%	6%	11	7%	8%
Harwell Scientifics Ltd	25%	33%	40%	27%	26%	40%	-7%	47%	43%	58%	46%	51%	12	36%	10%
South Yorkshire Laboratories	28%	15%	27%	19%	32%	33%	29%	35%	34%	46%	32%	40%	12	31%	5%
Worcestershire Scientific Services [Q]		2%	-1%										2	1%	3%
Kent Scientific Services [Q]			9%			-8%			22%			51%	4	19%	24%
Lambeth Scientific Services Ltd [Q]								-18%	19%		41%	41%	4	21%	27%
Lancashire County Analyst [Q]			-34%										1		
Glasgow Scientific Services	14%	11%	22%	23%	20%	29%	32%	38%	28%	50%	35%	39%	12	28%	6%
Jesmond Dene Laboratory	16%	-6%	15%	-15%	-39%	-14%	-27%	-11%	5%	11%	40%	40%	12	1%	14%
Walsall Metropolitan Borough Council		30%	11%	-23%	-11%		19%	27%	33%	40%	11%	31%	10	17%	13%
West Yorkshire Analytical Services [Q]			-25%			-32%			-29%			-23%	4	-27%	4%
University of Essex [Q]			-19%			8%			13%				3	0%	20%
Milton Keynes Council	15%	13%	27%	7%	12%	23%	28%	14%	22%	17%		43%	11	20%	6%
Staffordshire County Council	-5%	-17%	-38%	-2%	-12%	-10%	-14%	5%	-13%	14%	12%	6%	12	-6%	8%
Ruddock and Sherratt [Q]		-23%	-26%			-7%			15%			26%	5	-3%	20%
Northampton Borough Council	4%	-20%	11%	-24%	-30%	-30%	15%		-63%	39%		32%	10	-7%	20%
Aberdeen City Council Public Analyst [Q]			12%			26%			22%	40%	25%	32%	6	26%	8%
STL Bridgend [Q]			11%			32%							2	22%	21%
Kirklees Environmental Services	22%	-15%	-64%	-74%	-80%	-12%	-58%	14%	-60%	35%	21%	20%	12	-21%	25%
City of Liverpool Public Analysts	11%	-5%					13%	-6%	-12%	-2%		-31%	7	-5%	11%
Mean (all)	15%	0%	7%	0%	0%	8%	13%	19%	11%	27%	25%	27%	**Median**	17%	8%
Mean (monthly only)	15%	1%	13%	0%	0%	9%	13%	22%	10%	26%	24%	25%	**Median**	16%	8%

Q superscript indicates laboratories that have opted to take part quarterly – the minimum for NO_2 Network QA/QC.

Table A7 **Ratio 'A' of 2003 automatic analyser mean NO_2 over co-located triplet diffusion tube 2003 mean NO_2 (for labs with at least 9 months' data).**

Lab Name	2003 mean NO_2, $\mu g\ m^{-3}$ (diffusion tubes)	No. of Months	2003 mean NO_2, $\mu g\ m^{-3}$ (automatic analyser)	A_1 (as per LAQM.TG(03))	A_2 (Mean of Monthly A values)	95% CI of mean monthly A, 2003
Bristol	37	12	31	0.83	0.83	0.041
Clyde	42	10	31	0.74	0.73	0.034
Edinburgh	30	12	31	1.01	1.05	0.117
Gradko 1	39	12	31	0.78	0.78	0.032
Gradko 2	35	12	31	0.87	0.87	0.061
Gradko 3	35	12	31	0.89	0.89	0.054
Casella	34	11	31	0.92	0.95	0.071
Harwell	42	12	31	0.73	0.75	0.066
South Yorkshire	40	12	31	0.77	0.77	0.028
Glasgow	39	12	31	0.78	0.79	0.039
Jesmond Dene	32	12	31	0.96	1.05	0.154
Walsall	37	10	31	0.83	0.88	0.117
Milton Keynes	37	11	31	0.84	0.84	0.039
Staffordshire	29	12	31	1.07	1.09	0.111
Northampton	29	10	31	1.07	1.23	0.358
Kirklees	25	12	31	1.25	1.91	0.794

Subscripts -

1. *This value of A is calculated as prescribed by LAQM.TG(03), using the mean measured continuously by the automatic analyser over the entire period, rather than the average of the individual months.*
2. *This value is the mean of the monthly values of A. Will be close to A_1 if data capture for both methods is good.*

A4 QC SOLUTION ANALYSES

The QC Solution Testing Scheme involves the monthly analysis of a nitrite solution of known concentration by all participating laboratories. Every six months approximately 150ml of a stock nitrite solution is distributed to each laboratory. The laboratories analyse a sample of this stock solution on a monthly basis and return the result to netcen for checking. Performance scores are assigned to the analyses based on the principles of Shewhart control charts and z-scores[A1], for demonstrating statistical process control. Under this system an estimate of the expected relative standard deviation (RSD) or coefficient of variation (CoV) has been established for the QC Solution analyses, according to the empirical formula developed by Horwitz[A2]. Hence, for a QC Solution of concentration range 1500-2000 mg/l (as nitrite) the average expected RSD is approximately 5%. Performance scores are classified as "Good", Warning" or "Action" in the same way as the WASP Doped Tube analysis.

Although the QC solution analyses are not used to assess satisfactory performance, this exercise provides the laboratories with a useful means of checking their analytical procedures. Table A8 shows the results of the QC Solution Analyses for 2003, and Table A9 shows the performance scores assigned to them.

Table A8 NO_2 Network QC Solution Analyses, 2003

	Concentrations of QC Solution Reported (mg/l)											
Laboratory Name	***Jan***	***Feb***	***Mar***	***Apr***	***May***	***Jun***	***Jul***	***Aug***	***Sep***	***Oct***	***Nov***	***Dec***
Bristol City Council Scientific Services	1926	1935	1936	1935	1935	1903	1930	1938	1934	1920	1920	1932
Cardiff Scientific Services	1972	1989	1902	1838	1839	1973	1782	1866	1999	1920	2092	2063
Clyde Analytical Ltd	1893	1863	1940	1967	2120	1850	2010	2007	1973	2100	1960	2000
Dundee City Council Scientific Services	1961	1964	1947	1947	1944	1936	1944	1960	1909	1944	1947	1947
City of Edinburgh Council	1975	1928		1953	1945	1923	1980	2000	2025		1950	1993
Gradko International Ltd	1944	1944	1972	1972	1972	1944	1944	1971	2000	1944	2000	1944
Casella CRE Air	2060	1960	1960	1955	1990	1884	1964	2016	1976	1984	1908	1936
Harwell Scientifics Ltd	1933	1956	1939	2045	2094	1968	2098	2089	1930	1923	1934	1938
South Yorkshire Laboratories	1944	1924	1929	1934	1928	1935	1926	1939	1944	1928	1926	1936
Worcestershire Scientific Services	1950	1930	1920	1930								
Kent Scientific Services	1966	1953	1958	1949	1955	1952	1915	1948	1970	1923	1961	1959
Lambeth Scientific Services Ltd	1930			1810	1940	2140	1970	1980	1970	1980	1920	1940
Lancashire County Analyst	1939	1920	1960	1940	1935	1939						
Glasgow Scientific Services	1825	1993	1811	1908	2047	1889	2021	2059	1902	1935	2041	2052
Jesmond Dene Laboratory	1906	1922	1952	1908	1926	1993	1942	2047	1973	1936	1968	1969
Walsall Metropolitan Borough Council	1864	1862	1881	1964		2144	2110	1824	1889	1827	1764	1669
West Yorkshire Analytical Services	1920	2018	1932	1942	1891	1920	1922	1930	1931	1929	1953	1935
University of Essex	1934	1930	1933	1899	1823	1886	1859	1966			1948	
Milton Keynes Council	1964	1953	1947	1972	1952	1962						
Staffordshire County Council	1937	1965	2090	1973	2058	1981	1980	1974	1972	1942	1908	1982
Ruddock and Sherratt	1939	1955	1979	1963	1939	1938	1971	1930	1939	1922	1971	1922
Northampton Borough Council	1932	1946	1955	1989	1975	1975	1937	1955	1915	2018	1900	1856
Aberdeen City Council Public Analyst	1941	1971	1945	1952	1957	1954	1980	1994	1995	1956	2019	1994
STL Bridgend	2020	2000	2000	1980	1980	2080	2080	2050	2050			1990
Kirklees Environmental Services	1970	1990	1940	1940	1830	1920	1940	1930	1920		1940	1940
City of Liverpool Public Analysts	1963	1934	1957					1961	1892	1930	2140	2058
Average	1943	1948	1945	1943	1955	1958	1964	1971	1955	1945	1958	1952
Standard	44	37	48	46	74	73	73	60	43	53	74	80
Coefficient of Variation	2.3	1.9	2.4	2.4	3.8	3.7	3.7	3.0	2.2	2.7	3.8	4.1

Table A9 Performance Scores Assigned to QC Solution Analyses, 2003

	Assigned Performace Scrores											
Laboratory Name	***Jan***	***Feb***	***Mar***	***Apr***	***May***	***Jun***	***Jul***	***Aug***	***Sep***	***Oct***	***Nov***	***Dec***
Bristol City Council Scientific Services	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
Cardiff Scientific Services	Good (0)	Good (0)	Good (0)	Good (1)	Good (0)	Good (0)	Good (1)	Good (0)	Good (0)	Good (0)	Good (1)	Good (1)
Clyde Analytical Ltd	Good (0)	Good (0)	Good (0)	Good (0)	Good (1)	Good (0)	Good (0)	Good (0)	Good (0)	Good (1)	Good (0)	Good (0)
Dundee City Council Scientific Services	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
City of Edinburgh Council	Good (0)	Good (0)	No Data	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	No Data	Good (0)	Good (0)
Gradko International Ltd	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
Casella CRE Air	Good (1)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
Harwell Scientifics Ltd	Good (0)	Good (0)	Good (0)	Good (1)	Good (1)	Good (0)	Good (1)	Good (1)	Good (0)	Good (0)	Good (0)	Good (0)
South Yorkshire Laboratories	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
Worcestershire Scientific Services	Good (0)	Good (0)	Good (0)	Good (0)	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Kent Scientific Services	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
Lambeth Scientific Services Ltd	Good (0)	No Data	No Data	Good (1)	Good (0)	Warning (2)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
Lancashire County Analyst	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	No Data	No Data	No Data	No Data	No Data	No Data
Glasgow Scientific Services	Good (1)	Good (0)	Good (1)	Good (0)	Good (1)	Good (0)	Good (0)	Good (1)	Good (0)	Good (0)	Good (1)	Good (1)
Jesmond Dene Laboratory	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (1)	Good (0)	Good (0)	Good (0)	Good (0)
Walsall Metropolitan Borough Council	Good (0)	Good (0)	Good (0)	Good (0)	No Data	Warning (2)	Good (1)	Good (1)	Good (0)	Good (1)	Good (1)	Warning (2)
West Yorkshire Analytical Services	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
University of Essex	Good (0)	Good (0)	Good (0)	Good (0)	Good (1)	Good (0)	Good (0)	Good (0)	No Data	No Data	Good (0)	No Data
Milton Keynes Council	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	No Data	No Data	No Data	No Data	No Data	No Data
Staffordshire County Council	Good (0)	Good (0)	Good (1)	Good (0)	Good (1)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
Ruddock and Sherratt	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
Northampton Borough Council	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
Aberdeen City Council Public Analyst	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
STL Bridgend	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (1)	Good (1)	Good (1)	Good (1)	No Data	No Data	Good (0)
Kirklees Environmental Services	Good (0)	Good (0)	Good (0)	Good (0)	Good (1)	Good (0)	Good (0)	Good (0)	Good (0)	No Data	Good (0)	Good (0)
City of Liverpool Public Analysts	Good (0)	Good (0)	Good (0)	No Data	No Data	No Data	No Data	Good (0)	Good (0)	Good (0)	Warning (2)	Good (1)

A5 REFERENCES

A1. Mullins, E. Introduction of Control Charts in the Analytical Laboratory. Analyst, March 1994, Vol. 119, pp369-375.

A2. Horwitz, W. Evaluation of Analytical Methods used for Regulation of Food and Drugs. Analytical Chemistry Vol. 54, No 1, January 1986.

A3. The Council of the European Union Directive relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air, 1999/30/EC. 22 April 1999.

Appendix B
Regional Data 2003

Appendix B presents the validated 2003 dataset for the NO_2 Network. This Appendix is divided into twelve sections (one for each region of the UK). Each section contains two data tables; the first contains data from the region's Roadside sites, and the second contains data from the region's Urban Background sites). Sites with annual mean NO_2 concentrations greater than the AQS Objective of 40µgm^{-3} are indicated by shaded rows, and there is a regional summary at the bottom of each table.

Table B1.1 Roadside Sites in Scotland

				Nitrogen Dioxide Concentrations 2003 (ug m^{-3})														
Site Name	**Local Authority**	**Loc.**	**Status**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Min**	**Max**	**Mean**
STONEHAVEN 1N	Aberdeenshire	R	A	21	32	29	39	25	26	24	29	25	27	32	30	21	39	28
DUNDEE 7N	City of Dundee	R	A	56	63	68	49	55	48	48	43	61		58	63	43	68	56
DUNDEE 8N	City of Dundee	R	A	48	65	61	57	49	46	47	42	50	47	56	65	42	65	53
EDINBURGH 5N	City of Edinburgh	R	A	38	40			37	34	60	38	53	44	32		32	60	42
EDINBURGH 7N	City of Edinburgh	R	A	38	41	56	41	26	43	46	28	35		19	27	19	56	36
GLASGOW 1N	City of Glasgow	R	A	88	125	116	119		57	92	98	105				57	125	100
GLASGOW 6N	City of Glasgow	R	A	64	49	53	40		38	38	43	48				38	64	47
ALLOA 1N	Clackmannanshire	R	A	38	52	42	40	33	34	33	38	38	42	44	46	33	52	40
TULLIBODY 8N	Clackmannanshire	R	A	31	52	36	31	29	21	25	23	23	34	46	36	21	52	32
BEARSDEN 10N	East Dunbartonshire	R	A	45	52	33	38	25	31	30	29	34	42	40	51	25	52	38
BEARSDEN 1N	East Dunbartonshire	R	A	37	47	40	33	28	26	25	30	35	36	37	46	25	47	35
BISHOPBRIGGS 12N	East Dunbartonshire	R	A	51	67	59	51	37	37	36	48	41	54	49	60	36	67	49
BISHOPBRIGGS 6N	East Dunbartonshire	R	A	50	53	52	43	37	35	35	47	46	49	45	58	35	58	46
MUSSELBURGH 1N	East Lothian	R	A	32	46	34	28	15	27	26	28	35	30	25	38	15	46	30
TRANENT 1N	East Lothian	R	A	19	39	48	41	29	19	30	31	39	37	30	30	19	48	33
GIFFNOCK 3N	East Renfrewshire	R	A			53	55		35	32	46	39	62	43	46	32	62	46
THORNLIEBANK 1N	East Renfrewshire	R	A			40	34		24	24	32	29	38	32	40	24	40	33
FALKIRK 13N	Falkirk	R	A	43		40		31	30	33	26	69	88	98		26	98	51
CUPAR 1N	Fife	R	A	32	47	43	46	35	40	35	38	35	15	46		15	47	37
DUNFERMLINE 5N	Fife	R	A	34	41	42	34	31	31	30	28	34	33	38	40	28	42	35
DUNFERMLINE 9N	Fife	R	A	47	55	53	52	41	43			47		48	58	41	58	49
ST ANDREWS 1N	Fife	R	A	29	44	38	44	25	34	33	37	39	40			25	44	36
DINGWALL 12N	Highland	R	A	30			46	35	31	32	35	43				30	46	36
DINGWALL 13N	Highland	R	A	33			27	19	13	15	18	25				13	33	21
GREENOCK 5N	Inverclyde	R	A		31	45	49	28	32		26	50	50	55	68	26	68	43
GREENOCK 7N	Inverclyde	R	A		36	35	39	24	25	22	30	43	43	40	47	22	47	35
DALKEITH 1N	Midlothian	R	A	69	29	50	44	32		49	43	47	34	52	53	29	69	46
PENICUIK 3N	Midlothian	R	A	32	42	22	43	21		32	29	48	11	37	33	11	48	32
IRVINE 1N	North Ayrshire	R	A	44	55	57		68	62	63	55	64	63	64	64	44	68	60
IRVINE 5N	North Ayrshire	R	A	17	48	47	40	33	40	32	37	40	37	45	40	17	48	38
COATBRIDGE 1N	North Lanarkshire	R	A		54	50		48	44	42	44	50	50	59	52	42	59	49
COATBRIDGE 3N	North Lanarkshire	R	A		36	40		21	19	17			38		48	17	48	31
MOTHERWELL 9N	North Lanarkshire	R	A					15	19			23	27	23	34	15	34	24
PERTH 1N	Perth & Kinross	R	A	45	57	53	58	40	41	43	43	41	47	55	52	40	58	48
PERTH 7N	Perth & Kinross	R	A	39	52	49	56	42	44	42	44	38	44	49	41	38	56	45
PAISLEY 7N	Renfrewshire	R	A	20	64	75	75	57	62	59	61			68	72	20	75	61
PAISLEY 8N	Renfrewshire	R	A	19	65			42	46	48	48	54	57	57	49	19	65	49
GALASHIELS 1N	Scottish Borders	R	A	22	45	34	40	22	28	30	28	23	30	38	29	22	45	31
HAWICK 2N	Scottish Borders	R	A	34	35	34	29	31	24	22	24	41	34	41	39	22	41	32
HAWICK 4N	Scottish Borders	R	A	9	20	9	32	24	25	22	29	38	32	41	39	9	41	27
HAWICK 5N	Scottish Borders	R	A	12		14	12	6	6	5	8	7	11	20	17	5	20	11
HAWICK 6N	Scottish Borders	R	A	27	38	33	31	22	22	20	21	22	27	35	29	20	38	27
KELSO 1N	Scottish Borders	R	A	16	30	25	25	19	17	15	16	20	22	26	23	15	30	21
PEEBLES 5N	Scottish Borders	R	A	20	36	30	31		19		24			34	19	19	36	27
AYR 1N	South Ayrshire	R	A	36	47	50		42	29	76	42		51	58	47	29	76	48
AYR 5N	South Ayrshire	R	A	42	53	56		49	39	47	47	50	53	51	49	39	56	49
EAST KILBRIDE 1N	South Lanarkshire	R	A	28		38	37	22	22	24	27	24	37	36	35	22	38	30
HAMILTON 1N	South Lanarkshire	R	A	40	53	40	38	22	25	27	35	31	48	42	42	22	53	37
LANARK 1N	South Lanarkshire	R	A	46	47	52	55	40	41	41	56	46	62	45	42	40	62	48
STIRLING 1N	Stirling	R	A	20	48	12	45	36			29	18	46	46		12	48	33
STIRLING 7N	Stirling	R	A			51	41			10				54	60	10	60	
BALLOCH 1N	West Dunbartonshire	R	A	45	29	21	22	14	14			16	23	26	26	14	45	24
CLYDEBANK 1N	West Dunbartonshire	R	A	39	46	48	44	35	27			42	38	45	48	27	48	41

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
CLYDEBANK 5N	West Dunbartonshire	R	A	34	36	29	29	17	18			24	36	38	47	17	47	31
DUMBARTON 1N	West Dunbartonshire	R	A	40	53	53	52	52	43			44	46	52	61	40	61	50
LINLITHGOW 6N	West Lothian	R	A	33	33	15	40	27	15	23	21		25	29	44	15	44	28
WHITBURN 1N	West Lothian	R	A	17	25	19	33	12	17	21	25	21	19	15	29	12	33	21
STORNOWAY 1N	Comhairle N. Eilean Sia	R	A		28				20					70		20	70	
STORNOWAY 5N	Comhairle N. Eilean Sia	R	A		23			17	20				27	30		17	30	

REGIONAL SUMMARY		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Regional Monthly Mean	36	46	43	42	31	31	35	36	39	39	43	44
	Regional Monthly Min	9	20	9	12	6	6	5	8	7	11	15	17
	Regional Monthly Max	88	125	116	119	68	62	92	98	105	88	98	72
	Regional Annual Mean	39											
	Regional Annual Min	11											
	Regional Annual Max	100											
	Number of Sites	59											
	% With Valid Annual Mean	95											

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B1.2 Urban Background Sites in Scotland

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
STONEHAVEN 3N	Aberdeenshire	B	A	13	20	15	13	8	7	6	8	14	10	23	18	6	23	13
STONEHAVEN 6N	Aberdeenshire	B	A	11	21	16	10	8	7	6	7		13	21	15	6	21	12
DUNDEE 3N	City of Dundee	B	A	20	27	21	15	12	10	10	10	14	16	27	25	10	27	17
DUNDEE 5N	City of Dundee	B	A	27	42	30	21	18	14	16	13	21		42	39	13	42	26
EDINBURGH 3N	City of Edinburgh	B	A	23	26	13	22	19	13	20	13	18	21	33	18	13	33	20
EDINBURGH 4N	City of Edinburgh	B	A	20	20		11		14	14	22	14	27	12	28	11	28	18
GLASGOW 4N	City of Glasgow	B	A	37	43	34	30		10	14	21	25				10	43	27
GLASGOW 5N	City of Glasgow	B	A	27	40	34	25		18	17	18	22				17	40	25
ALLOA 4N	Clackmannanshire	B	A	19	29	19	12	10	10	10	12	12	15	27	25	10	29	16
ALLOA 6N	Clackmannanshire	B	A	21		23	10		10	12	10	10	17	27		10	27	15
BEARSDEN 3N	East Dunbartonshire	B	A	30	52	32	26	15	14	18	17	22	31	32		14	52	26
BEARSDEN 4N	East Dunbartonshire	B	A	20	36	21	16							19	24	16	36	23
BISHOPBRIGGS 5N	East Dunbartonshire	B	A	29	36	27	19	18	13		16	18	24	27	30	13	36	23
BISHOPBRIGGS 8N	East Dunbartonshire	B	A	27	44	25	19	9	14	12	12	17	22	28	35	9	44	22
HADDINGTON 5N	East Lothian	B	A	13	21	10			6	5	7	14	12	16	16	5	21	12
GIFFNOCK 1N	East Renfrewshire	B	A			26	23			10		14	26	19	31	10	31	21
NEWTON MEARNS 1N	East Renfrewshire	B	A			23	4		10	7	14	11	24	13	24	4	24	15
FALKIRK 3N	Falkirk	B	A	31		41	32	17	21	17	24	44	67	73	87	17	87	41
FALKIRK 4N	Falkirk	B	A	36			24	17		17	19	47	54	70	73	17	73	40
CUPAR 4N	Fife	B	A	16	31	20	13	8	9	9	10	13	13	24		8	31	15
DUNFERMLINE 6N	Fife	B	A	22		24	19	12	15	13	15	19	20	29	33	12	33	20
DUNFERMLINE 8N	Fife	B	A	20	34	25	18	13	14		24	18	19	24	29	13	34	22
ST ANDREWS 4N	Fife	B	A	10	21	12	8	5	6	5	6	9	7	17		5	21	10
DINGWALL 11N	Highland	B	A	16			12	7	6	6	7	12				6	16	10
DINGWALL 9N	Highland	B	A	14					4			10				4	14	
GREENOCK 3N	Inverclyde	B	A		22	23	25	13	16	11	14	19	19	36	36	11	36	21
GREENOCK 6N	Inverclyde	B	A		46	33	37	19	24		22	32	32	44	55	19	55	34
DALKEITH 2N	Midlothian	B	A	18	18	13			8	5	13	14	19	9	20	5	20	14
PENICUIK 2N	Midlothian	B	A	8		7	5	4	4	5	8	5		11	11	4	11	7
IRVINE 3N	North Ayrshire	B	A	25	24	23	18	10	13	12	11	13	24	22	24	10	25	18
IRVINE 4N	North Ayrshire	B	A	48	24	22	17	8	11	10	12	12	24	20	22	8	48	19
AIRDRIE 1N	North Lanarkshire	B	A		36	34		13	21	15	23	29	31	40	42	13	42	29
AIRDRIE 3N	North Lanarkshire	B	A		33	33		17	15	15	15	27	29	34	38	15	38	26
MOTHERWELL 6N	North Lanarkshire	B	A		33	31		13	13	12	17	19	27	27	27	12	33	22
MOTHERWELL 7N	North Lanarkshire	B	A		27	25		10	10	10	15		23	23	19	10	27	18
PERTH 3N	Perth & Kinross	B	A	29	38	29	21	16	14	14	14	22	26	36	34	14	38	24
PERTH 6N	Perth & Kinross	B	A	24	30	22	13	10	9	10	8	16	16	27	25	8	30	17
PAISLEY 3N	Renfrewshire	B	A	10	31	24	21	9	9	9	12	14	23	20	23	9	31	17
PAISLEY 6N	Renfrewshire	B	A	8	34	28	26	13	12	11	17	21	29	26	32	8	34	21
GALASHIELS 2N	Scottish Borders	B	A	11	23	15	12	8	35	6	7	8	13	16	17	6	35	14
HAWICK 3N	Scottish Borders	B	A	31	41	35	11	6	5	4	5	6	10	16	9	4	41	15
KELSO 2N	Scottish Borders	B	A	9	21	11	10	6	6	4	6	6	10	18	12	4	21	10
MELROSE 1N	Scottish Borders	B	A	11	22	14	13	5	6	5	7	9	12	19	16	5	22	12
PEEBLES 6N	Scottish Borders	B	A	13	22	16	12	6	6	6	7	9			17	6	22	11
AYR 3N	South Ayrshire	B	A	24	14	13		6	4	5	8	7	12	11	12	4	24	11
AYR 4N	South Ayrshire	B	A	11	13	11		4		4	8	5	10	8	8	4	13	8
EAST KILBRIDE 3N	South Lanarkshire	B	A	23	26	24	18	10	10	10	14	14	26	21	31	10	31	19
EAST KILBRIDE 4N	South Lanarkshire	B	A	19	28	26	19	11	8	9	13	13	23	22	26	8	28	18
HAMILTON 6N	South Lanarkshire	B	A		28	21		9	8	9	8	35			23	8	35	18
LANARK 5N	South Lanarkshire	B	A	15	19	18	11	7	8	7	10	10	17	18	20	7	20	13
LANARK 6N	South Lanarkshire	B	A	12	13	11	6	4		5	6	6	12	13	15	4	15	9
STIRLING 3N	Stirling	B	A	17	27	32		24	45		19	17	34	44	38	17	45	30
STIRLING 6N	Stirling	B	A	15	34	25	24	37	17		14	13	27	35	35	13	37	25

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
CLYDEBANK 3N	West Dunbartonshire	B	A	22	30	22	22	12	12			17	20	21	28	12	30	21
CLYDEBANK 4N	West Dunbartonshire	B	A		36	19	24	13	14			16		29	31	13	36	23
DUMBARTON 7N	West Dunbartonshire	B	A	16	26	12	15	4				7	17	15	23	4	26	15
DUMBARTON 9N	West Dunbartonshire	B	A	25	28	22		12	10			16	21	25	31	10	31	21
BATHGATE 4N	West Lothian	B	A	19	29	10	17	8	8	8	10	10	13	19	19	8	29	14
LIVINGSTON 3N	West Lothian	B	A	15	17	10	21	10	10	13	13	15	23		25	10	25	16
STORNOWAY 3N	Comhairle N. Eilean Sia	B	A		7			5	4				5	6		4	7	
STORNOWAY 4N	Comhairle N. Eilean Sia	B	A		10			4	6				12	14		4	14	

REGIONAL SUMMARY

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	20	28	22	17	11	12	10	13	16	21	25	27
Regional Monthly Min	8	7	7	4	4	4	4	5	5	5	6	8
Regional Monthly Max	48	52	41	37	37	45	20	24	47	67	73	87

Regional Annual Mean	19
Regional Annual Min	7
Regional Annual Max	41
Number of Sites	61
% With Valid Annual Mean	95

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B2.1 Roadside Sites in the North East

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
ALNWICK 1N	Alnwick	R	A	14	14	23	17	17	14	16	15	16	18	33	24	**14**	**33**	**18**
ALNWICK 7N	Alnwick	R	A	20	49	34	36	27	26	23	23	26	21	37	29	**20**	**49**	**29**
DARLINGTON 1N	Darlington	R	A	35	64	45	44	26	46	46	52	48	50	56	44	**26**	**64**	**46**
DARLINGTON 7N	Darlington	R	A		47	20	26	15	27	21	20	33	32	38	21	**15**	**47**	**27**
DURHAM 1N	Durham	R	A	57	80	67	58	63		29	33	51	48	59	53	**29**	**80**	**54**
GATESHEAD 5N	Gateshead	R	A	34	44	35	33	23	19	25	22	27	34	45	38	**19**	**45**	**32**
GATESHEAD 9N	Gateshead	R	A	42	54	56	44	41	27	49	26	38	42	54		**26**	**56**	**43**
HARTLEPOOL 1N	Hartlepool	R	A			46			14							**14**	**46**	
NEWCASTLE UPON TYNE 10N	Newcastle Upon Tyne	R	A	36	50	32	33	19	21	23	28	35	40	50	42	**19**	**50**	**34**
NEWCASTLE UPON TYNE 9N	Newcastle Upon Tyne	R	A	52	74	60	57	41		54	57	52	56	74	53	**41**	**74**	**57**
WALLSEND 3N	North Tyneside	R	A	75	36	33	23	29	36	50	31	40		65	48	**23**	**75**	**42**
WHITLEY BAY 2N	North Tyneside	R	A	63	54	40	21	23		27	33	19	29	61	52	**19**	**63**	**38**
SEDGEFIELD 1N	Sedgefield	R	A		34	33	25	18	14	10	13	12	17	34	30	**10**	**34**	**22**
SEDGEFIELD 5N	Sedgefield	R	A	28	41	29	39	12	11	34	21	27	25	34	38	**11**	**41**	**28**
EAST BOLDON 5N	South Tyneside	R	A	24	35	34	27	10	25	22	21	29		16	31	**10**	**35**	**25**
SOUTH SHIELDS 8N	South Tyneside	R	A	24	43	24	40	18	32	30	35	38	29	9	32	**9**	**43**	**30**
STOCKTON 4N	Stockton-On-Tees	R	A	50	44	58	63	60	45	60		50	49	61	52	**44**	**63**	**54**
STOCKTON 8N	Stockton-On-Tees	R	A	30	66	33	37	18	16	21		23	32	43	37	**16**	**66**	**33**
BISHOP AUCKLAND 1N	Wear Valley	R	A	48	51	46		40	42	44	59		48	58	43	**40**	**59**	**48**
BISHOP AUCKLAND 4N	Wear Valley	R	A	37	58	34	44	32	38	34	49		41	55	43	**32**	**58**	**42**

REGIONAL SUMMARY		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
	Regional Monthly Mean	39	49	39	37	28	27	33	32	33	36	46	39
	Regional Monthly Min	14	14	20	17	10	11	10	13	12	17	9	21
	Regional Monthly Max	75	80	67	63	63	46	60	59	52	56	74	53
	Regional Annual Mean	37											
	Regional Annual Min	18											
	Regional Annual Max	57											
	Number of Sites	20											
	% With Valid Annual Mean	95											

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B2.2 Urban Background Sites in the North East

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
ALNWICK 3N	Alnwick	B	A	10	33	13	12	8	7		10	8	11	21	18	**7**	**33**	**14**
ALNWICK 4N	Alnwick	B	A	9	27	15	10	7	5	5	8	7	8	23	20	**5**	**27**	**12**
DARLINGTON 3N	Darlington	B	A	16	32	21	17	15	16	12	17	17		35	28	**12**	**35**	**21**
DARLINGTON 4N	Darlington	B	A	16	31	20	17	11	12	8	11	13	22	17	40	**8**	**40**	**18**
DURHAM 3N	Durham	B	A	18	29	30	20	8	8	8	14	17	18	26	16	**8**	**30**	**18**
DURHAM 4N	Durham	B	A	24	39	24	21	13	8	7	12	16	21	32	27	**7**	**39**	**21**
GATESHEAD 7N	Gateshead	B	A	29	46	33	21	13	11	13	16	23	23	37	29	**11**	**46**	**25**
GATESHEAD 8N	Gateshead	B	A	22	41	23	16	6	10	8	14	11	15	25	25	**6**	**41**	**18**
HARTLEPOOL 3N	Hartlepool	B	A			25			7							**7**	**25**	
HARTLEPOOL 4N	Hartlepool	B	A			30			11							**11**	**30**	
NEWCASTLE UPON TYNE 5N	Newcastle Upon Tyne	B	A	28		49	24		15	13	14	19	20	35	25	**13**	**49**	**24**
NEWCASTLE UPON TYNE 6N	Newcastle Upon Tyne	B	A	21	37	18	18	10		10	10	16	18	33	27	**10**	**37**	**20**
NORTH SHIELDS 1N	North Tyneside	B	A	25	29	25	6	15	12	15	6	21	15	44	31	**6**	**44**	**20**
WHITLEY BAY 5N	North Tyneside	B	A	48	42	25	6	25	13	21	8	10	12	44	33	**6**	**48**	**24**
SEDGEFIELD 3N	Sedgefield	B	A	25	57	41	26	14	21	26	24	25	28	51	47	**14**	**57**	**32**
SEDGEFIELD 4N	Sedgefield	B	A	17	59	24	24	8	8	9	13	14	12	35	28	**8**	**59**	**21**
HEBBURN 4N	South Tyneside	B	A	24	39	20	12		12	12	14	18	21	15	31	**12**	**39**	**20**
SOUTH SHIELDS 7N	South Tyneside	B	A	22	35		15	9	14		26	27	17	18	39	**9**	**39**	**22**
STOCKTON 6N	Stockton-On-Tees	B	A	33	40	41	38	16	20	18	28	33	27	43	41	**16**	**43**	**32**
STOCKTON 7N	Stockton-On-Tees	B	A	22	43	24	24	9	13	10	14	18	22	32	30	**9**	**43**	**22**
BISHOP AUCKLAND 3N	Wear Valley	B	A	16	34	22		9	9	11	14		16	28	25	**9**	**34**	**18**
CROOK 1N	Wear Valley	B	A	14	28	18	13	8	8	9	13		17	29		**8**	**29**	**16**

REGIONAL SUMMARY		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
	Regional Monthly Mean	22	38	26	18	11	11	12	14	17	18	31	29
	Regional Monthly Min	9	27	13	6	6	5	5	6	7	8	15	16
	Regional Monthly Max	48	59	49	38	25	21	26	28	33	28	51	47
	Regional Annual Mean	21											
	Regional Annual Min	12											
	Regional Annual Max	32											
	Number of Sites	22											
	% With Valid Annual Mean	91											

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B3.1 Roadside Sites in the North West and Merseyside

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
BARROW-IN-FURNESS 1N	Barrow in Furness	R	A	24	42	32	25	12	24	22	21	28	29	5	30	**5**	**42**	**25**
BARROW-IN-FURNESS 5N	Barrow in Furness	R	A	20	29	27	34	13	20	17	28	28	32	11	32	**11**	**34**	**24**
BOLTON 1N	Bolton	R	A		48	66	45	19	20	36	18	40	41	56	35	**18**	**66**	**39**
BOLTON 9N	Bolton	R	A		55	45	43	33	48	36	47	56	50	46	46	**33**	**56**	**46**
BURNLEY 1N	Burnley	R	A	48	65	54	47	37	30		40	45	34	50	56	**30**	**65**	**46**
BURNLEY 5N	Burnley	R	A	57	69		55	46	40	45	50	57	58	62	57	**40**	**69**	**54**
CARLISLE 1N	Carlisle	R	A	38	38	57	50	33	42	36	19	36				**19**	**57**	**39**
CARLISLE 4N	Carlisle	R	A	40	44	59	31	19	34	46	38					**19**	**59**	**39**
CARLISLE 5N	Carlisle	R	A	31	59	59	40	50	59	65	31	48				**31**	**65**	**49**
CHESTER 1N	Chester	R	A	15		42		30	37		28			35	17	**15**	**42**	**29**
CHESTER 5N	Chester	R	A	21	38	46	31	24		31	34			36	19	**19**	**46**	**31**
CONGLETON 1N	Congleton	R	A	41	47	24	25	35	39	33	31		36	41	41	**24**	**47**	**36**
CONGLETON 6N	Congleton	R	A	37	46	24	25	31	36	32	33	39	32	38	48	**24**	**48**	**35**
WHITEHAVEN 1N	Copeland	R	A	33		24	23	9		14	18	18	27	12	34	**9**	**34**	**21**
WHITEHAVEN 5N	Copeland	R	A	39		8	24	15		18	21	24	11		42	**8**	**42**	**23**
ELLESMERE PORT 2N	Ellesmere Port	R	A	33	51	40	38	26	12		31	38	39	39	32	**12**	**51**	**34**
ELLESMERE PORT 7N	Ellesmere Port	R	A	35	54	33	40	32	38	31	35	43	47	46	38	**31**	**54**	**39**
MANCHESTER 1N	Manchester	R	A	105	118	78	84	68	71	65	72	76	53	61	43	**43**	**118**	**75**
MANCHESTER 6N	Manchester	R	A	73	70	76	55	39	43	29	47	64	48	53	52	**29**	**76**	**54**
OLDHAM 1N	Oldham	R	A	21	89	30	76	21	39	66	41					**21**	**89**	**48**
OLDHAM 5N	Oldham	R	A	23		23		23	22	31	18					**18**	**31**	**23**
PRESTON 1N	Preston	R	A	34	45	33	39	24	42	38	43	56	29	29	40	**24**	**56**	**38**
PRESTON 7N	Preston	R	A	35	48	40	35	28	33	27	43	54	36	21	40	**21**	**54**	**37**
ROSSENDALE 13N	Rossendale	R	A	37	36		46	32	35	37	37	53	54	46	29	**29**	**54**	**40**
ROSSENDALE 14N	Rossendale	R	A	20	14	27	43	23	28	33	31	32	39	38	17	**14**	**43**	**29**
SALFORD 14N	Salford	R	A		47	46										**46**	**47**	
CROSBY 1N	Sefton	R	A	55	75	76	63	34	46	57	49	65	68	86	67	**34**	**86**	**62**
SOUTHPORT 4N	Sefton	R	A	69	80	80	58	64	73	65	60	77		88	71	**58**	**88**	**71**
KENDAL 1N	South Lakeland	R	A	42	55	49	35	38	40	38	32	51	42		41	**32**	**55**	**42**
KENDAL 4N	South Lakeland	R	A	38	57	46	47	35	41	37	37	51	49	50	41	**35**	**57**	**44**
ST HELENS 8N	St Helens	R	A	31	36	23	36		15	27		59				**15**	**59**	**33**
ST HELENS 9N	St Helens	R	A	31	42	27	21		17	23		59				**17**	**59**	**31**
STOCKPORT 14N	Stockport	R	A	79	62	77	75	75	107	88	64	113	41	67	81	**41**	**113**	**78**
STOCKPORT 18N	Stockport	R	A	66	44	62	51	29	49	58	42	42	52	62		**29**	**66**	**51**
ASHTON 3N	Tameside	R	A	44	29	47	50	41		35	19	70	44	57	53	**19**	**70**	**44**
DUKINFIELD 1N	Tameside	R	A	29	25		18	24		30	31	48	38	44	43	**18**	**48**	**33**
TRAFFORD 1N	Trafford	R	A	37	62	20	40	22	36	18	65	36	26	39	37	**18**	**65**	**37**
TRAFFORD 6N	Trafford	R	A	51		31			27		23		42		53	**23**	**53**	**38**
WARRINGTON 1N	Warrington	R	A	69	48	61	25	38	38	46	52	74	44	52	45	**25**	**74**	**49**
ORMSKIRK 1N	West Lancashire	R	A	52		72		33		34	39	50		57	49	**33**	**72**	**48**
ORMSKIRK 6N	West Lancashire	R	A	54	67	73	60	43	46	41	52	46		67	50	**41**	**73**	**54**
LEIGH 1N	Wigan	R	A	32												**32**	**32**	
LEIGH 8N	Wigan	R	A	47												**47**	**47**	
BIRKENHEAD 1N	Wirral	R	A	16	47			18	34	19	24	37	44	63	61	**16**	**63**	**36**
PORT SUNLIGHT 1N	Wirral	R	A	31	55	49	69	40	52	53	44	57	54	64	52	**31**	**69**	**52**
DOUGLAS IOM 1N	Isle of Man	R	A	18	39	49	45	19	34	34		26	39	31	36	**18**	**49**	**34**
DOUGLAS IOM 5N	Isle of Man	R	A	19	37	21	53	34	45	45	6	9	58	42	41	**6**	**58**	**34**

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc. Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
REGIONAL SUMMARY			**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean		40	52	45	44	32	39	38	36	49	42	47	44			
	Regional Monthly Min		15	14	8	18	9	12	14	6	9	11	5	17			
	Regional Monthly Max		105	118	80	84	75	107	88	72	113	68	88	81			
	Regional Annual Mean		41														
	Regional Annual Min		21														
	Regional Annual Max		78														
	Number of Sites		47														
	% With Valid Annual Mean		94														

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B3.2 Urban Background Sites in the North West and Merseyside

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
BARROW-IN-FURNESS 3N	Barrow in Furness	B	A	14	27	18	12		7	7	9	13	12	9	23	**7**	**27**	**14**
BARROW-IN-FURNESS 4N	Barrow in Furness	B	A	8	26	15			7	6	7	9	15	8	18	**6**	**26**	**12**
BOLTON 6N	Bolton	B	A		37	28	13	17	20	13	19	22	25	35	25	**13**	**37**	**23**
BOLTON 8N	Bolton	B	A	27	80	36	26		18	15	14	19	25	35	30	**14**	**80**	**30**
BURNLEY 3N	Burnley	B	A	28	40		28	16	18	15	14	26	31	38	37	**14**	**40**	**26**
BURNLEY 4N	Burnley	B	A	29	40	25	21	16	14	16	17	27	31	37	33	**14**	**40**	**26**
CHESTER 3N	Chester	B	A	20	33	29	31	20	18	10	20			28	14	**10**	**33**	**22**
CHESTER 4N	Chester	B	A	31	34	12	30	15	17	13	21			25	12	**12**	**34**	**21**
CONGLETON 3N	Congleton	B	A	30	37	14	12	13	11	16	13	23	22	28	29	**11**	**37**	**21**
CONGLETON 4N	Congleton	B	A	22	7	19	7	5	11	10	11	19	13	18	24	**5**	**24**	**14**
WHITEHAVEN 3N	Copeland	B	A	30		11	11	4		12	11	9	31	8	19	**4**	**31**	**15**
WHITEHAVEN 4N	Copeland	B	A			8	8			4	7	5	8	4	21	**4**	**21**	**8**
ELLESMERE PORT 4N	Ellesmere Port	B	A	32	42	34	33	18	22	20	29	33	45	38	32	**18**	**45**	**32**
ELLESMERE PORT 6N	Ellesmere Port	B	A	29	42	29			12	14	20	26		34	29	**12**	**42**	**26**
MANCHESTER 3N	Manchester	B	A	54	66	66	36	24	24	26	32	38	26	50	40	**24**	**66**	**40**
MANCHESTER 5N	Manchester	B	A	52	59	68	52	40	33	29	29	42	31	38	38	**29**	**68**	**43**
OLDHAM 3N	Oldham	B	A	18	67	14		18	18							**14**	**67**	
OLDHAM 4N	Oldham	B	A	46				46	46	28						**28**	**46**	
OLDHAM 6N	Oldham	B	A	19	66	22	46	19	19		38					**19**	**66**	**33**
PRESTON 6N	Preston	B	A	21	35	28	27	16	18	15	16	31	28	35	31	**15**	**35**	**25**
PRESTON 8N	Preston	B	A		41			18	21			31	25	35	31	**18**	**41**	**29**
ROSSENDALE 15N	Rossendale	B	A	27			23	14		15	12	19	18	16	16	**12**	**27**	**18**
ROSSENDALE 16N	Rossendale	B	A	6	28	22		14	44	12	14	22		20	15	**6**	**44**	**20**
SALFORD 16N	Salford	B	A		32	22										**22**	**32**	
SALFORD 17N	Salford	B	A		21	33										**21**	**33**	
BOOTLE 2N	Sefton	B	A	48	77	50	34	23	23	22	19	40	46	70	59	**19**	**77**	**43**
CROSBY 3N	Sefton	B	A	33	59	40	29	13		33	16		36	58	47	**13**	**59**	**36**
KENDAL 2N	South Lakeland	B	A	19	33	22	17	11	12	10	12	19	20	26	27	**10**	**33**	**19**
KENDAL 3N	South Lakeland	B	A	18			14	7	9	8	8	16		29	24	**7**	**29**	**15**
ST HELENS 6N	St Helens	B	A	12	50	23	17		8	17		38				**8**	**50**	**24**
ST HELENS 7N	St Helens	B	A	21	25	19	15		6	10		31				**6**	**31**	**18**
STOCKPORT 16N	Stockport	B	A	27	20	22	17		14	17	14	18	20	25	21	**14**	**27**	**20**
STOCKPORT 17N	Stockport	B	A	25	21	24	17	8	15	17	13	34	13	27	19	**8**	**34**	**19**
DENTON 9N	Tameside	B	A	18	45	27	18	10	13	11	50	25	23	27	32	**10**	**50**	**25**
HOLLINGWORTH 5N	Tameside	B	A	13	25	11	15	10	11	12	13	17	22	23	22	**10**	**25**	**16**
TRAFFORD 4N	Trafford	B	A	28	16	26	22	17	20	13	10	16	19	28	28	**10**	**28**	**20**
TRAFFORD 5N	Trafford	B	A	24	49	26	24	14	18		14	26		32	28	**14**	**49**	**26**
WARRINGTON 3N	Warrington	B	A	37	26	35	22	7	12	15	15	27		24	29	**7**	**37**	**23**
WARRINGTON 4N	Warrington	B	A	35	30	31	26	15	14	17	30	32	26	26	18	**14**	**35**	**25**
WARRINGTON 5N	Warrington	B	A	34	14	33	29	14	19	20	12	30	28	31	23	**12**	**34**	**24**
ORMSKIRK 3N	West Lancashire	B	A	31	56	45	32	13	19	18	21	34		61	48	**13**	**61**	**34**
ORMSKIRK 5N	West Lancashire	B	A	18	43	27	24	15	12	15	18	22		45	35	**12**	**45**	**25**
LISCARD 4N	Wirral	B	A	18	23	39	34	10	22	16	15	22	25	50	40	**10**	**50**	**26**
WALLASEY 9N	Wirral	B	A	27	26	29	38	5	25	18	13	30	31	42	47	**5**	**47**	**28**
DOUGLAS IOM 3N	Isle of Man	B	A	5	19	15	17				16	41		24	21	**5**	**41**	**20**
DOUGLAS IOM 4N	Isle of Man	B	A	6		17	19	7	11	11	5	7	9	12	12	**5**	**19**	**11**

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Site Name	Local Authority	Loc.	Status	Nitrogen Dioxide Concentrations 2003 (ug m^{-3}) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
REGIONAL SUMMARY				**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean			25	38	27	24	15	17	15	17	25	24	31	28			
	Regional Monthly Min			5	7	8	7	4	6	4	5	5	8	4	12			
	Regional Monthly Max			54	80	68	52	46	46	33	50	42	46	70	59			
	Regional Annual Mean			24														
	Regional Annual Min			8														
	Regional Annual Max			43														
	Number of Sites			46														
	% With Valid Annual Mean			91														

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B4.1 Roadside Sites in Yorkshire and the Humber

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
BARNSLEY 1N	Barnsley	R	A	40	74	44	39	28	27	30		27	38	48	52	27	74	41
BARNSLEY 7N	Barnsley	R	A	61	53	54	56	44	40	51	46	56	58	61	71	40	71	54
BRADFORD 1N	Bradford	R	A	57	75	61	61	69	54	61	76	57	54	67	52	52	76	62
BRADFORD 5N	Bradford	R	A	71	86			94	76	90	107	88	75	75	73	71	107	83
HALIFAX 5N	Calderdale	R	A	44	71	67	54	55	44	50	48	48	50	50	54	44	71	53
HEBDEN BRIDGE 1N	Calderdale	R	A	36	50		40	34	36	34	38	38	42	54	48	34	54	41
HULL 1N	Kingston Upon Hull	R	A	57	95	65	55	44	45	40	53	50	57	66	62	40	95	57
HULL 8N	Kingston Upon Hull	R	A		69	57	59	60	62	59	54	67			64	54	69	61
YORK 1N	City of York Council	R	A	22	65	32	51	15	23	25	16	41	51	73	58	15	73	39
YORK 6N	City of York Council	R	A	31	35	19	47	12	22	9		30	21	50	36	9	50	28
DONCASTER 1N	Doncaster	R	A	61	75		77		63	68		37	37		44	37	77	58
DONCASTER 6N	Doncaster	R	A	67	62		58		58	51		74	68	65	66	51	74	63
BRIDLINGTON 1N	East Riding of Yorkshire	R	A	34	44	40	43	27	31	27	30	33	26	49	42	26	49	35
BRIDLINGTON 5N	East Riding of Yorkshire	R	A	31	42	40	50	30	25	25	24		26	49	44	24	50	35
GOOLE 1N	East Riding of Yorkshire	R	A	47						32			36		41	32	47	
GOOLE 8N	East Riding of Yorkshire	R	A	72						40	48		52		60	40	72	
NORTHALLERTON 1N	Hambleton	R	A	41		42	40	36	37	37	40	40	50			36	50	40
NORTHALLERTON 6N	Hambleton	R	A	48	58	45	47	31	41		45	50	47		55	31	58	47
HARROGATE 1N	Harrogate	R	A	25	41		12	31	12	37	7	51	25	59	58	7	59	33
HARROGATE 6N	Harrogate	R	A	25	44		15	27	16	27	13	31	21	37	35	13	44	26
KNARESBOROUGH 1N	Harrogate	R	A	42	33					35	24	47	44		47	24	47	39
BIRSTALL X 5N	Kirklees	R	A	143	132	93	59	169	53	92	28	162	87	203	135	28	203	113
HUDDERSFIELD X 1N	Kirklees	R	A	47	55	44	25	37	29	28	20	45	39	65	53	20	65	41
LEEDS 5N	Leeds	R	A	61	78	65	57	38	59	46	50	55	50			38	78	56
GREAT GRIMSBY 17N	NE Lincolnshire	R	A	34	15	46	25	19	29	21	27	25	34			15	46	28
GREAT GRIMSBY 1N	NE Lincolnshire	R	A	33	36	19	21	46	52	38	36	57	34			19	57	37
BRIGG 1N	North Lincolnshire	R	A	35	40	27	28									27	40	
BRIGG 5N	North Lincolnshire	R	A	39	43	47	39									39	47	
RICHMOND N.YORKS 2N	Richmondshire	R	A	22					26	28	33	27	21	34	29	21	34	28
RICHMOND N.YORKS 7N	Richmondshire	R	A	20						13	20	13	21	30	28	13	30	21
RICHMOND N.YORKS 8N	Richmondshire	R	A	20					21	14	15	20	20	33	28	14	33	21
ROTHERHAM 5N	Rotherham	R	A	49	55	59	49	59	46	48	49	55		64	60	46	64	54
ROTHERHAM 7N	Rotherham	R	A		62	59	49	32	36	36	45	47	54	51	49	32	62	47
MALTON 10N	Ryedale	R	A		72	67	57	48	53	58	54	65	54	65	65	48	72	60
MALTON 1N	Ryedale	R	A		68	59	56	50	56	51	59	59	48	64	56	48	68	57
SELBY 7N	Selby	R	A	46	64	57	52	32			67	49		63	70	32	70	56
CASTLEFORD 1N	Wakefield	R	A	65	83	71	59	45	48	52	25	64	55	64	61	25	83	58
WAKEFIELD 1N	Wakefield	R	A	50	68	68	55	38	50	48	22	64	53	63	56	22	68	53

REGIONAL SUMMARY		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Regional Monthly Mean	46	61	52	46	45	41	41	39	51	44	62	55
	Regional Monthly Min	20	15	19	12	12	12	9	7	13	20	30	28
	Regional Monthly Max	143	132	93	77	169	76	92	107	162	87	203	135
	Regional Annual Mean	48											
	Regional Annual Min	21											
	Regional Annual Max	113											
	Number of Sites	38											
	% With Valid Annual Mean	89											

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B4.2 Urban Background Sites in Yorkshire and the Humber

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
BARNSLEY 4N	Barnsley	B	A	36	49	39	33	18	18	18	23	31	35	45	46	**18**	**49**	**33**
BARNSLEY 6N	Barnsley	B	A	42	53	43	37	21	24	24	30	34	38	51	53	**21**	**53**	**38**
BRADFORD 3N	Bradford	B	A	23	44	27	27	38	21	21	25	27	23	34	38	**21**	**44**	**29**
BRADFORD 4N	Bradford	B	A	15	33	23	23	31	12	15	17	19		59	33	**12**	**59**	**25**
ELLAND 4N	Calderdale	B	A	29	52	40	38	25	23	21	25	31	34	34	42	**21**	**52**	**33**
HALIFAX 2N	Calderdale	B	A	23	52	34	29	21	23	19	23	25	33	40	36	**19**	**52**	**30**
HULL 5N	Kingston Upon Hull	B	A	29	46	31	24	17	18	15	12	26	22	43	37	**12**	**46**	**27**
HULL 6N	Kingston Upon Hull	B	A	27	40	26	17		14	17	14	24	19	41	35	**14**	**41**	**25**
YORK 3N	City of York Council	B	A	41	31	14	20		6	9		31	15	47	30	**6**	**47**	**24**
YORK 5N	City of York Council	B	A	25	42	15			7		5	40	22	41	28	**5**	**42**	**25**
DONCASTER 4N	Doncaster	B	A	39	43		32		27	24		62	60	61	61	**24**	**62**	**46**
BRIDLINGTON 3N	East Riding of Yorkshire	B	A	27	33	29	22	15	13	13	10	22	16	34	33	**10**	**34**	**22**
BRIDLINGTON 4N	East Riding of Yorkshire	B	A	21	36	23	22	15	15	12	12	21	16		33	**12**	**36**	**20**
GOOLE 5N	East Riding of Yorkshire	B	A	40						19	20		27		41	**19**	**41**	
GOOLE 6N	East Riding of Yorkshire	B	A	39						20	19		28		37	**19**	**39**	
NORTHALLERTON 4N	Hambleton	B	A	24	31	20	22	9		48	15		23		39	**9**	**48**	**26**
NORTHALLERTON 5N	Hambleton	B	A	25	36	23	19	11	12	15	15	20	22		41	**11**	**41**	**22**
HARROGATE 3N	Harrogate	B	A	16	42		13	22	7	17	6	26	14	35	32	**6**	**42**	**21**
HARROGATE 5N	Harrogate	B	A	32	35		8	12	5	22		21	13	34	25	**5**	**35**	**21**
HARROGATE 7N	Harrogate	B	A	41	51		16	27	11	18	6	28	16		42	**6**	**51**	**26**
HUDDERSFIELD X 3N	Kirklees	B	A	38	38	36	11	23	8	20	8	35	26	47	37	**8**	**47**	**27**
HUDDERSFIELD X 4N	Kirklees	B	A	37	37	21	11	21	8	20	8	28	23	48	44	**8**	**48**	**26**
LEEDS 3N	Leeds	B	A	42	52	42			46	27	25	38	36	52	54	**25**	**54**	**41**
GREAT GRIMSBY 3N	NE Lincolnshire	B	A	40	29	38	17	17	23	13	19	31	15			**13**	**40**	**24**
GREAT GRIMSBY 4N	NE Lincolnshire	B	A	4	19	23	25	13	19	4	15	25	31			**4**	**31**	**18**
BRIGG 3N	North Lincolnshire	B	A	21	25	20	16									**16**	**25**	
KILLINGHOLME 4N	North Lincolnshire	B	A	29	41	28	26									**26**	**41**	
RICHMOND N.YORKS 6N	Richmondshire	B	A	18					5	5	11	9	8	24	25	**5**	**25**	**13**
ROTHERHAM 3N	Rotherham	B	A	42	59	48	38	36	29	26	31	42	43		57	**26**	**59**	**41**
ROTHERHAM 6N	Rotherham	B	A		45	52	33	24	25	24	29	37	34		48	**24**	**52**	**35**
MALTON 8N	Ryedale	B	A		39	20	17	11	11	15	12	19	23	45	26	**11**	**45**	**22**
MALTON 9N	Ryedale	B	A		42	24	19	16	13	17	12		21	42	55	**12**	**55**	**26**
SELBY 3N	Selby	B	A	23	50	30	26	20	16		19	24	29	47	45	**16**	**50**	**30**
SELBY 9N	Selby	B	A	21	45	27	23	14	13		17	22	26	44	25	**13**	**45**	**25**
PONTEFRACT 1N	Wakefield	B	A	45	69	43	37	24	26	25	11	19	42	57	57	**11**	**69**	**38**
WAKEFIELD 3N	Wakefield	B	A	43	59	40	37	28	28	29	7	37	39	48	52	**7**	**59**	**37**

REGIONAL SUMMARY		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
	Regional Monthly Mean	30	42	30	24	20	17	19	16	28	26	44	40
	Regional Monthly Min	4	19	14	8	9	5	4	5	9	8	24	25
	Regional Monthly Max	45	69	52	38	38	46	48	31	62	60	61	61
	Regional Annual Mean	28											
	Regional Annual Min	13											
	Regional Annual Max	46											
	Number of Sites	36											
	% With Valid Annual Mean	89											

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B5.1 Roadside Sites in the East Midlands

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
ASHFIELD 7N	Ashfield	R	A	65	79	67	51	63	62	62	58	69	61	61	70	**51**	**79**	**64**
ASHFIELD 8N	Ashfield	R	A	60	68	60	59	54	52	50	52	62	47	68	67	**47**	**68**	**58**
DUNHAM 1N	Bassetlaw	R	A	36	40	42	37	41	37	35	35	51	37	41	69	**35**	**69**	**42**
RETFORD 1N	Bassetlaw	R	C	36	40											**36**	**40**	
WORKSOP 7N	Bassetlaw	R	A	41	45	42	35	32	35	34	41	47	44	52	78	**32**	**78**	**44**
BLABY 1N	Blaby	R	A	56	50	47	37	34	34	44	44	47				**34**	**56**	**44**
BLABY 5N	Blaby	R	A	52	54	46	44	35	39	40	52	53	46			**35**	**54**	**46**
BOLSOVER 5N	Bolsover	R	A	37	56	55	52	35	33	27	41			52	51	**27**	**56**	**44**
BOLSOVER 6N	Bolsover	R	C								28					**28**	**28**	
BOSTON 1N	Boston	R	A	50	52		33	31	58	54	25	56	26		54	**25**	**58**	**44**
BOSTON 6N	Boston	R	A	30	37		40	35	47	41	46	47	16		41	**16**	**47**	**38**
BROXTOWE 1N	Broxtowe	R	A	37	56	50	43	37	40	40	41	50	45	52	39	**37**	**56**	**44**
BROXTOWE 5N	Broxtowe	R	A	38	54	42	38	31	36	25	28	46	39	42	42	**25**	**54**	**39**
LOUGHBOROUGH 1N	Charnwood	R	A	71	82	80	66	80	61	73	77	77	67	77	62	**61**	**82**	**73**
LOUGHBOROUGH 7N	Charnwood	R	A	43	61	55	44	41	35	27	35	39	37	39	42	**27**	**61**	**41**
CORBY 1N	Corby	R	A		38	36	54	24		29	47	47				**24**	**54**	**39**
CORBY 5N	Corby	R	A		45	37	41	30		23	30	45				**23**	**45**	**36**
DERBY 7N	Derby City	R	A	19	31	61	41	46	25	39	45	56	47	50		**19**	**61**	**42**
DERBY 8N	Derby City	R	A	83		77	27	24	28	26	34	32	39	49		**24**	**83**	**42**
MATLOCK 5N	Derbyshire Dales	R	A	52	54	48	41	38	41			50		52	46	**38**	**54**	**47**
MATLOCK 9N	Derbyshire Dales	R	A	45	60	55	52	37	41			52	49	59	46	**37**	**60**	**49**
RUSHDEN 1N	East Northamptonshir	R	A	42	50	53	47	40	42	41	47	50	34	44	43	**34**	**53**	**44**
RUSHDEN 5N	East Northamptonshir	R	A	31	38	22	20	12	23	15	18	19	26	37	35	**12**	**38**	**25**
LONG EATON 1N	Erewash	R	A	52	42	44	37	38		40	42	33	39	49	42	**33**	**52**	**42**
LONG EATON 5N	Erewash	R	A	60	49		30	31	27	31	30	39	31	47	36	**27**	**60**	**37**
ARNOLD 1N	Gedling	R	A	62	63	50	42	31	37	26	34	48	35	67	56	**26**	**67**	**46**
ARNOLD 3N	Gedling	R	A	70	80	39	37	59	42	38	47	68	62	75	57	**37**	**80**	**56**
HARBOROUGH 1N	Harborough	R	A	31	50	40	33	26	50	40	59	61	54	55	44	**26**	**61**	**45**
HARBOROUGH 5N	Harborough	R	A	42				44	17		72	65	55	59	50	**17**	**72**	**51**
BUXTON DERBYSHIRE 1N	High Peak	R	A	37	29	49	41	33	39	40	32	36	36	35	42	**29**	**49**	**37**
DOVE HOLES 1N	High Peak	R	A	17	25	12	22	27	14	27	18	12	14	30	30	**12**	**30**	**21**
HINCKLEY 1N	Hinckley & Bosworth	R	A	21		38	36	38	34	34				33		**21**	**38**	**34**
HINCKLEY 7N	Hinckley & Bosworth	R	A	21	25	12	25	34	27	27	33	42	34	40		**12**	**42**	**29**
KETTERING 1N	Kettering	R	A			24	49	36	32	25	27	49		63		**24**	**63**	**38**
LEICESTER 1N	Leicester City	R	A	38	65	34	34	23	38	21	19	38	48		50	**19**	**65**	**37**
LEICESTER 6N	Leicester City	R	A	25	46		21	8	15	6	15	19	36		34	**6**	**46**	**23**
LINCOLN 3N	Lincoln	R	A	39	48	53	30	51	50	52	40	45	45		45	**30**	**53**	**45**
LINCOLN 6N	Lincoln	R	A	39	41	31	42	28	33	39	29	47	47		45	**28**	**47**	**38**
MANSFIELD 1N	Mansfield	R	A	39	49	49	39	29	30	34	31	49	44	49	32	**29**	**49**	**39**
MANSFIELD 5N	Mansfield	R	A	36	47	38	36	22	21	32	32			52		**21**	**52**	**35**
NEWARK 1N	Newark	R	A	55	56	48	43	35		37	38	52	44	61	54	**35**	**61**	**48**
NEWARK 5N	Newark	R	A	55	52	39	35	28	27	29	28	42	37		51	**27**	**55**	**38**
NORTH HYKEHAM 1N	North Kesteven	R	A	33	48			23	40	33	43	45			37	**23**	**48**	**38**
NORTH HYKEHAM 6N	North Kesteven	R	A	29	29			18	33	25	13	50			38	**13**	**50**	**29**
COALVILLE 10N	NW Leicestershire	R	A	38	41	25	39	31	20	20	37	43	29	41	40	**20**	**43**	**34**
COALVILLE 1N	NW Leicestershire	R	A	44	53			26	34	28	42	33	33	43	35	**26**	**53**	**37**
NORTHAMPTON 1N	Northampton	R	A	34	19	46	37	16	32	12	46		28	58	57	**12**	**58**	**35**
NORTHAMPTON 7N	Northampton	R	A	55	41	47	32	19	29		44	16	35	63	52	**16**	**63**	**40**
NOTTINGHAM 1N	Nottingham	R	A		76	46	29	17	12	25		34	31	31	34	**12**	**76**	**33**
SWADLINCOTE 7N	South Derbyshire	R	A	20	44	39	49	7	28	32	25	34	30	49		**7**	**49**	**33**
SWADLINCOTE 8N	South Derbyshire	R	A	21	53	20	53	14	34	31	27	37	35	48		**14**	**53**	**34**
SPALDING 2N	South Holland	R	A	20	25	20	12	9	14	13	12	20	20	10	23	**9**	**25**	**17**
SPALDING 7N	South Holland	R	A	27	32	16	16	9	17	16	16	23	23	14	28	**9**	**32**	**20**

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
GRANTHAM 11N	South Kesteven	R	A	34	55	48	41	26	58	42	56	52		53	43	**26**	**58**	**46**
GRANTHAM SK 50N	South Kesteven	R	A	35	50	44	47	46	97	52	59	71		43	44	**35**	**97**	**53**
STAMFORD 1N	South Kesteven	R	A	29	33	39	35	23	35	34	36	38		25	32	**23**	**39**	**33**
STAMFORD 31N	South Kesteven	R	A	20	39	34	23	15	24		30	36			35	**15**	**39**	**28**
WELLINGBOROUGH 10N	Wellingborough	R	A		42	15	9	14	16	22	17	14	34	52	46	**9**	**52**	**26**
WELLINGBOROUGH 1N	Wellingborough	R	A		33	43			26	30	33	11	29	55	42	**11**	**55**	**34**

REGIONAL SUMMARY		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
	Regional Monthly Mean	40	47	42	38	31	35	33	37	43	38	48	45
	Regional Monthly Min	17	19	12	9	7	12	6	12	11	14	10	23
	Regional Monthly Max	83	82	80	66	80	97	73	77	77	67	77	78
	Regional Annual Mean	39											
	Regional Annual Min	17											
	Regional Annual Max	73											
	Number of Sites	59											
	% With Valid Annual Mean	97											

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B5.2 Urban Background Sites in the East Midlands

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
ASHFIELD 2N	Ashfield	B	A	42	55	46	37	27	29	27	33	38	44	47	50	**27**	**55**	**40**
ASHFIELD 4N	Ashfield	B	A	45	57	47	43	31	32	33	34	37	38	49	49	**31**	**57**	**41**
RETFORD 2N	Bassetlaw	B	A	31	33	29		23	19	17	24	29	27	42	44	**17**	**44**	**29**
WORKSOP 8N	Bassetlaw	B	A			33		23	25	22	23	34	33	46	68	**22**	**68**	**34**
BLABY 3N	Blaby	B	A	43	48	39	26	21	22	19	24	33	35			**19**	**48**	**31**
BLABY 4N	Blaby	B	A	46	54	41	35		23	20	22	34	38			**20**	**54**	**35**
BOLSOVER 3N	Bolsover	B	A	24	37	30	23	14	13	16	17	24	26	40	41	**13**	**41**	**25**
BOLSOVER 4N	Bolsover	B	A	32	42	38	29	21	21	24	24	34	34	43	44	**21**	**44**	**32**
BOSTON 3N	Boston	B	A	22	35		16	9	18	11	17	21	15		31	**9**	**35**	**19**
BOSTON 5N	Boston	B	A	20	28		14	13	14	10	10	21			20	**10**	**28**	**17**
BROXTOWE 3N	Broxtowe	B	A	37	42	32	25	22	23	27	38	38	31	43	29	**22**	**43**	**32**
BROXTOWE 6N	Broxtowe	B	A	38	46	39	33	30	32	33	31	44	40	52	37	**30**	**52**	**38**
LOUGHBOROUGH 4N	Charnwood	B	A	31	43		26	20	16	15	23	32	31	36	33	**15**	**43**	**28**
LOUGHBOROUGH 5N	Charnwood	B	A	28	40	28	17	17	14	16	21	28	26	33	32	**14**	**40**	**25**
CORBY 3N	Corby	B	A		33	26	16	17		15	18	28				**15**	**33**	**22**
CORBY 4N	Corby	B	A		45	36	36	29		25	27	37				**25**	**45**	**34**
DERBY 5N	Derby City	B	A	16	61	37	25	17	19	20	24	34	27	32		**16**	**61**	**28**
DERBY 6N	Derby City	B	A	25	30	19	22	12	9	17	19	27	23	28		**9**	**30**	**21**
MATLOCK 7N	Derbyshire Dales	B	A	22	37	27	21	11	13			22	23	35	30	**11**	**37**	**24**
MATLOCK 8N	Derbyshire Dales	B	A	21	38	26	17	12	14			21	23	36	27	**12**	**38**	**24**
RUSHDEN 3N	East Northamptonshire	B	A	25	31	15	13	11	13	12	13	20	21	32	30	**11**	**32**	**20**
RUSHDEN 4N	East Northamptonshire	B	A	16	29	16	21	8	12	14	15	16		33	27	**8**	**33**	**19**
LONG EATON 3N	Erewash	B	A	21	42	27	21	18	19	22	23	35	27	33	35	**18**	**42**	**27**
LONG EATON 4N	Erewash	B	A	41	36	32	21	16	17	19	17	25	22	34	37	**16**	**41**	**26**
CARLTON 3N	Gedling	B	A	44	53	35	24	18	22	17	25	32	44	55	44	**17**	**55**	**34**
CARLTON 4N	Gedling	B	A	35	47	22	23	17	12	13	15	33	32	48	39	**12**	**48**	**28**
HARBOROUGH 3N	Harborough	B	A	19	17	23	15	6	13	10	12	15	19		23	**6**	**23**	**16**
HARBOROUGH 4N	Harborough	B	A	19		13	21	12	8	10	12		21	29	34	**8**	**34**	**18**
BUXTON DERBYSHIRE 4N	High Peak	B	A	10	22	19	20		15	12	17	13	15	16	20	**10**	**22**	**16**
GLOSSOP 3N	High Peak	B	A	17	36	25	10	13	11	8	12	16	15	22	21	**8**	**36**	**17**
HINCKLEY 5N	Hinckley & Bosworth	B	A	27	29	27		13	12	13	13	29	23	31		**12**	**31**	**22**
HINCKLEY 6N	Hinckley & Bosworth	B	A	12	19	25	15	13	13	12	17	29	21	33		**12**	**33**	**19**
KETTERING 3N	Kettering	B	A				24			11	13	24		47		**11**	**47**	
KETTERING 4N	Kettering	B	A			11	37		13	12	7	29		35		**7**	**37**	**21**
LEICESTER 3N	Leicester City	B	A	25	40	23	21	8		12	17	27	19		31	**8**	**40**	**22**
LEICESTER 5N	Leicester City	B	A		59	25	10	12		4	15	17	25		33	**4**	**59**	**22**
LINCOLN 4N	Lincoln	B	A	20	40	21	18	11	18	17	20	19	19		27	**11**	**40**	**21**
LINCOLN 5N	Lincoln	B	A	24	35	19	18	9	12	10	19	20	20		28	**9**	**35**	**19**
MANSFIELD 4N	Mansfield	B	A	23	30	27					8	24	26	38	13	**8**	**38**	**23**
NEWARK 3N	Newark	B	A	39	45	26	31	15	18	18	24	30	33	40	38	**15**	**45**	**30**
NEWARK 4N	Newark	B	A	28	39		22	14	15	16	16	28	24	29	37	**14**	**39**	**24**
NORTH HYKEHAM 3N	North Kesteven	B	A	25	36			10		17	12	26			30	**10**	**36**	**22**
NORTH HYKEHAM 4N	North Kesteven	B	A	20	29			11	15	15	35	23			25	**11**	**35**	**22**
COALVILLE 6N	NW Leicestershire	B	A	26	37	29		19	19		14	31	29	40	30	**14**	**40**	**27**
COALVILLE 9N	NW Leicestershire	B	A		31	16	15		16		22	28	20	29	31	**15**	**31**	**23**
NORTHAMPTON 3N	Northampton	B	A	22	34	29	20	7	10		13	34	15	43	38	**7**	**43**	**24**
NORTHAMPTON 5N	Northampton	B	A	29	18	28	27		10	10	24	31	21	47	35	**10**	**47**	**25**
NOTTINGHAM 3N	Nottingham	B	A	23	23	33	27	17	15	19	13	31	25	34	29	**13**	**34**	**24**
NOTTINGHAM 4N	Nottingham	B	A	15	13	25	15	6	6	8	8	19	13	10	8	**6**	**25**	**12**
SWADLINCOTE 5N	South Derbyshire	B	A	21	55		19	12	13	11	15	23	23	34		**11**	**55**	**23**
SWADLINCOTE 9N	South Derbyshire	B	A	23	29	24	19		10	10	13	18	17	26		**10**	**29**	**19**
SPALDING 5N	South Holland	B	A	23	30		13	9		9	13	12	12	19	26	**9**	**30**	**17**
SPALDING 6N	South Holland	B	A	19	27	10	14	10	12	12	11	18	18	22	24	**10**	**27**	**16**

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
GRANTHAM 13N	South Kesteven	B	A	24		14	34	11	15	12	14	22		38	27	**11**	**38**	**21**
GRANTHAM 14N	South Kesteven	B	A	21	31	23	16	11	15	16		21		21	27	**11**	**31**	**20**
STAMFORD 13N	South Kesteven	B	A		29	20	9		15	13	15	22		18	29	**9**	**29**	**19**
STAMFORD 24N	South Kesteven	B	A	28	33	15	12	15	20	20	15	25		29	32	**12**	**33**	**22**
WELLINGBOROUGH 3N	Wellingborough	B	A		34	23	11	9	6	6	12			43	17	**6**	**43**	**18**
WELLINGBOROUGH 4N	Wellingborough	B	A		27	40		7	8	12	15	9	30	40	35	**7**	**40**	**22**

REGIONAL SUMMARY		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Regional Monthly Mean	26	36	27	22	15	16	15	18	26	25	35	32
	Regional Monthly Min	10	13	10	9	6	6	4	7	9	12	10	8
	Regional Monthly Max	46	61	47	43	31	32	33	38	44	44	55	68
	Regional Annual Mean	24											
	Regional Annual Min	12											
	Regional Annual Max	41											
	Number of Sites	59											
	% With Valid Annual Mean	98											

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B6.1 Roadside Sites in the West Midlands

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
BIRMINGHAM 534N	Birmingham	R	A	52	43	52	46	54	68	62	50	43	53	60	30	**30**	**68**	**51**
BIRMINGHAM 536N	Birmingham	R	A	56	59	46	45	44	56	49		45			52	**44**	**59**	**50**
BIRMINGHAM 538N	Birmingham	R	A	43	60	48	57	59	90	80	60	74	76	69	61	**43**	**90**	**65**
BRIDGNORTH 1N	Bridgnorth	R	A	50	60	53	55	42	46			55	56	54	55	**42**	**60**	**53**
BRIDGNORTH 5N	Bridgnorth	R	A	34	53	46	44	30	35			42	45	42	42	**30**	**53**	**41**
BROMSGROVE 1N	Bromsgrove	R	A	44	33	44	33		41	31	38	54	41	48	49	**31**	**54**	**41**
BROMSGROVE 5N	Bromsgrove	R	A	40	35	44	46	30	36	29	37	46	44	44	31	**29**	**46**	**38**
COVENTRY 1N	Coventry	R	A	47	60	56	54	52	49	43	41	63	48	58	46	**41**	**63**	**51**
COVENTRY 6N	Coventry	R	A	46	63	51	47	56	49	43	54	60	51	46	21	**21**	**63**	**49**
DUDLEY 5N	Dudley	R	A	41	54	47	44	28	33	37	37	51	48	43	46	**28**	**54**	**43**
DUDLEY 9N	Dudley	R	A			61	47	39	43	50	43	58	47	60	46	**39**	**61**	**49**
BURTON 1N	East Staffordshire	R	A	37	21	69	46	45	40	29	35	41	51	41	42	**21**	**69**	**41**
BURTON 6N	East Staffordshire	R	A	39	66	36	31	43	34	28	34	41	43	41	47	**28**	**66**	**40**
HEREFORD 1N	Herefordshire	R	A	42	44	44	52	40	44			54	45	53	46	**40**	**54**	**46**
HEREFORD 7N	Herefordshire	R	A	50	50	54	55	42	59	42	52	68	50	68	44	**42**	**68**	**53**
LEOMINSTER 5N	Leominster	R	A	36	40	50	52	43	48	37	40	53	42	41	38	**36**	**53**	**43**
LEOMINSTER 6N	Leominster	R	A	38	42	46	50	55	52	47	47	65	48	52	44	**38**	**65**	**49**
MALVERN 5N	Malvern Hills	R	A	34	39	32	37	30	31	25	33	46	39	41	35	**25**	**46**	**35**
MALVERN 6N	Malvern Hills	R	A	30	46	48	48	33	35	30	43	47	39	42	37	**30**	**48**	**40**
NEWCASTLE UNDER LYME 1N	Newcastle Under Lyme	R	A		54	37	29	45	25	33	20	38	41	49	56	**20**	**56**	**39**
NEWCASTLE UNDER LYME 8N	Newcastle Under Lyme	R	A		50	35	32	30	22	22	33	39	37	39	42	**22**	**50**	**35**
NORTH WARWICKSHIRE 1N	North Warwickshire	R	A	42	55	54	46	41	43	39	47	56	44	15	45	**15**	**56**	**44**
NORTH WARWICKSHIRE 5N	North Warwickshire	R	A	40	45		32	25	27	24		41	33			**24**	**45**	**33**
NUNEATON 1N	Nuneaton	R	A	50	63	55	50	37	50	39	43	56	60	50	45	**37**	**63**	**50**
NUNEATON 5N	Nuneaton	R	A	43	58	53	52	41	51	37	53	56	58	56	48	**37**	**58**	**50**
OSWESTRY 1N	Oswestry	R	A	33	48	47	41	30		34						**30**	**48**	**39**
OSWESTRY 6N	Oswestry	R	A	29	32	45	40	29	32	29	32					**29**	**45**	**34**
REDDITCH 5N	Redditch	R	A	53	59	57	47	35	48	48	47	39	34			**34**	**59**	**47**
SANDWELL 5N	Sandwell	R	A	30	47	43		28	24	29						**24**	**47**	**34**
SANDWELL 8N	Sandwell	R	A	38	57	58		29	20	33						**20**	**58**	**39**
ROSS-ON-WYE 1N	South Herefordshire	R	A	42	42	40	52	30	38	35	42	62	48	44	46	**30**	**62**	**43**
ROSS-ON-WYE 6N	South Herefordshire	R	A	36	55	55	54	31		33		46	39	50	33	**31**	**55**	**43**
CODSALL 2N	South Staffordshire	R	A	39	37	41	26	25	23	23	27	30	28	36	37	**23**	**41**	**31**
CODSALL 9N	South Staffordshire	R	A	32	51	48		19	22	23	37	44	32	36	37	**19**	**51**	**35**
STAFFORD 7N	Stafford	R	A				38	21				36	46	19	13	**13**	**46**	**29**
LEEK 5N	Staffordshire Moorlands	R	A									44	32	53		**32**	**53**	
STOKE ON TRENT 1N	Stoke-On-Trent	R	A	39	49	35	23		38	29	39	45	43	53		**23**	**53**	**39**
STOKE ON TRENT 6N	Stoke-On-Trent	R	A	53	51	47	37	34	49	45	46	42	49	62		**34**	**62**	**47**
TAMWORTH 1N	Tamworth	R	A	30	40	35	19	26	39	33	30	39	30	51	42	**19**	**51**	**35**
WALSALL 1N	Walsall	R	A		96	14	50	52	32	72	81	88	51	70		**14**	**96**	**61**
WALSALL 8N	Walsall	R	A		98	13	52	54	78	50	78	102		51		**13**	**102**	**64**
LEAMINGTON SPA 1N	Warwick	R	A	53	70	40	46	38	46	35	47	61	58	44	49	**35**	**70**	**49**
LEAMINGTON SPA 6N	Warwick	R	A		69	60	63	43	48	52	50	68	63	41	59	**41**	**69**	**56**
BILSTON 1N	Wolverhampton	R	A	54	73	65	72	41	61	49	69	70	60	48	30	**30**	**73**	**58**
WOLVERHAMPTON 10N	Wolverhampton	R	A	53	64	59	51	41	48		53	53	54	52	22	**22**	**64**	**50**
WOLVERHAMPTON 5N	Wolverhampton	R	A	44	68	57	61	34	51	44	54	56	58	58	29	**29**	**68**	**51**
WOLVERHAMPTON 9N	Wolverhampton	R	A	50	46	53	47	32	46	45	41	59	48	55	27	**27**	**59**	**46**
WORCESTER 1N	Worcester	R	A	91	66	74	74	48		64	74	69	66	63	53	**48**	**91**	**68**
PERSHORE 1N	Wychavon	R	A	28	46	37	37	20	31	31	29	42	37		36	**20**	**46**	**34**
PERSHORE 5N	Wychavon	R	A	33	45	38	23	24	32	32	27	39	39		37	**23**	**45**	**34**
KIDDERMINSTER 1N	Wyre Forest	R	A	43	67	61	61	49	47	44	57	58	60	61	54	**43**	**67**	**55**
KIDDERMINSTER 8N	Wyre Forest	R	A	35	44	31	38	29	32	29	37	45	39	42	40	**29**	**45**	**37**

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Site Name	Local Authority	Loc. Status	Nitrogen Dioxide Concentrations 2003 (ug m^{-3}) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
REGIONAL SUMMARY			**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean		43	53	47	45	37	42	39	45	53	47	49	41			
	Regional Monthly Min		28	21	13	19	19	20	22	20	30	28	15	13			
	Regional Monthly Max		91	98	74	74	59	90	80	81	102	76	70	61			
	Regional Annual Mean		45														
	Regional Annual Min		29														
	Regional Annual Max		68														
	Number of Sites		52														
	% With Valid Annual Mean		98														

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B6.2 Urban Background Sites in the West Midlands

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc. Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
BIRMINGHAM 524N	Birmingham	B A	29	36	30	18	16	21	18	28	20	32	34	49	**16**	**49**	**28**
BIRMINGHAM 528N	Birmingham	B A	29	29	30	24	17	20	15	19	29	29	34	31	**15**	**34**	**26**
BRIDGNORTH 3N	Bridgnorth	B A	16		23	20	10	11			17	12	29	28	**10**	**29**	**18**
BRIDGNORTH 4N	Bridgnorth	B A	24	44	27	23	13	14			23	12	15	31	**12**	**44**	**23**
BROMSGROVE 3N	Bromsgrove	B A	34	4	24	30	18	23	19	29	41	31	35	36	**4**	**41**	**27**
BROMSGROVE 4N	Bromsgrove	B A	31	27	25	26	15	18	17	25	26	28	34	36	**15**	**36**	**26**
COVENTRY 3N	Coventry	B A	31	43	33	29	18	18	18	27	31	31	38	17	**17**	**43**	**28**
COVENTRY 5N	Coventry	B A	31	52		31	18	20	17	35	31	33	41	14	**14**	**52**	**29**
DUDLEY 6N	Dudley	B A	26	41	31	24	14	16	14	19	24	28	33	34	**14**	**41**	**25**
DUDLEY 8N	Dudley	B A	24	37	32	26	13	15	13	18	24	26	33	29	**13**	**37**	**24**
BURTON 3N	East Staffordshire	B A	35	38	19	11	21	10	7	14	20		35	29	**7**	**38**	**22**
BURTON 4N	East Staffordshire	B A	21	42	26	13	22	13	9	13	22	16	39	31	**9**	**42**	**22**
HEREFORD 3N	Herefordshire	B A	19	25	4	19	17		20	14	21	22	28	26	**4**	**28**	**20**
HEREFORD 6N	Herefordshire	B A	8	15		13	8	9	7	10	18	16	23	20	**7**	**23**	**14**
LEOMINSTER 4N	Leominster	B A	4	17	12	17	9	8	9	11	15	15	21	16	**4**	**21**	**13**
WEOBLEY 3N	Leominster	B A	4	6	6	13	5	6	5	8	9	12	18	16	**4**	**18**	**9**
MALVERN 3N	Malvern Hills	B A	14	29	17	19	8	8	8	13	18	20	25	21	**8**	**29**	**17**
MALVERN 4N	Malvern Hills	B A	9	24	9	17	7	9	7	11	12	16	25	21	**7**	**25**	**14**
NEWCASTLE UNDER LYME 4N	Newcastle Under Lyme	B A		53	21	12	15	9	15	16	28	24	67	36	**9**	**67**	**27**
NEWCASTLE UNDER LYME 7N	Newcastle Under Lyme	B A		39	18	17	13	16	11	12		21	29	38	**11**	**39**	**21**
NORTH WARWICKSHIRE 3N	North Warwickshire	B A	39	44	43	25	39	35	30	36	46	35	44	33	**25**	**46**	**37**
NORTH WARWICKSHIRE 4N	North Warwickshire	B A	30	33		19	19	17	16	21	30	25	31	25	**16**	**33**	**24**
NUNEATON 3N	Nuneaton	B A	30	45	32	28	18	21	17	22	35	29	38	31	**17**	**45**	**29**
NUNEATON 4N	Nuneaton	B A	36	44	30	24	17	20	19	23	37	34	40	30	**17**	**44**	**30**
OSWESTRY 3N	Oswestry	B A	13	50	19	15	7	8	7	10					**7**	**50**	**16**
OSWESTRY 5N	Oswestry	B A	18	27	22	18	8	10	9	16					**8**	**27**	**16**
REDDITCH 1N	Redditch	B A	20	34	23	20	9	13	11	19	26	19			**9**	**34**	**19**
REDDITCH 2N	Redditch	B A	7	45	34	28	18	19	18	30	33	27			**7**	**45**	**26**
SANDWELL 3N	Sandwell	B A	29	41	40		28	28	19						**19**	**41**	**31**
SANDWELL 7N	Sandwell	B A	33	46	43		21	19	22						**19**	**46**	**31**
ROSS-ON-WYE 3N	South Herefordshire	B A	15	17	19	21	12	14	13	19	22	19	25	23	**12**	**25**	**18**
CODSALL 6N	South Staffordshire	B A	26	54	24	20	14	17	16	20	29	33	39	32	**14**	**54**	**27**
CODSALL 8N	South Staffordshire	B A	27	54	33	18	13	19	18	25	27		33	33	**13**	**54**	**27**
STAFFORD 3N	Stafford	B A				17	17					18	19	30	**17**	**30**	
STAFFORD 4N	Stafford	B A				17	24				24	29	26	32	**17**	**32**	**25**
LEEK 3N	Staffordshire Moorlands	B A									15	20	28		**15**	**28**	
LEEK 6N	Staffordshire Moorlands	B A									16	20	27		**16**	**27**	
STOKE ON TRENT 4N	Stoke-On-Trent	B A	24	41	27	14	14	10	14	15	25	26	33		**10**	**41**	**22**
STOKE ON TRENT 5N	Stoke-On-Trent	B A	22	33		11	12	14	13	15	41	23	25		**11**	**41**	**21**
TAMWORTH 3N	Tamworth	B A	23	40	14	14	13	18	18	18	28	26	32	33	**13**	**40**	**23**
TAMWORTH 6N	Tamworth	B A	17	41	19	25	14	19	15	17	30	20	24	33	**14**	**41**	**23**
WALSALL 6N	Walsall	B A		60	42		23	39	26	38		43	49		**23**	**60**	**40**
WALSALL 7N	Walsall	B A		57	20	28		78	28	34	48	53	59		**20**	**78**	**45**
LEAMINGTON SPA 4N	Warwick	B A	32	44	20	20	14	15	14	23	26	28	36	32	**14**	**44**	**25**
LEAMINGTON SPA 5N	Warwick	B A	38	51	23	24	19	23	18	25	30	36	38	41	**18**	**51**	**31**
BILSTON 3N	Wolverhampton	B A	38	55	37	42	23		26	28	40	35	41	29	**23**	**55**	**36**
BILSTON 4N	Wolverhampton	B A	33	49	40	33	21	26	21	30	37	32	48	28	**21**	**49**	**33**
WOLVERHAMPTON 3N	Wolverhampton	B A			26	26	12	14	14	21	22	29	29	27	**12**	**29**	**22**
WOLVERHAMPTON 8N	Wolverhampton	B A	28	47	34	32	15	21	17	24	32	30	46	24	**15**	**47**	**29**
WORCESTER 3N	Worcester	B A	20	35	34	34	16		17	20	33	30	40	37	**16**	**40**	**29**
WORCESTER 4N	Worcester	B A	20	37	30	30	13			16	24	56	31	28	**13**	**56**	**29**
PERSHORE 3N	Wychavon	B A	25	36	28		15	20	20	23	30	34		35	**15**	**36**	**27**
PERSHORE 4N	Wychavon	B A	24	32		20	12	14	14	16	19			28	**12**	**32**	**20**

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
KIDDERMINSTER 4N	Wyre Forest	B	A	23	35	27	27	10	13	11	19	26	27	32	29	**10**	**35**	**23**
KIDDERMINSTER 6N	Wyre Forest	B	A	23	43	25	20	9	13	12		20	26	28	26	**9**	**43**	**22**

REGIONAL SUMMARY		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Regional Monthly Mean	24	38	26	22	15	18	16	21	27	27	34	29
	Regional Monthly Min	4	4	4	11	5	6	5	8	9	12	15	14
	Regional Monthly Max	39	60	43	42	39	78	30	38	48	56	67	49
	Regional Annual Mean	25											
	Regional Annual Min	9											
	Regional Annual Max	45											
	Number of Sites	55											
	% With Valid Annual Mean	95											

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B7.1 Roadside Sites in Wales

				Nitrogen Dioxide Concentrations 2003 (ug m^{-3})														
Site Name	**Local Authority**	**Loc.**	**Status**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Min**	**Max**	**Mean**
BRYNMAWR 2N	Blaenau Gwent	R	A	12	34	29	26	16	20	19	25	26	27	28	31	**12**	**34**	**24**
BRYNMAWR 4N	Blaenau Gwent	R	A	10	34	23	24	19	28	24	24	33	28	29	34	**10**	**34**	**26**
BRIDGEND 5N	Bridgend	R	A		55	53	40	52	40	46	43	58	46		23	**23**	**58**	**46**
BLACKWOOD 1N	Caerphilly	R	A	43	40	55		95						58	48	**40**	**95**	**56**
CAERPHILLY 5N	Caerphilly	R	A	42	60	62	68	41						61	53	**41**	**68**	**55**
CAERPHILLY 8N	Caerphilly	R	A	29		41	21	28						54	42	**21**	**54**	**36**
RHYMNEY 1N	Caerphilly	R	A	17										33	28	**17**	**33**	**26**
CARDIFF 1N	Cardiff County	R	A	54	59	94	78	44						95	81	**44**	**95**	**72**
CARDIFF 5N	Cardiff County	R	A	40	43	49	41	37						57	48	**37**	**57**	**45**
ABERYSTWYTH 1N	Cardiganshire	R	A	39	71											**39**	**71**	
ABERYSTWYTH 6N	Cardiganshire	R	A	29	42											**29**	**42**	
COLWYN BAY 1N	Conwy	R	A	14	20	35	37	16	22	17	32	26	23	23	31	**14**	**37**	**25**
LLANDUDNO 5N	Conwy	R	A	15	11	13	21	6	9	6	14	14	14	14	18	**6**	**21**	**13**
LLANDUDNO 6N	Conwy	R	A	11	12	18	20	6	6	6	12	9	15	17	16	**6**	**20**	**12**
RHYL 1N	Denbighshire County	R	A		36	48	36	21	32	35	21	40	30	26	36	**21**	**48**	**33**
RHYL 6N	Denbighshire County	R	A	29	46	8	47	21	29	41	28	55	33	37	15	**8**	**55**	**33**
MOLD 5N	Flintshire County	R	A	12	33	34	28	26		27	25	34	29	30	29	**12**	**34**	**28**
SHOTTON CLWYD 1N	Flintshire County	R	A	38	26	29	25	24	32	25	26	37	35	35	24	**24**	**38**	**30**
MERTHYR 1N	Merthyr Tydfil	R	A	25		36								50	53	**25**	**53**	
MERTHYR 5N	Merthyr Tydfil	R	A	23	27	36	48	14						51	49	**14**	**51**	**35**
ABERGAVENNY 1N	Monmouthshire	R	C	29	42		27	19								**19**	**42**	
CHEPSTOW 1N	Monmouthshire	R	C	36		48		34								**34**	**48**	
MONMOUTH 1N	Monmouthshire	R	A	44	62	46	43	41	37	35	36	50	43	60	53	**35**	**62**	**46**
NEATH 1N	Neath & Port Talbot	R	A	46	53	55	41	48	48	43	41	50	48	54	53	**41**	**55**	**48**
PONTARDAWE 1N	Neath & Port Talbot	R	A	38	41	41	32	31	42		36	34		43	38	**31**	**43**	**38**
PORT TALBOT 1N	Neath & Port Talbot	R	A	48	51	49	38	40	30	40	37	43	44	53	46	**30**	**53**	**43**
NEWPORT GWENT 5N	Newport	R	A	57	74	72	66	55	60		69	65	59	79	75	**55**	**79**	**67**
NEWPORT GWENT 8N	Newport	R	A	62	75	68	65	40	57	56	65	62	63	75	52	**40**	**75**	**62**
HAVERFORDWEST 1N	Pembrokeshire	R	A	30	38	33	33	27	29		32	32	32	34	35	**27**	**38**	**32**
HAVERFORDWEST 8N	Pembrokeshire	R	A	48	40	44	41	58	58		50	50	43	50	44	**40**	**58**	**48**
PEMBROKE 11N	Pembrokeshire	R	A	41	52	55	58	63	67		57	63	47	49	40	**40**	**67**	**54**
PEMBROKE 15N	Pembrokeshire	R	A	20	26	28	24	22	23	21	24	23	24	23	25	**20**	**28**	**24**
CRICKHOWELL 1N	Powys	R	A	37	39	38	40	29	24	44	36	47	39			**24**	**47**	**37**
LLANDRINDOD WELLS 1N	Powys	R	A	21	34	22	19	19	17		19	21	21		21	**17**	**34**	**21**
LLANDRINDOD WELLS 8N	Powys	R	A	22	24	29	15	17	12		19	23	23			**12**	**29**	**20**
NEWTOWN 1N	Powys	R	A	21	52	72	91	36	47	49	43	102	50	54	45	**21**	**102**	**55**
WELSHPOOL 1N	Powys	R	A	11	31	28	48	17	18	23	27	37	25	26	26	**11**	**48**	**26**
WELSHPOOL 5N	Powys	R	A	14	30	41	35	13	27	23	30	51	26	20	27	**13**	**51**	**28**
WELSHPOOL 6N	Powys	R	A	11	29	35	49	16	23	21	16		24	20	24	**11**	**49**	**24**
PONTYPRIDD 1N	Rhondda Cynon Taff	R	A	35				32	33			41	41	48		**32**	**48**	**39**
TREORCHY 1N	Rhondda Cynon Taff	R	A	33	46	23		24	32	38	26	34		40	38	**23**	**46**	**33**
SWANSEA 1N	Swansea	R	A		73	88	68	56	46	65	60	72	78	76	67	**46**	**88**	**68**
SWANSEA 5N	Swansea	R	A		72	71	48	22	42	41	46	59	77	55	46	**22**	**77**	**53**
BARRY 1N	Vale of Glamorgan	R	A	38	53	52	32	25							50	**25**	**53**	
RHUR CROSS 1N	Vale of Glamorgan	R	A	20	34	45	31	19						45	40	**19**	**45**	

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc. Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
REGIONAL SUMMARY			**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean		30	43	44	41	31	33	32	34	43	37	45	40			
	Regional Monthly Min		10	11	8	15	6	6	6	12	9	14	14	15			
	Regional Monthly Max		62	75	94	91	95	67	65	69	102	78	95	81			
	Regional Annual Mean		38														
	Regional Annual Min		12														
	Regional Annual Max		72														
	Number of Sites		45														
	% With Valid Annual Mean		84														

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B7.2 Urban Background Sites in Wales

				Nitrogen Dioxide Concentrations 2003 (ug m^{-3})														
Site Name	**Local Authority**	**Loc.**	**Status**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Min**	**Max**	**Mean**
BEAUFORT 1N	Blaenau Gwent	B	A	8	24	15	12	7	8	9	9	12	18	28	37	**7**	**37**	**16**
BRYNMAWR 1N	Blaenau Gwent	B	A	12	39	20	20	10	19	13	15	19	23	35	25	**10**	**39**	**21**
BRIDGEND 3N	Bridgend	B	A		30	25	18	12	10	10	13	19	23		41	**10**	**41**	**20**
BRIDGEND 4N	Bridgend	B	A		41	33			12		19	25	37		34	**12**	**41**	**29**
BARGOED 3N	Caerphilly	B	A	18	30	26	17							35	24	**17**	**35**	**25**
CAERPHILLY 7N	Caerphilly	B	A	20	20	18	18							37		**18**	**37**	
CROESPENMAEN 3N	Caerphilly	B	A	4	29	23	8							17	18	**4**	**29**	**16**
CWMCARN 4N	Caerphilly	B	A	16	27	27								29	24	**16**	**29**	
CARDIFF 3N	Cardiff County	B	A	36	39	36	20							45	35	**20**	**45**	**35**
CARDIFF 6N	Cardiff County	B	A	39	59	54	38							62	57	**38**	**62**	**52**
ABERYSTWYTH 3N	Cardiganshire	B	A	15	24											**15**	**24**	
ABERYSTWYTH 5N	Cardiganshire	B	A	23	41											**23**	**41**	
COLWYN BAY 4N	Conwy	B	A	12	17	14	18	4	6	9	12	11	16	14	14	**4**	**18**	**12**
RHYL 4N	Denbighshire County	B	A	14	29	16	18	7	11	8	13	15	18	16	36	**7**	**36**	**17**
RHYL 5N	Denbighshire County	B	A	17	13	24	17	4	11	25	14	17	13	17	15	**4**	**25**	**16**
ASTON CLWYD 2N	Flintshire County	B	A	16	34	28	18	11	18	14	19	19	24	23	22	**11**	**34**	**21**
SHOTTON CLWYD 4N	Flintshire County	B	A	18		12	14	9	14	13	8	11		29	23	**8**	**29**	**15**
MERTHYR 3N	Merthyr Tydfil	B	A	19	36	31	34	13						39	32	**13**	**39**	**29**
MERTHYR 4N	Merthyr Tydfil	B	A	15	22	26	21	5						35	35	**5**	**35**	**23**
MAGOR 2N	Monmouthshire	B	C	19	34	30	23	11								**11**	**34**	
NEATH 3N	Neath & Port Talbot	B	A	33	29	34	25	21	21	11	33	27	28	39	34	**11**	**39**	**28**
NEATH 4N	Neath & Port Talbot	B	A	21	29	20	12	8	18	23	11	14	18	24	25	**8**	**29**	**19**
PORT TALBOT 3N	Neath & Port Talbot	B	A	24	29	28	18	16	8		21	22	25	31	27	**8**	**31**	**23**
PORT TALBOT 4N	Neath & Port Talbot	B	A	31	37	30	21	21	15	19	19	22	24	31	29	**15**	**37**	**25**
NEWPORT GWENT 4N	Newport	B	A	23	41	29	20	14	19	18	19	25	28	36	34	**14**	**41**	**26**
NEWPORT GWENT 6N	Newport	B	A	33	41	29	24	21	23	20	23	27	31	38	37	**20**	**41**	**29**
HAVERFORDWEST 3N	Pembrokeshire	B	A	14	22	17	13	11	15		13	12	12	11	19	**11**	**22**	**14**
HAVERFORDWEST 9N	Pembrokeshire	B	A	10	16	13	9	7	9	55	7	8	11	15	13	**7**	**55**	**14**
PEMBROKE 13N	Pembrokeshire	B	A	12	16	16	12	7	10		12	11	16	18	16	**7**	**18**	**13**
PEMBROKE 14N	Pembrokeshire	B	A	12	17	14	11	7	11		10	9	14	16	15	**7**	**17**	**12**
BRECON 4N	Powys	B	A	13	22	15	13	7	7	9	10	13				**7**	**22**	**12**
CRICKHOWELL 3N	Powys	B	A	12	6	14	13	6	7	10	9	12	14			**6**	**14**	**10**
LLANDRINDOD WELLS 4N	Powys	B	A	11	16	11	12	5	6		10	10	15	6	14	**5**	**16**	**10**
LLANDRINDOD WELLS 7N	Powys	B	A	10	17	12	10	6	6		8	8	13	4	14	**4**	**17**	**10**
NEWTOWN 3N	Powys	B	A		21	24	25		8	6	7				19	**6**	**25**	**16**
NEWTOWN 4N	Powys	B	A	6	20	24	18		8	7	7	8	15	46	17	**6**	**46**	**16**
WELSHPOOL 3N	Powys	B	A	6	20	23	14		7	4		7	12	13	15	**4**	**23**	**12**
WELSHPOOL 4N	Powys	B	A			18	19	4	7	6	6	5	12	10	16	**4**	**19**	**10**
PENDERYN 1N	Rhondda Cynon Taff	B	A	12	26	12	17	5	6	7	6	10	14	16	18	**5**	**26**	**13**
PONTYPRIDD 8N	Rhondda Cynon Taff	B	A	20		24	11	10	12	17	16			28	31	**10**	**31**	**19**
SWANSEA 3N	Swansea	B	A		47	54	33		21	21	23	32	43	51	45	**21**	**54**	**37**
SWANSEA 4N	Swansea	B	A		31	29	18	7	7	9	11	14	27	24	29	**7**	**31**	**19**
BARRY 6N	Vale of Glamorgan	B	A	11	35	20	20	7						46	14	**7**	**46**	**22**
BARRY 7N	Vale of Glamorgan	B	A	19	27	32	7	9						31	30	**7**	**32**	**22**

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc. Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
REGIONAL SUMMARY			**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean		17	28	24	18	9	12	14	13	15	20	28	26			
	Regional Monthly Min		4	6	11	7	4	6	4	6	5	11	4	13			
	Regional Monthly Max		39	59	54	38	21	23	55	33	32	43	62	57			
	Regional Annual Mean		20														
	Regional Annual Min		10														
	Regional Annual Max		52														
	Number of Sites		44														
	% With Valid Annual Mean		89														

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B8.1 Roadside Sites in the Eastern Region

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
SUDBURY 1N	Babergh	R	A	41	52	38	30	29	28	27	23	29	35	48	46	**23**	**52**	**35**
SUDBURY 4N	Babergh	R	A	54	63	51	42	49	50	54	50	54		62	64	**42**	**64**	**54**
BEDFORD 5N	Bedford	R	A	46	65				41	44	48	48	37	18	34	**18**	**65**	**42**
BRAINTREE 1N	Braintree	R	A	52	54			18	37		28	40	42	44	50	**18**	**54**	**40**
BRAINTREE 5N	Braintree	R	A	32	39			17	24		23	32	33	42	38	**17**	**42**	**31**
BROADLAND 1N	Broadland	R	A	34						21						**21**	**34**	
THORPE 1N	Broadland	R	A	30	25	25	12	17		10	19					**10**	**30**	**20**
CHESHUNT 1N	Broxbourne	R	A	32	51				39	37	46	55	44		43	**32**	**55**	**44**
CHESHUNT 5N	Broxbourne	R	A	34					58	46	57	37	57		54	**34**	**58**	**49**
WALTHAM CROSS 1N	Broxbourne	R	A	44						59	84	54	57		67	**44**	**84**	**61**
WALTHAM CROSS 4N	Broxbourne	R	A	36	68				51	43	46	69	49		50	**36**	**69**	**51**
WORMLEY 1N	Broxbourne	R	A	30						32	39	59	35		39	**30**	**59**	**39**
CAMBRIDGE 1N	Cambridge	R	A	64	75	76	67	53	60	57	64	71	53	76	60	**53**	**76**	**65**
CAMBRIDGE 5N	Cambridge	R	A	55	64	57	49	39	44	39	36	56	35	45	52	**35**	**64**	**48**
CHELMSFORD 1N	Chelmsford	R	A	48	71	36	52	36	42	29	25	29	36	46	17	**17**	**71**	**39**
COLCHESTER 5N	Colchester	R	A	68	80	59	55	62	80	59	46	62	35	64	39	**35**	**80**	**59**
COLCHESTER 9N	Colchester	R	A	62	101	28	41	58	70	9	28	44	49	36	51	**9**	**101**	**48**
ELY CAMBS 1N	East Cambridgeshire	R	A	44	40	34	34	27	30	28	27	37	39	46	46	**27**	**46**	**36**
ELY CAMBS 5N	East Cambridgeshire	R	A	51	58	37	41	31	32	30	30	40	41	60	36	**30**	**60**	**41**
HERTFORD 1N	East Hertfordshire	R	A	57	55	19	34	25	17	23	29	23	36	54	17	**17**	**57**	**33**
HERTFORD 5N	East Hertfordshire	R	A	55	61	17	23	31	33	34	23	33	48	54	33	**17**	**61**	**37**
EPPING 1N	Epping Forest	R	A	32	46	44	41	25	45	50	53	49	43		43	**25**	**53**	**43**
EPPING 5N	Epping Forest	R	A	41	44	43	41	32	50	45	59	37	45	13	51	**13**	**59**	**42**
NEWMARKET 1N	Forest Heath	R	A			37			17				27		46	**17**	**46**	
NEWMARKET 7N	Forest Heath	R	A		29	51	34	21	46			29	34	50	36	**21**	**51**	**37**
HARLOW 1N	Harlow	R	A	55	63		39	38	27	37	31	48	43	64	55	**27**	**64**	**45**
BOREHAMWOOD 1N	Hertsmere	R	A	92	82	61	69	94	44	63	61	84	78	88	88	**44**	**94**	**75**
POTTERS BAR 1N	Hertsmere	R	A	78	69	59	54		40	44	52	73	52	97	71	**40**	**97**	**63**
ST NEOTS 1N	Huntingdon	R	A	36	70	52	51	55	48	51	48	67	51	59	46	**36**	**70**	**53**
ST NEOTS 5N	Huntingdon	R	A	50	51	35	30	27	29	31	31	34	41	22	43	**22**	**51**	**35**
IPSWICH 1N	Ipswich	R	A	44	57	48		48	48	44		49	50		43	**43**	**57**	**48**
IPSWICH 5N	Ipswich	R	A	29	53	42	20	42	32		42	38	33		31	**20**	**53**	**36**
IPSWICH 6N	Ipswich	R	A	39	69	37	54	37		42	51	60		25	36	**25**	**69**	**45**
BIGGLESWADE 1N	Mid Bedfordshire	R	A	45	59	57	57	35	44	41	45	58	55	47		**35**	**59**	**49**
HITCHIN 8N	North Hertfordshire	R	A		77	52	60	47	51	50	47	59		28	62	**28**	**77**	**53**
LETCHWORTH 1N	North Hertfordshire	R	A		49	39	46	35	32	38	35	44		55	27	**27**	**55**	**40**
CROMER 1N	North Norfolk	R	A	32	54	37	37	36	36	42	37	50	36	49	39	**32**	**54**	**40**
NORTH WALSHAM 8N	North Norfolk	R	A	44	48	46	39	29	27	29	35	44	36	52	42	**27**	**52**	**39**
PETERBOROUGH 1N	Peterborough	R	A		82	60	60	41	50	43	50	58	65	65	69	**41**	**82**	**58**
PETERBOROUGH 5N	Peterborough	R	A	34	64	43	35	30	37	28	30	38	43	56	47	**28**	**64**	**41**
DUNSTABLE 5N	South Bedfordshire	R	A	52	76	65	62	54	58	52	57	60	80	64	62	**52**	**80**	**62**
DUNSTABLE 6N	South Bedfordshire	R	A	47	83	55	44	56	55	46	60	70	72	63	57	**44**	**83**	**59**
HISTON 5N	South Cambridgeshire	R	A	46	67	49	44	55	54	46	39	55	43	61	45	**39**	**67**	**50**
SAWSTON 1N	South Cambridgeshire	R	A	49	65	49	42	44	46	43	40	53	47	62	45	**40**	**65**	**49**
ST ALBANS 1N	St Albans	R	A	50	52	50	37	33	38	41	32	54	43	53	42	**32**	**54**	**44**
BURY ST EDMUNDS 8N	St Edmundsbury	R	A	53	71	56	51	47	47	43	42	55	53	53	58	**42**	**71**	**52**
BURY ST EDMUNDS 9N	St Edmundsbury	R	A	49	64	52	48	43	14	42	46	53		60	57	**14**	**64**	**48**
STEVENAGE 1N	Stevenage	R	A	40	52	26	31		36	23	40	32	31	28	41	**23**	**52**	**35**
FELIXSTOWE 1N	Suffolk Coastal	R	A	45	61	41	38	36	35	41	27	40	41			**27**	**61**	**41**
FELIXSTOWE 8N	Suffolk Coastal	R	A	58	60	43	39	38	37	40	33	41	42	52		**33**	**60**	**44**
RICKMANSWORTH 1N	Three Rivers	R	A	42	59	35			15	19	30	29	40	59	51	**15**	**59**	**38**
RICKMANSWORTH 5N	Three Rivers	R	A	49	56	42	37		41	47	35	49	51	62	53	**35**	**62**	**47**
GRAYS 1N	Thurrock	R	A	63	78	68	63	50	50	47	51	69	59	64	62	**47**	**78**	**60**

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
GRAYS 5N	Thurrock	R	A	61	67	56		76	74	78	70	79	76	67	78	**56**	**79**	**71**
SAFFRON WALDEN 1N	Uttlesford	R	A		50	42	33	35	26			46	34	35	50	**26**	**50**	**39**
WATFORD 5N	Watford	R	A	55	65	60	48	37	49	47	54	61	55	84	59	**37**	**84**	**56**

REGIONAL SUMMARY	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	48	61	46	43	40	41	40	42	50	46	53	48
Regional Monthly Min	29	25	17	12	17	14	9	19	23	27	13	17
Regional Monthly Max	92	101	76	69	94	80	78	84	84	80	97	88

Regional Annual Mean	46
Regional Annual Min	20
Regional Annual Max	75
Number of Sites	56
% With Valid Annual Mean	96

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B8.2 Urban Background Sites in the Eastern Region

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
CAPEL ST MARY 1N	Babergh	B	A	36	58	34	32	27	22	21	17	25	27	49	46	**17**	**58**	**33**
SUDBURY 3N	Babergh	B	A	33	36	24	21	20	17	16	11	22	26	43	36	**11**	**43**	**25**
BEDFORD 8N	Bedford	B	A	32	41	28	22		15	15	17	17	16	34	30	**15**	**41**	**24**
BEDFORD 9N	Bedford	B	A	29	46	24	15		11	13	15	15	17	34	30	**11**	**46**	**23**
BRAINTREE 4N	Braintree	B	A	25	31			18	20		15	29	24	31	28	**15**	**31**	**25**
BRAINTREE 6N	Braintree	B	A	33	41			21	21		16	32	25	38	34	**16**	**41**	**29**
BROADLAND 3N	Broadland	B	A	18	28	28	12	12	14		8					**8**	**28**	**17**
BROADLAND 4N	Broadland	B	A	19	23	23	9	7	15	13						**7**	**23**	**16**
HODDESDON 2N	Broxbourne	B	A	20	32	18				12	13		21		28	**12**	**32**	**21**
HODDESDON 3N	Broxbourne	B	A	26	40	26					12	33	26		30	**12**	**40**	**28**
WALTHAM CROSS 3N	Broxbourne	B	A	31	47	20				35	28	44	30		41	**20**	**47**	**34**
CAMBRIDGE 3N	Cambridge	B	A	40	53	41	32	27	25	23	25	40	41	54	48	**23**	**54**	**37**
CAMBRIDGE 4N	Cambridge	B	A	40	56	40	31	22		24	20	38	39	39	48	**20**	**56**	**36**
CHELMSFORD 3N	Chelmsford	B	A	42	54	23	25	21	19	17	15	27	33	38	23	**15**	**54**	**28**
CHELMSFORD 5N	Chelmsford	B	A	38	40	15	23	17	15	19	12	29	31	33	21	**12**	**40**	**24**
COLCHESTER 7N	Colchester	B	A	34	23	18	18	21	17	18	18	20	24	33	18	**17**	**34**	**22**
COLCHESTER 8N	Colchester	B	A	28	32	18	20	22	19	14	15	28	25	28	30	**14**	**32**	**23**
ELY CAMBS 3N	East Cambridgeshire	B	A	27	37	23	19	14	13	15	12	21	26	44	35	**12**	**44**	**24**
ELY CAMBS 4N	East Cambridgeshire	B	A	33	41	27	24	18	18	16	16	23	29	43	32	**16**	**43**	**27**
HERTFORD 3N	East Hertfordshire	B	A	48	44	6	13	12	23	15	12	17	17	50	19	**6**	**50**	**23**
HERTFORD 4N	East Hertfordshire	B	A	25	38	17	12	19	15	17	8	19	19	48	25	**8**	**48**	**22**
EPPING 3N	Epping Forest	B	A	27	44	22	25	14	21	19	19	37	28	32	35	**14**	**44**	**27**
EPPING 4N	Epping Forest	B	A	29	38	24	26	17	25	26	19	48	32	14	36	**14**	**48**	**28**
BRANDON 4N	Forest Heath	B	A		12	38	6	6	15			10	12	29	31	**6**	**38**	**18**
NEWMARKET 3N	Forest Heath	B	A		20	24	14	10				17	34	25	31	**10**	**34**	**22**
HARLOW 3N	Harlow	B	A	48	54	41	36	29	18	32	23	39	38	54	51	**18**	**54**	**39**
HARLOW 5N	Harlow	B	A	39	54	42	28	29	22	30	18	36	40	59	54	**18**	**59**	**38**
BOREHAMWOOD 3N	Hertsmere	B	A	57	67	27	29	17	21	17	23	44	42	82	57	**17**	**82**	**40**
BOREHAMWOOD 4N	Hertsmere	B	A	55	65	19	29	25	19	17	19	38	34	48	42	**17**	**65**	**34**
ST NEOTS 3N	Huntingdon	B	A	41	40	34	23	16	21	20	19	30	34	45	43	**16**	**45**	**31**
ST NEOTS 4N	Huntingdon	B	A	38	42	30	23	17	20	20	17	30	32	46	32	**17**	**46**	**29**
IPSWICH 3N	Ipswich	B	A	28	42	36	31	36	29	26	26	37	36	27	37	**26**	**42**	**33**
IPSWICH 4N	Ipswich	B	A	22	36	19	20	19	16	11		28	26	11	26	**11**	**36**	**21**
HITCHIN 5N	North Hertfordshire	B	A		56	40	13	20	18	19	20	28		44	44	**13**	**56**	**30**
LETCHWORTH 6N	North Hertfordshire	B	A		52	33	13	20	18	21	19	27		56	41	**13**	**56**	**30**
CROMER 6N	North Norfolk	B	A	15	37	19	20	12	12	12	11	19	19	25	24	**11**	**37**	**19**
NORTH WALSHAM 7N	North Norfolk	B	A	22	40	19	20	15	14	13	12	21	22	32	29	**12**	**40**	**21**
PETERBOROUGH 3N	Peterborough	B	A	29	49	32		14		19			32			**14**	**49**	**29**
PETERBOROUGH 4N	Peterborough	B	A	30	38	31	22	20	21	20	18	29	29	27	35	**18**	**38**	**27**
DUNSTABLE 3N	South Bedfordshire	B	A	19	41	24	22	15	13	13	14	20	27	31	32	**13**	**41**	**23**
DUNSTABLE 4N	South Bedfordshire	B	A	26	48	33	27	23	19	16	18	29	40	31	35	**16**	**48**	**29**
HISTON 3N	South Cambridgeshire	B	A	29	48	29	22	18	22	22	15	32	25	48	41	**15**	**48**	**29**
SAWSTON 2N	South Cambridgeshire	B	A	32	45	27	22	18	16	26	17	26	24	41	33	**16**	**45**	**27**
ST ALBANS 5N	St Albans	B	A	30	50	63	31	25	30	24	22	36	32	65	30	**22**	**65**	**37**
ST ALBANS 6N	St Albans	B	A	29	39	23	23	21	22	18	12	35	27	39	29	**12**	**39**	**26**
BURY ST EDMUNDS 7N	St Edmundsbury	B	A	33	44	29	23	21	17	16	17	25	30	42	40	**16**	**44**	**28**
HAVERHILL 7N	St Edmundsbury	B	A	29	49	22	18	17	17	15	12	18		43	35	**12**	**49**	**25**
STEVENAGE 3N	Stevenage	B	A	17	30	19	14	10	15	9	12	21	19	26		**9**	**30**	**17**
STEVENAGE 4N	Stevenage	B	A	30	44	32	19	14	19	15	16	34	26	26	24	**14**	**44**	**25**
FELIXSTOWE 5N	Suffolk Coastal	B	A	39	59	37		29	19	24	14	29	27	30		**14**	**59**	**31**
FELIXSTOWE 9N	Suffolk Coastal	B	A	36	52	33	29	25	21	22	16	27	29	42		**16**	**52**	**30**
RICKMANSWORTH 3N	Three Rivers	B	A	35	53	23	18		14	18	13	32	31	49	44	**13**	**53**	**30**
RICKMANSWORTH 6N	Three Rivers	B	A	40	50	31	20		16	12	12	36	30	49	43	**12**	**50**	**31**

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
GRAYS 3N	Thurrock	B	A	45	54	42	37	30	31	29	27	31	39	43	44	**27**	**54**	**38**
GRAYS 4N	Thurrock	B	A	38	45		28	24	25	22	25	29	31	36	37	**22**	**45**	**31**
SAFFRON WALDEN 3N	Uttlesford	B	A		19	19	12	9	13	12	7	13	21	15	25	**7**	**25**	**15**
STANSTED 4N	Uttlesford	B	A		23	15	15	13	12	14	11	25	21	19		**11**	**25**	**17**
WATFORD 4N	Watford	B	A	33	41	27	28	16	18	19			29	34	34	**16**	**41**	**28**
WATFORD 7N	Watford	B	A	56	71	38	33	24	26	24	30	39	38		43	**24**	**71**	**38**

REGIONAL SUMMARY		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Regional Monthly Mean	33	43	28	22	19	19	19	17	28	28	39	35
	Regional Monthly Min	15	12	6	6	6	11	9	7	10	12	11	18
	Regional Monthly Max	57	71	63	37	36	31	35	30	48	42	82	57
	Regional Annual Mean	27											
	Regional Annual Min	15											
	Regional Annual Max	40											
	Number of Sites	59											
	% With Valid Annual Mean	100											

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B9.1 Roadside Sites in London

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
BARKING 1N	Barking	R	A	49	70	71	70	50	65	64	52			19	63	**19**	**71**	**57**
BARKING 6N	Barking	R	A	65	71	73	75	55	89	77	76			20	51	**20**	**89**	**65**
BARNET 5N	Barnet	R	A	31		33	46	27	41	35	49	56	44	25		**25**	**56**	**39**
BARNET 8N	Barnet	R	A	44		60	70	50	77	69	67	77	54	29		**29**	**77**	**60**
BRENT 55N	Brent	R	A	43	102	93	86	86	92	60	92					**43**	**102**	**82**
BRENT 56N	Brent	R	A	49	65	76	48	43	71	5	62					**5**	**76**	**53**
LONDON CITY 38N	City of London	R	A	55	53	49	52	40	56	37	70	56	50	49	51	**37**	**70**	**51**
LONDON CITY 39N	City of London	R	A	70	51	81	89	73	114	95	56	98	91	27	80	**27**	**114**	**77**
EALING 1N	Ealing	R	A	57		72	69	47	56	51	63	64	51	67	53	**47**	**72**	**59**
EALING 5N	Ealing	R	A	58	76	68	59	52	52	59	63	65	49	68	45	**45**	**76**	**60**
ENFIELD 1N	Enfield	R	A	46	63	36	69	46	44	42	44		63	67	74	**36**	**74**	**54**
ENFIELD 5N	Enfield	R	A	48	57	29	54	48	40	57	48	59	53	66	74	**29**	**74**	**53**
GREENWICH 34N	Greenwich	R	A	44	56	49	45	33	46	44	37	46	54	35	52	**33**	**56**	**45**
GREENWICH 35N	Greenwich	R	A	64	77	78	71	60	97	76	78	97	67	38	75	**38**	**97**	**73**
HACKNEY 1N	Hackney	R	A	66					42	40	99	87	32	107	79	**32**	**107**	**69**
HARINGEY 1N	Haringey	R	A	82	96		62		60	92	77	67	62	60	88	**60**	**96**	**75**
HARINGEY 5N	Haringey	R	A	56	42	52	46		97	66	59	97	49	63	61	**42**	**97**	**63**
HAVERING 1N	Havering	R	A	82	99	66	73	68	54	50	58	80	75	85	79	**50**	**99**	**72**
HAVERING 5N	Havering	R	A	77	77	62	55	45	34	39	44	66	61	81	75	**34**	**81**	**60**
HILLINGDON 1N	Hillingdon	R	A	28	50	37	42	31	28	42		51				**28**	**51**	**39**
HILLINGDON 6N	Hillingdon	R	A		69	43	39				37	55				**37**	**69**	
ISLINGTON 1N	Islington	R	A	93	59	23	39	59	67	49	67	63	67	108	87	**23**	**108**	**65**
ISLINGTON 6N	Islington	R	A	89	56	39	32	58	50	20	44	36		100		**20**	**100**	**52**
KENSINGTON 1N	Kensington & Chelsea	R	A	41	68	56	43	48	29	35	56	81			63	**29**	**81**	**52**
KENSINGTON 5N	Kensington & Chelsea	R	A	47	79	68	88	67	71	74	60	79			60	**47**	**88**	**69**
LAMBETH 1N	Lambeth	R	A	65	80	67	74	66	59	120	71	71	86	140	77	**59**	**140**	**81**
LAMBETH 5N	Lambeth	R	A	69	45	65	61	54	65	108	65	65	65	107	63	**45**	**108**	**69**
NEWHAM 1N	Newham	R	A		52	52	22	37	48	32	32	50	33	20	46	**20**	**52**	**38**
NEWHAM 5N	Newham	R	A			40	35	37	34	49	49	55	41	19	51	**19**	**55**	**41**
ILFORD 1N	Redbridge	R	A	58	55	59	43	35	34	11	65	83	51	18	61	**11**	**83**	**48**
ILFORD 5N	Redbridge	R	A	45	68	53	39	23	27	20	53	48	37	23	52	**20**	**68**	**41**
RICHMOND U. THAMES 1N	Richmond U. Thames	R	A	46	58	52	28	40	59	67	45	72	49	58	29	**28**	**72**	**50**
RICHMOND U. THAMES 5N	Richmond U. Thames	R	A	116	96	75	80	119	131			127	98	94	78	**75**	**131**	**101**
SOUTHWARK 8N	Southwark	R	A	59	107	100	92	64	66	70	89	75	75	102	97	**59**	**107**	**83**
SOUTHWARK 9N	Southwark	R	A	48	90	81	84			52	71	44	80	72	74	**44**	**90**	**70**
TOWER HAMLETS 1N	Tower Hamlets	R	A	43		60	37	37		66		42				**37**	**66**	**48**
WALTHAM FOREST 4N	Waltham Forest	R	A	59	67	60	72	46	70	62	62	86	58	63	50	**46**	**86**	**63**
WESTMINSTER 1N	Westminster	R	A	49	86	83	58	39	94							**39**	**94**	**68**

REGIONAL SUMMARY		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
	Regional Monthly Mean	58	70	60	58	51	62	55	61	69	59	61	65
	Regional Monthly Min	28	42	23	22	23	27	5	32	36	32	18	29
	Regional Monthly Max	116	107	100	92	119	131	120	99	127	98	140	97
	Regional Annual Mean	61											
	Regional Annual Min	38											
	Regional Annual Max	101											
	Number of Sites	38											
	% With Valid Annual Mean	97											

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows .

Table B9.2 Urban Background Sites in London

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
BARKING 5N	Barking	B	A	33	46	28	24	18	23	16	22			15	32	**15**	**46**	**26**
BARNET 4N	Barnet	B	A	16		27	26	21	22		18	35	28	43		**16**	**43**	**26**
BARNET 7N	Barnet	B	A	26		23	28	24	21			19	36			**19**	**36**	**25**
BRENT 41N	Brent	B	A	33	46	29	37	20	30	30	21					**20**	**46**	**31**
BRENT 57N	Brent	B	A	67	110	70	60	52	53	58						**52**	**110**	**67**
LONDON CITY 3N	City of London	B	A	50	37	37	42	44	54	45	26	45	54	14	50	**14**	**54**	**41**
LONDON CITY 5N	City of London	B	A	49	41	57	36	33	47	33	47		33	51	40	**33**	**57**	**43**
EALING 3N	Ealing	B	A	42	59	48	41	27	30	32	28	45	35		32	**27**	**59**	**38**
EALING 4N	Ealing	B	A	40	50	43	34	28	27	27	29	40	32	43	26	**26**	**50**	**35**
ENFIELD 3N	Enfield	B	A	48	55	27				29	25	48	36	54	60	**25**	**60**	**42**
ENFIELD 4N	Enfield	B	A	38	44	36	42	34	25	31	25	44	44	65	63	**25**	**65**	**41**
GREENWICH 37N	Greenwich	B	A	31	39	26	31	16	19	20	29	30	33	24	37	**16**	**39**	**28**
GREENWICH 40N	Greenwich	B	A	32	38	27	19	12	24	17	15	30	31	29	32	**12**	**38**	**25**
HACKNEY 3N	Hackney	B	A	54	70	16	38	13	36	6	38	31	46	46	20	**6**	**70**	**35**
HACKNEY 4N	Hackney	B	A	40	67	28	36	38	34		38	36	30	38	36	**28**	**67**	**38**
HARINGEY 3N	Haringey	B	A	42	54	42	26		24	27	20	27	40	42	36	**20**	**54**	**35**
HARINGEY 4N	Haringey	B	A	61	52	31	18		18			29	32	38	41	**18**	**61**	**36**
HAVERING 3N	Havering	B	A	52	67	44	36	21	22	20	26	38	42	52	40	**20**	**67**	**38**
HAVERING 4N	Havering	B	A	46	48	36	31	24	21	23	21	34	35	42	42	**21**	**48**	**33**
HILLINGDON 3N	Hillingdon	B	A	26	33	27	32	17	22	26	24	40				**17**	**40**	**27**
HILLINGDON 7N	Hillingdon	B	A	24	36	33	31	19	23	29	30	44				**19**	**44**	**30**
ISLINGTON 3N	Islington	B	A	61	48	41	34	46	49		20			76	47	**20**	**76**	**47**
ISLINGTON 4N	Islington	B	A	62	35	47	40	42	32	20	16	30	27	75	29	**16**	**75**	**38**
KENSINGTON 3N	Kensington & Chelsea	B	A	49		56	30		52		40	62			56	**30**	**62**	**49**
KENSINGTON 4N	Kensington & Chelsea	B	A	32	46	38	21	31	34	28	32	42			42	**21**	**46**	**35**
LAMBETH 3N	Lambeth	B	A	34	32	50	33	30	31	37	48	48	43	60	32	**30**	**60**	**40**
LAMBETH 4N	Lambeth	B	A	45	32	15	43	34	37	34	19	19	51	65	38	**15**	**65**	**36**
NEWHAM 3N	Newham	B	A		41	28	25	29	21	27	27	42	29	27	29	**21**	**42**	**30**
NEWHAM 4N	Newham	B	A			36	37	24	30	16	16	44	35	31	35	**16**	**44**	**30**
ILFORD 3N	Redbridge	B	A	35	47	33	27	10	14	26	26	37	41	26	40	**10**	**47**	**30**
ILFORD 4N	Redbridge	B	A	42	40	31	21	15	12	10	31	41	33	44	38	**10**	**44**	**30**
RICHMOND U. THAMES 3N	Richmond U. Thames	B	A	42	45	33	28	18	30	27	38	36	37	46	29	**18**	**46**	**34**
RICHMOND U. THAMES 4N	Richmond U. Thames	B	A	35	48	41	22	26	20	27	28	21	40		23	**20**	**48**	**30**
SOUTHWARK 6N	Southwark	B	A	31	46	29	39	18	38	26	43	33	39	45	40	**18**	**46**	**36**
SOUTHWARK 7N	Southwark	B	A	43	40	28			40		32	30	42	40	45	**28**	**45**	**38**
SUTTON 4N	Sutton	B	A	22	32	27	20	15	20	18	20	24	27	25	27	**15**	**32**	**23**
SUTTON 7N	Sutton	B	A	24		33	28	16	14	18	34	21	29	33	32	**14**	**34**	**26**
TOWER HAMLETS 3N	Tower Hamlets	B	A	30		40	33	16		25	70					**16**	**70**	**36**
WALTHAM FOREST 1N	Waltham Forest	B	A	41	39	27	29	27	33	29	22	36	31	48	30	**22**	**48**	**33**
WALTHAM FOREST 6N	Waltham Forest	B	A	53	40	34	37	24	34	18	29	40	34	52	79	**18**	**79**	**40**
WESTMINSTER 3N	Westminster	B	A	26	57	54	41	23	35							**23**	**57**	**39**

REGIONAL SUMMARY	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	40	47	36	32	25	29	26	29	36	36	43	39
Regional Monthly Min	16	32	15	18	10	12	6	15	19	27	14	20
Regional Monthly Max	67	110	70	60	52	54	58	70	62	54	76	79

Regional Annual Mean	35
Regional Annual Min	23
Regional Annual Max	67
Number of Sites	41
% With Valid Annual Mean	100

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B10.1 Roadside Sites in the South East

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
BOGNOR REGIS 1N	Arun	R	A	35	44	42	32			32			35	38	36	**32**	**44**	**37**
BOGNOR REGIS 5N	Arun	R	A	32	48	38	37						33		33	**32**	**48**	**37**
ASHFORD 7N	Ashford	R	A	41	63	36	40	27		28	30	44	51	45	40	**27**	**63**	**40**
AYLESBURY 5N	Aylesbury Vale	R	A				54			44	58	59	47	36		**36**	**59**	**50**
BASINGSTOKE 1N	Basingstoke	R	A		25	37				30		49	37		39	**25**	**49**	**36**
BASINGSTOKE 6N	Basingstoke	R	A		54	57	29	29	38	28	38	59	25		49	**25**	**59**	**41**
BRIGHTON 11N	Brighton & Hove	R	A	63	48	47	59	62	79	71	38	82	65	67	60	**38**	**82**	**62**
BRIGHTON 1N	Brighton & Hove	R	A	58	65	45	70	37	56	45	58	62	55	53	56	**37**	**70**	**55**
HOVE 1N	Brighton & Hove	R	A	53	58	57	66	30	47	36	48	58	77	50	64	**30**	**77**	**54**
HOVE 5N	Brighton & Hove	R	A	49	64	42	54	46	53	48	46	57	56		48	**42**	**64**	**51**
CANTERBURY 1N	Canterbury	R	A	66	67	68	63	49	48	56	56	63	52	69	56	**48**	**69**	**59**
CANTERBURY 7N	Canterbury	R	A	50	61	62	47	25	37		43	15	49	55	51	**15**	**62**	**45**
BANBURY 1N	Cherwell	R	A	46	54	54	42	44	44	43	42	57	44	59	54	**42**	**59**	**48**
CHICHESTER 1N	Chichester	R	A	21	45	23	29	10	36	34	32	46	41	40	31	**10**	**46**	**32**
CHICHESTER 5N	Chichester	R	A	35	32	35	51	27	39	53	37	54	36	44	35	**27**	**54**	**40**
CRAWLEY 1N	Crawley	R	A	42			35	31	38	38	34	51	42	49	45	**31**	**51**	**41**
DARTFORD 1N	Dartford	R	A		64	64	58	48	54	48		58	70	57		**48**	**70**	**58**
DOVER 6N	Dover	R	A		73	56	49	53	49	47	44	51	65	54	49	**44**	**73**	**54**
DOVER 9N	Dover	R	A		103		65	73	66		60	68	70	69	61	**60**	**103**	**70**
ALTON 5N	East Hampshire	R	A	20	30	28	19	17	17	12	30		42	42	32	**12**	**42**	**26**
PETERSFIELD 6N	East Hampshire	R	A	21	31	34	28	22	28	24	26	35	29		27	**21**	**35**	**28**
EASTBOURNE 1N	Eastbourne	R	A	28		35	36	18	34	29		34	37	29	35	**18**	**37**	**32**
EASTBOURNE 6N	Eastbourne	R	A	32		32	28	17	29	32	30	34	36	32	35	**17**	**36**	**31**
EASTLEIGH 1N	Eastleigh	R	A	49	66	54	51	40		51	53	56	49	60	47	**40**	**66**	**52**
EASTLEIGH 5N	Eastleigh	R	A	56	58	45	50	40	43	47	50	51	49	53	52	**40**	**58**	**49**
ESHER 1N	Elmbridge	R	A	74	53	58	5		56	42	63	61	33	72	56	**5**	**74**	**52**
EPSOM 1N	Epsom & Ewell	R	A	55	52	28	24	24	32	25	25	47	35	63	46	**24**	**63**	**38**
EPSOM 6N	Epsom & Ewell	R	A	45	46	31	21		36	33	8	14	44	67	42	**8**	**67**	**35**
EPSOM 7N	Epsom & Ewell	R	A	84	95	60	56	17	53	48	22	57	29	69	53	**17**	**95**	**54**
FAREHAM 11N	Fareham	R	A	43	44	36	38	41	47	46	52	52		51		**36**	**52**	**45**
FAREHAM 1N	Fareham	R	A	40	60	46	29	43	42	39	50	50	49	46	41	**29**	**60**	**45**
GRAVESEND 1N	Gravesham	R	A	75	75	75	61	51	57	53						**51**	**75**	**64**
GRAVESEND 7N	Gravesham	R	A								46	23	59	60	70	**23**	**70**	
GUILDFORD 10N	Guildford	R	A	52	62	46	33	41	26	15	45	44	26	68	34	**15**	**68**	**41**
GUILDFORD 9N	Guildford	R	A	56	45	22	26		11	28	37	32	30	56	43	**11**	**56**	**35**
HASTINGS 4N	Hastings	R	A	41	45	45				43	36		39	50	38	**36**	**50**	**42**
HASTINGS 5N	Hastings	R	A	48	73	79				74	28		64	54	62	**28**	**79**	**60**
HAVANT 1N	Havant	R	A		47	53	33							42	37	**33**	**53**	
HORSHAM 1N	Horsham	R	A	30	55	30	29	8	38	35	42	49	37	42	35	**8**	**55**	**36**
STEYNING 3N	Horsham	R	A	23	34	21	25	15	23	23	22	29	25		26	**15**	**34**	**24**
LEWES 1N	Lewes	R	A	46	60	67	50	43	61	43	58	56	49	58	50	**43**	**67**	**53**
LEWES 5N	Lewes	R	A	36	49	38	37	31	34	37	36	37	39	39	39	**31**	**49**	**38**
MILTON KEYNES 1N	Milton Keynes	R	A		31		42	22	26	23	27	20	29	25	41	**20**	**42**	**28**
MILTON KEYNES 5N	Milton Keynes	R	A		39		41	49			41		43		43	**39**	**49**	**43**
PORTSMOUTH 1N	Portsmouth	R	A							33	69	72	48		48	**33**	**72**	
HORLEY 1N	Reigate & Banstead	R	A		34	33	22	9	37	19	20	38	26	39	21	**9**	**39**	**27**
REIGATE 1N	Reigate & Banstead	R	A		37	44	23	16	40	29	35	60	34	71	51	**16**	**71**	**40**
GILLINGHAM KENT 1N	Medway	R	A	64	68	54	54			46	51	57	54	59	46	**46**	**68**	**55**
ROCHESTER 1N	Medway	R	A	73	88	62	69			56	57	73	70	68	72	**56**	**88**	**69**
BEXHILL 5N	Rother	R	A		56	45	48	31	39	24	47	47	46	54	47	**24**	**56**	**44**
BEXHILL 8N	Rother	R	A	41	62	50	45	26	36	18			40	46		**18**	**62**	**41**
ADDLESTONE 1N	Runnymede	R	A		60	37	32	22	28	15	25	54	25	55	37	**15**	**60**	**36**
ADDLESTONE 6N	Runnymede	R	A	49	43	55	32	17	23	35	31	23	18	47	69	**17**	**69**	**37**

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
SEVENOAKS 1N	Sevenoaks	R	A	38		45	55	26	18							**18**	**55**	
SEVENOAKS 21N	Sevenoaks	R	A	70		77	54	57	56							**54**	**77**	
FOLKESTONE 1N	Shepway	R	A	35												**35**	**35**	
FOLKESTONE 7N	Shepway	R	A	41												**41**	**41**	
SLOUGH 1N	Slough	R	A	39	55	45	46	39	54	29		54	40	42	41	**29**	**55**	**44**
SLOUGH 7N	Slough	R	A	33	43	47	32		52	27	28	56	50	29	50	**27**	**56**	**41**
HENLEY 1N	South Oxfordshire	R	A	53	60	57	47	51	66	59	53	68	47	58		**47**	**68**	**56**
HENLEY 9N	South Oxfordshire	R	A	41	56	42	33	32	47	45	44	50	63	29	46	**29**	**63**	**44**
SOUTHAMPTON 10N	Southampton	R	A	54			63	50	59	61	38	67	64	60	56	**38**	**67**	**57**
SOUTHAMPTON 5N	Southampton	R	A	49			64	52	69	58	57	74	56	66	43	**43**	**74**	**59**
ASHFORD MIDDLESEX 2N	Spelthorne	R	A	30	50	31	22	43	16	30	27	63	49	79	58	**16**	**79**	**42**
STAINES 4N	Spelthorne	R	A	28	44	80	30	45	36	52	51	30	46	89	60	**28**	**89**	**49**
BAGSHOT 1N	Surrey Heath	R	A	26	53	39	16	21			18	21	28		4	**4**	**53**	**25**
SUTTON 1N	Sutton	R	A	34	47	41	48	23	51	43	60	68	49	56	49	**23**	**68**	**47**
SUTTON 8N	Sutton	R	A	30	18	66	57	25	66	52	48	46	51	60	47	**18**	**66**	**47**
SHEERNESS 1N	Swale	R	A	43	46	39	34	27	22	28	27	33	38	35	33	**22**	**46**	**34**
SHEERNESS 5N	Swale	R	A	39	54	44	41	30	27	31	29	39	39	39		**27**	**54**	**38**
OXTED 1N	Tandridge	R	A	58	44	40	32	22	24	35	50	27	27	56	45	**22**	**58**	**38**
MARGATE 1N	Thanet	R	A	46	75	57	58	37	37	32	31	47	46	57	51	**31**	**75**	**48**
RAMSGATE 5N	Thanet	R	A	44	66	50	53	35	41	45	40	53	47	55	49	**35**	**66**	**48**
LARKFIELD 1N	Tonbridge & Malling	R	A	55	59	59	64	36	31	15	49	56	61	57	55	**15**	**64**	**50**
TONBRIDGE 1N	Tonbridge & Malling	R	A		53	49	45		34	17	36	47	41	48	40	**17**	**53**	**41**
TUNBRIDGE WELLS 1N	Tunbridge Wells	R	A	66	74	39	53	49	47	49	51	58		67	62	**39**	**74**	**56**
TUNBRIDGE WELLS 7N	Tunbridge Wells	R	A	42	54	32	39	27	30	24	27	44	36	52	39	**24**	**54**	**37**
ABINGDON 1N	Vale of White Horse	R	A	71	77	70	57	72	73	68	67	81	66	88	156	**57**	**156**	**79**
ABINGDON 5N	Vale of White Horse	R	A	39	56	48	43	28	32	34	41	37	43	57	94	**28**	**94**	**46**
FARNHAM 5N	Waverley	R	A	53	56	58	29	22	54	34	35	40	50	63	49	**22**	**63**	**45**
CROWBOROUGH 1N	Wealden	R	A	46	55	41	38	22								**22**	**55**	
UCKFIELD 5N	Wealden	R	A	50	46		35	25	27							**25**	**50**	
WITNEY 6N	West Oxfordshire	R	A	50	72		91	51	28							**28**	**91**	
WITNEY 8N	West Oxfordshire	R	A	60	83	86	56	62	32							**32**	**86**	**63**
MAIDENHEAD 1N	Windsor & Maidenhead	R	A	65	78	80	65	65	69	69		56	51	67	61	**51**	**80**	**66**
WOKING 10N	Woking	R	A	66	51		52	76	53		46	50	24	30	55	**24**	**76**	**50**
WOKING 9N	Woking	R	A	57	69		21	18	33		47	48	47	62	53	**18**	**69**	**46**
WOKINGHAM 1N	Wokingham	R	C	42	36	44	36									**36**	**44**	
WOKINGHAM 52N	Wokingham	R	C		29		29									**29**	**29**	
WORTHING 1N	Worthing	R	A	32	47	37	36	32	36	26	25	41	39	37	34	**25**	**47**	**35**
WORTHING 6N	Worthing	R	A	42	57	54	45	40	42	43	43	51	56	48	43	**40**	**57**	**47**

REGIONAL SUMMARY	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	46	55	48	43	35	41	38	41	49	45	53	48
Regional Monthly Min	20	18	21	5	8	11	12	8	14	18	25	4
Regional Monthly Max	84	103	86	91	76	79	74	69	82	77	89	156

Regional Annual Mean	45
Regional Annual Min	24
Regional Annual Max	79
Number of Sites	91
% With Valid Annual Mean	87

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B10.2 Urban Background Sites in the South East

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
LANCING 4N	Adur	B	A	43	42	37	32	24	21	20	23	24	40	39	29	**20**	**43**	**31**
SHOREHAM-BY-SEA 3N	Adur	B	A	38	42	37	28	19	18	21	26	27	39	37	34	**18**	**42**	**31**
BOGNOR REGIS 3N	Arun	B	A	25	33	30	24			13			22	26	24	**13**	**33**	**25**
BOGNOR REGIS 4N	Arun	B	A	7	44		19			16			20		21	**7**	**44**	**21**
ASHFORD 5N	Ashford	B	A	34	53	40	33	22	18	15	12		37	38	38	**12**	**53**	**31**
ASHFORD 6N	Ashford	B	A	31	38	34	27	15	20	51	22	30	36	35	38	**15**	**51**	**31**
AYLESBURY 7N	Aylesbury Vale	B	A				29		23	51	21	34	40	15	36	**15**	**51**	**31**
AYLESBURY 8N	Aylesbury Vale	B	A				19		14	26		5		13		**5**	**26**	
BASINGSTOKE 3N	Basingstoke	B	A		19	32				10	18	20	24		33	**10**	**33**	**22**
BASINGSTOKE 4N	Basingstoke	B	A		31	34	9	9	16	15	19	24	27		28	**9**	**34**	**21**
BRIGHTON 4N	Brighton & Hove	B	A	31	30	30	28	23	23	16	22		28	35	35	**16**	**35**	**27**
BRIGHTON 9N	Brighton & Hove	B	A	37	46	39	37	22	29	29	27	40	31	41	40	**22**	**46**	**35**
HOVE 3N	Brighton & Hove	B	A	34	41	24	29	21	22	15	19	27	28	28	33	**15**	**41**	**27**
HOVE 4N	Brighton & Hove	B	A	26	43	30	24	19	20	17	19	24	27	29	32	**17**	**43**	**26**
CANTERBURY 5N	Canterbury	B	A	29	38	24	23	11	8	14	5	49	28	35	30	**5**	**49**	**25**
CANTERBURY 6N	Canterbury	B	A	28	41	24	21	9	9	14	10	17	28	32	33	**9**	**41**	**22**
BANBURY 6N	Cherwell	B	A	25	41	32	19		17	15	16	27	29	34	32	**15**	**41**	**26**
BANBURY 8N	Cherwell	B	A	17	34	20	13	7	12	8	11	14	20	29	27	**7**	**34**	**18**
CHICHESTER 3N	Chichester	B	A	29	33	19	25	12	20	15	13	22	27	28	27	**12**	**33**	**23**
CHICHESTER 4N	Chichester	B	A	19	24	21	26	14	17	10	14	18	25	28	34	**10**	**34**	**21**
CRAWLEY 3N	Crawley	B	A	29	34	32	25	12	23	18	23	33	31	31	31	**12**	**34**	**27**
CRAWLEY 4N	Crawley	B	A	30	25	37		16	21	23	25	35	32	33	34	**16**	**37**	**28**
CRAWLEY 5N	Crawley	B	A	29	30	22	20	13	14	17	18	22	27	28	33	**13**	**33**	**23**
DARTFORD 5N	Dartford	B	A	37	42	48	41	30	28	29	36	37		44	43	**28**	**48**	**38**
DARTFORD 7N	Dartford	B	A	39	53	55	38	28	33	32	35	41	44	46	41	**28**	**55**	**40**
DOVER 3N	Dover	B	A		51	24	17	26	25	20	18	21	33	28	25	**17**	**51**	**26**
DOVER 8N	Dover	B	A		55	27	33	23	20	24	21	27	33	40	36	**20**	**55**	**31**
ALTON 3N	East Hampshire	B	A	17	24	31	15	12	14	12	15	14	24	25	19	**12**	**31**	**19**
PETERSFIELD 3N	East Hampshire	B	A	15		19	7	9	13	11	10	26	23	26	16	**7**	**26**	**16**
EASTBOURNE 4N	Eastbourne	B	A	17		19	20	9	13	14	14	13	20	12	22	**9**	**22**	**16**
EASTBOURNE 5N	Eastbourne	B	A	20		23	21	12	16	13	16	21	18	16	22	**12**	**23**	**18**
EASTLEIGH 3N	Eastleigh	B	A	20	30	20	20	8	10	13	11	16	23	25	24	**8**	**30**	**18**
EASTLEIGH 4N	Eastleigh	B	A	38	37	35	25	22	18		16	32	33	43	39	**16**	**43**	**31**
ESHER 3N	Elmbridge	B	A	28	27	24	15	13	16	13	26	22	38	39	21	**13**	**39**	**24**
WALTON ON THAMES 1N	Elmbridge	B	A	48	36	23	19	6		14	6	19	29	47	38	**6**	**48**	**26**
EPSOM 3N	Epsom & Ewell	B	A	39	28	24	8		13	9	6		18	35	31	**6**	**39**	**21**
EPSOM 5N	Epsom & Ewell	B	A	31	36	28	8			18	7		25	40		**7**	**40**	**24**
FAREHAM 10N	Fareham	B	A	25	30	28			21	20	22	32	33	31	28	**20**	**33**	**27**
FAREHAM 7N	Fareham	B	A	19	30	26	21	16	18	15	17	25	31	24	26	**15**	**31**	**22**
GRAVESEND 5N	Gravesham	B	A	40	46		33	21	25	26		33		39	39	**21**	**46**	**33**
GRAVESEND 6N	Gravesham	B	A	57	60	42	35	36	30	39	26	37	45	54	52	**26**	**60**	**43**
GUILDFORD 11N	Guildford	B	A	26	26	28	19	28	6	16	15	22	25	37	28	**6**	**37**	**23**
GUILDFORD 3N	Guildford	B	A		44	36	19	13	19	16	19	16	24	46	27	**13**	**46**	**25**
HASTINGS 1N	Hastings	B	A	34	41	27				24	16		32	28	27	**16**	**41**	**29**
HASTINGS 3N	Hastings	B	A	26	32	27				18	16		27	15	31	**15**	**32**	**24**
HAVANT 3N	Havant	B	A		37	36	29						30	36	29	**29**	**37**	**33**
HAVANT 4N	Havant	B	A		40	38	23							39	24	**23**	**40**	
HORSHAM 3N	Horsham	B	A	19	23	28	22	6	8	10	11	17	17	17	20	**6**	**28**	**17**
HORSHAM 4N	Horsham	B	A	19	14	24	18	7	5	11	11	15	23	16	17	**5**	**24**	**15**
LEWES 3N	Lewes	B	A	18	33	23	19	13	15	12	16	17	23	30	26	**12**	**33**	**20**
LEWES 4N	Lewes	B	A	24	33	20	15	12	17	16	13	13	21	31	27	**12**	**33**	**20**
MILTON KEYNES 3N	Milton Keynes	B	A		25		36	18	20	19	24	16	16	20	33	**16**	**36**	**23**
MILTON KEYNES 4N	Milton Keynes	B	A		37		24	12	18	11	17	18	17	15	29	**11**	**37**	**20**

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
PORTSMOUTH 3N	Portsmouth	B	A							15	18	29	28		35	**15**	**35**	
PORTSMOUTH 4N	Portsmouth	B	A							26	18	29	24		38	**18**	**38**	
HORLEY 2N	Reigate & Banstead	B	A		53	15	12		13	30		22	21	55	43	**12**	**55**	**29**
REIGATE 3N	Reigate & Banstead	B	A		33	27	24		13	7		27	22	37	33	**7**	**37**	**25**
GILLINGHAM KENT 4N	Medway	B	A	40	41	29	27			19	20	23	34	40	41	**19**	**41**	**31**
ROCHESTER 3N	Medway	B	A	44	45	32	19			20	23	25	37	40	58	**19**	**58**	**34**
BEXHILL 6N	Rother	B	A	22	33	20	26	5	15		15	15	9	24	28	**5**	**33**	**19**
BEXHILL 7N	Rother	B	A	30	49	31		22	16		14	14			29	**14**	**49**	**26**
ADDLESTONE 3N	Runnymede	B	A	36	36	23	25	15	12	11	15	15	14	36	33	**11**	**36**	**23**
ADDLESTONE 5N	Runnymede	B	A	47	35	22	14	11	10	16	10	40	14	33	35	**10**	**47**	**24**
SEVENOAKS 3N	Sevenoaks	B	A	39		25	44	8	7							**7**	**44**	
FOLKESTONE 3N	Shepway	B	A	29												**29**	**29**	
FOLKESTONE 5N	Shepway	B	A	40												**40**	**40**	
SLOUGH 5N	Slough	B	A	24	36	24	27	15		17	25	34	31	26	33	**15**	**36**	**26**
SLOUGH 6N	Slough	B	A	31	35	42	19	16	32	28	28	45	38	36	34	**16**	**45**	**32**
HENLEY 3N	South Oxfordshire	B	A	23	30	31	23	12	15	13	13	18	24	24	26	**12**	**31**	**21**
HENLEY 7N	South Oxfordshire	B	A	23	27	24	28	9	15	13	16	16	26	26	23	**9**	**28**	**21**
SOUTHAMPTON 7N	Southampton	B	A	30				32	36	35	34	41		52		**30**	**52**	**37**
SOUTHAMPTON 9N	Southampton	B	A	34			29	19	20	20	24			40	37	**19**	**40**	**28**
STAINES 5N	Spelthorne	B	A	62	24	31	13	30	25	28	33	40		54	49	**13**	**62**	**35**
SUNBURY ON THAMES 1N	Spelthorne	B	A	36	38	21	5	16	14	9	19	25		42	38	**5**	**42**	**24**
BISLEY 1N	Surrey Heath	B	A	26	25	26	19	9	12	12	12	11	20		21	**9**	**26**	**18**
WINDLESHAM 1N	Surrey Heath	B	A	36	33	28	23	20	19	19	10	15	24		6	**6**	**36**	**21**
SHEERNESS 3N	Swale	B	A	29	39	28	25	18				23	20	30	37	**18**	**39**	**28**
SHEERNESS 4N	Swale	B	A	25	36	24	27	21	14	22	19	27	32	33	35	**14**	**36**	**26**
OXTED 3N	Tandridge	B	A	42	26	18	16	12	17	14	20	19	26	31	23	**12**	**42**	**22**
OXTED 9N	Tandridge	B	A	51	8	10	12	9	27	23	16	17	32	38	11	**8**	**51**	**21**
RAMSGATE 4N	Thanet	B	A	33	46	20	27	20	17	18	16		31	46	38	**16**	**46**	**28**
RAMSGATE 6N	Thanet	B	A	39	47	20	24	21	16	16	11	21	24	40	31	**11**	**47**	**26**
TONBRIDGE 3N	Tonbridge & Malling	B	A	34	33	34	22	11	8	11	14	20	62	33	31	**8**	**62**	**26**
WEST MALLING 3N	Tonbridge & Malling	B	A	29	36	29	29	14	12	9	18	20	34	32	36	**9**	**36**	**25**
TUNBRIDGE WELLS 4N	Tunbridge Wells	B	A	31	35		24	9	7	8	13	19	29	30	33	**7**	**35**	**22**
TUNBRIDGE WELLS 6N	Tunbridge Wells	B	A	18	33	24	20	6	6	5	9	12	25	24	29	**5**	**33**	**17**
ABINGDON 3N	Vale of White Horse	B	A	30	49	33	25	16	21	19	20	26	34	51	82	**16**	**82**	**34**
ABINGDON 4N	Vale of White Horse	B	A	32	45	31	24	13	14	16	17	21	33	45	71	**13**	**71**	**30**
FARNHAM 3N	Waverley	B	A	29	27	19	12	10	7	8	20	19	19	37	20	**7**	**37**	**19**
FARNHAM 4N	Waverley	B	A	44	33	29	7	16	15	13	18	24	24	37	20	**7**	**44**	**23**
CROWBOROUGH 6N	Wealden	B	A	27	37	24	16	7	10							**7**	**37**	**20**
UCKFIELD 4N	Wealden	B	A	31	32		20	8	5							**5**	**32**	
WITNEY 4N	West Oxfordshire	B	A	30	41	26	17	12	14							**12**	**41**	**23**
WITNEY 7N	West Oxfordshire	B	A	4	40	22	19	8	12							**4**	**40**	**18**
MAIDENHEAD 5N	Windsor & Maidenheac	B	A	43	50	43			24	24		22	28	38	34	**22**	**50**	**34**
MAIDENHEAD 6N	Windsor & Maidenheac	B	A	33	33	41	24	24	17	17		18	23	29	25	**17**	**41**	**26**
WOKING 11N	Woking	B	A	51	33		22	8	11		11	20	23	26	21	**8**	**51**	**23**
WOKING 12N	Woking	B	A	17	36		28	22	21		24	37	37	43	43	**17**	**43**	**31**
WOKINGHAM 3N	Wokingham	B	C	29	31	23	31									**23**	**31**	
WOKINGHAM 4N	Wokingham	B	C	34	27	27	27									**27**	**34**	
WORTHING 4N	Worthing	B	A	27	30	28	22	15	13	9	19	20	26	25	32	**9**	**32**	**22**
WORTHING 5N	Worthing	B	A	22	35	28		16	14	10	17	22	30	29	26	**10**	**35**	**23**

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Site Name	Local Authority	Loc.	Status	Nitrogen Dioxide Concentrations 2003 (ug m^{-3}) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
REGIONAL SUMMARY				**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean			31	36	28	23	15	17	18	18	24	28	33	32			
	Regional Monthly Min			4	8	10	5	5	5	5	5	5	9	12	6			
	Regional Monthly Max			62	60	55	44	36	36	51	36	49	62	55	82			
	Regional Annual Mean			25														
	Regional Annual Min			15														
	Regional Annual Max			43														
	Number of Sites			102														
	% With Valid Annual Mean			90														

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B11.1 Roadside Sites in the South West

				Nitrogen Dioxide Concentrations 2003 (ug m^{-3})														
Site Name	**Local Authority**	**Loc.**	**Status**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Min**	**Max**	**Mean**
BATH 1N	Bath & NE Somerset	R	A	50	54	51	58	51	58	61	60	63	56	58	52	**50**	**63**	**56**
MIDSOMER NORTON 5N	Bath & NE Somerset	R	A	22	33	21	26	12	10	21	27	30	29	32	31	**10**	**33**	**25**
BRISTOL 1N	Bristol	R	A	79	52	57	61	55	62	56	58	72	60	65	63	**52**	**79**	**62**
BRISTOL 5N	Bristol	R	A	48	50	41	57	35	52	51	45		51	56	55	**35**	**57**	**49**
DOBWALLS 1N	Caradon	R	A	40	39	24			36	34	45	42	43	47	39	**24**	**47**	**39**
SALTASH 7N	Caradon	R	A	45	47	43			34	30	41	44	49	53	41	**30**	**53**	**43**
TRURO 1N	Carrick	R	A	38	42	45	41	38	29	29	30	41	32	44		**29**	**45**	**37**
TRURO 5N	Carrick	R	A	31	33	29	32	27	20	20	24	23	21	40		**20**	**40**	**27**
CHRISTCHURCH 4N	Christchurch	R	A	29	25	30	23	29	32	29	54	32	24	28	30	**23**	**54**	**30**
EXMOUTH 1N	East Devon	R	A	29	50	38	40	18	35	36	33		31	33	41	**18**	**50**	**35**
EXMOUTH 5N	East Devon	R	A	20	16	24	22	14	20	24	23	24	30	27	31	**14**	**31**	**23**
EXETER 1N	Exeter	R	A	47	78	54	60	50	64	46	52	54	49	54	37	**37**	**78**	**54**
EXETER 5N	Exeter	R	A	41	50	45	42	29	35	32	40	42	53	48	29	**29**	**53**	**40**
GLOUCESTER 5N	Gloucester	R	A	39	42	32	35	25	30	32	31	42	39	38	47	**25**	**47**	**36**
GLOUCESTER 6N	Gloucester	R	A	46	58	65	57	41	37	35	35	47	39	50	52	**35**	**65**	**47**
DEVIZES 1N	Kennet	R	A	52	31	24	34	19	22	4	18	27	37	24	35	**4**	**52**	**27**
MARLBOROUGH 1N	Kennet	R	A	47	33	18	16	29	20	19	38	29	39	48	38	**16**	**48**	**31**
FROME 1N	Mendip	R	A	45	57	54	58	35	48	46	47	50	47	58	28	**28**	**58**	**48**
WALTON 1N	Mendip	R	A	29	41	37	31	19	24	24	32	32	34	48	40	**19**	**48**	**33**
WESTON-SUPER-MARE 1N	North Somerset	R	A	33	34	42	45	22	33	35	35	37	38	39	41	**22**	**45**	**36**
WESTON-SUPER-MARE 5N	North Somerset	R	A	29	26	33	34	23		26	26	33	35	34	37	**23**	**37**	**31**
CHIPPENHAM 5N	North Wiltshire	R	A	38	46	42	51	31				39		43	42	**31**	**51**	**42**
CHIPPENHAM 8N	North Wiltshire	R	A	36	41	36	36	32	25			39	34	41	20	**20**	**41**	**34**
POOLE 3N	Poole	R	A	39	52	35	49	35	44	45	45	65	45	33	43	**33**	**65**	**44**
POOLE 6N	Poole	R	A	30	51	45	45	45	45	37	46	48	44	23	38	**23**	**51**	**41**
SALISBURY 6N	Salisbury	R	A	40	17	47	34	26	32	34	42	39	42	46	50	**17**	**50**	**37**
SALISBURY 7N	Salisbury	R	A	40	40	41	39	37	39	37	38	41	45	48	42	**37**	**48**	**41**
BRIDGWATER 1N	Sedgemoor	R	A	28			23	22	24	24	58	28	24	31	30	**22**	**58**	**29**
BRIDGWATER 6N	Sedgemoor	R	A	44			49	39	37	37	50	56	41	50	49	**37**	**56**	**45**
KINGSWOOD 1N	South Gloucestershire	R	A	33	52	37	35	31	35	27	37	40	42	43	44	**27**	**52**	**38**
SOUTH GLOUCESTERSHIRE 1N	South Gloucestershire	R	A	42	40	45	28	22	43	28	38	47	43	51	48	**22**	**51**	**40**
SOUTH GLOUCESTERSHIRE 2N	South Gloucestershire	R	A	36	35	24	28	20	25	23	25	31	38	39	39	**20**	**39**	**30**
YATE 1N	South Gloucestershire	R	A	43	48	36	38	15	36	36		44	40	41	38	**15**	**48**	**38**
TOTNES 6N	South Hams	R	A	41		49	37	34	37	40	50		51	48	43	**34**	**51**	**43**
TOTNES 9N	South Hams	R	A	29	29	28	25	19	18	20	29	28	52	49	31	**18**	**52**	**30**
SWINDON 1N	Swindon	R	A	37	45	35	33	26	39	25	30	33	41	40	41	**25**	**45**	**35**
SWINDON 6N	Swindon	R	A			43	40	24	31	28	39	45	37	41	49	**24**	**49**	**38**
NEWTON ABBOT 1N	Teignbridge	R	A	38	50	49	43	31	43	39	43	50	50	49	43	**31**	**50**	**44**
NEWTON ABBOT 6N	Teignbridge	R	A	46	12	63	54	24	53	58	55	67	60	58	50	**12**	**67**	**50**
TEWKESBURY 5N	Tewkesbury	R	A		43	32	32	24	34	34	35	39	27	34	34	**24**	**43**	**34**
TEWKESBURY 6N	Tewkesbury	R	A	38		34	29	38	37	56	41	48	35	45	35	**29**	**56**	**40**
BIDEFORD 6N	Torridge	R	A	20	33	33	25	20	22	24	25	27	30		25	**20**	**33**	**26**
BIDEFORD 8N	Torridge	R	A		37	38	37	26	32	32	37	40	43	39	29	**26**	**43**	**35**
WESTBURY 1N	West Wiltshire	R	A	46	60	57	52	41	53	53	49	53	49	45	48	**41**	**60**	**51**
WESTBURY 6N	West Wiltshire	R	A	39	57	49	70	53	57	63	53	57	58	46	60	**39**	**70**	**55**
WEYMOUTH 10N	Weymouth & Portland	R	A	33	42	25	38	28	43	41	46	44	41	47	29	**25**	**47**	**38**
WEYMOUTH 8N	Weymouth & Portland	R	A	33	43	36	32	24	42	37	46	40	33	40	26	**24**	**46**	**36**
JERSEY 6N	Jersey	R	A	41	48	52	46	47	39	50	57	46	41	50	49	**39**	**57**	**47**
JERSEY 9N	Jersey	R	A	37	39	41	35	33	38	39	45	41	38	42	42	**33**	**45**	**39**

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Site Name	Local Authority	Loc. Status	Nitrogen Dioxide Concentrations 2003 (ug m^{-3}) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
REGIONAL SUMMARY			**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean		38	42	40	39	30	36	35	40	42	41	43	40			
	Regional Monthly Min		20	12	18	16	12	10	4	18	23	21	23	20			
	Regional Monthly Max		79	78	65	70	55	64	63	60	72	60	65	63			
	Regional Annual Mean		39														
	Regional Annual Min		23														
	Regional Annual Max		62														
	Number of Sites		49														
	% With Valid Annual Mean		100														

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B11.2 Urban Background Sites in the South West

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
KEYNSHAM 3N	Bath & NE Somerset	B	A	19	26	18	15	7	11	10	14	17	21	26	28	7	28	18
MIDSOMER NORTON 4N	Bath & NE Somerset	B	A	17	17	20	19	11	13	12	15	17	18	21	23	11	23	17
BRISTOL 3N	Bristol	B	A	20	27	26	23	12	16	14	18	22	23	27	29	12	29	21
BRISTOL 4N	Bristol	B	A	33	33	35	26	13	16	18	25	26	32	31	33	13	35	27
CALLINGTON 4N	Caradon	B	A	17	18	12			8	9	8	13	16	18	14	8	18	13
SALTASH 3N	Caradon	B	A	20	22	18			11	10	12	16	20	24	20	10	24	17
TRURO 3N	Carrick	B	A	22	23	22	16	14			14	18	19	25		14	25	19
TRURO 4N	Carrick	B	A	23	20	23	17	16			12	18		28		12	28	20
CHRISTCHURCH 3N	Christchurch	B	A	13	10	7	7	5	5	5	26	7	8	6	10	5	26	9
CHRISTCHURCH 5N	Christchurch	B	A	9	7	11	8	6	9	7	29	9	11	8	8	6	29	10
EXMOUTH 3N	East Devon	B	A	16	21	19	17	9	8	11	11	13	19	16	21	8	21	15
EXMOUTH 4N	East Devon	B	A	14	22	21	14	7	8	9	9	13	18	16	21	7	22	14
EXETER 3N	Exeter	B	A	33	38	28		17	17	15	17	28	24	30	25	15	38	25
EXETER 4N	Exeter	B	A	17	38	27	24	12	14	14	17	26	26	32	25	12	38	23
GLOUCESTER 3N	Gloucester	B	A	27	33	26	22	16	15	16	19	24	25	32	33	15	33	24
GLOUCESTER 4N	Gloucester	B	A	23	38	33	27	13	16		20	27	24	33	30	13	38	26
DEVIZES 5N	Kennet	B	A	23	6	11	10	7	7	4	6	4	10	21	20	4	23	11
DEVIZES 7N	Kennet	B	A	19	17	22	5	17	14	4	10	36	19	33	15	4	36	18
MARLBOROUGH 2N	Kennet	B	A	32	24	12	7	13	7		8	7	14	21	12	7	32	14
FROME 3N	Mendip	B	A	27	35	32	21	8	11	12	19	21	29	32	24	8	35	23
STREET 4N	Mendip	B	A	19	30	20	13	7	8	9	13	13	22	27	23	7	30	17
WESTON-SUPER-MARE 3N	North Somerset	B	A	21	25	28	21	12	13			16	21	23	27	12	28	21
WESTON-SUPER-MARE 4N	North Somerset	B	A	19	19	21	22	10	13	14	14	19	22	23	25	10	25	18
CHIPPENHAM 6N	North Wiltshire	B	A	21	34	26	23	13	11			18	25	28	29	11	34	23
CHIPPENHAM 7N	North Wiltshire	B	A	26	34	34	26	12	12			20	25	30	27	12	34	24
POOLE 4N	Poole	B	A	20	35	13	21	13	15	14	17	21	18	7	22	7	35	18
POOLE 5N	Poole	B	A	19	33	11	20	11	12		17	11	21	8	18	8	33	16
SALISBURY 3N	Salisbury	B	A	23	29	28	24	15	21	21	18		29	31	33	15	33	25
SALISBURY 4N	Salisbury	B	A	22	31	26	19	12	17	16	16	22	25	23	31	12	31	22
BRIDGWATER 3N	Sedgemoor	B	A	18			13	11	10	12	16	19	19	28	24	10	28	17
BRIDGWATER 5N	Sedgemoor	B	A	19			18	11	12	13	16	22	20	29	24	11	29	18
FRAMPTON COTTERELL 1N	South Gloucestershir	B	A	31	34	32	20	12	17	16	16		25	36	33	12	36	25
KINGSWOOD 3N	South Gloucestershir	B	A	24	33	26	25	14	16	15		23	24	30	28	14	33	23
KINGSWOOD 4N	South Gloucestershir	B	A	31	35	32	25	28	16	16		24	29	28	28	16	35	27
YATE 3N	South Gloucestershir	B	A	21	33	23	17	17	16	15		22	24	34	32	15	34	23
TOTNES 4N	South Hams	B	A	15	22	23	16	8	11	8	17	20	24	23	21	8	24	17
TOTNES 5N	South Hams	B	A	17	23	19	17	8	7		17	22	24		21	7	24	18
SWINDON 4N	Swindon	B	A	27	25	29	23	14	18	12	16	24	25		28	12	29	22
SWINDON 5N	Swindon	B	A	31	35	31	25	6	18	14	22	25	31	37	33	6	37	26
NEWTON ABBOT 5N	Teignbridge	B	A	23	30	24							24	29	24	23	30	26
NEWTON ABBOT 7N	Teignbridge	B	A	14		20	17	7	10	10	13	18		20	20	7	20	15
TEWKESBURY 3N	Tewkesbury	B	A	19	28	19	16	9	12	8	21	21	19	24	21	8	28	18
TEWKESBURY 4N	Tewkesbury	B	A	21	26	19	14	9	13	11	8	21	19	25	26	8	26	18
BIDEFORD 4N	Torridge	B	A	12	17	19	11	8	7	7	12	12	16		16	7	19	12
BIDEFORD 5N	Torridge	B	A	12	17	14	15	6	7	6	9	9	16	13	15	6	17	12
WESTBURY 3N	West Wiltshire	B	A	21	25		20	9	12	10	15		20	20	24	9	25	18
WESTBURY 5N	West Wiltshire	B	A	23	31	28	18		13	11			20	23	26	11	31	22
WEYMOUTH 4N	Weymouth & Portland	B	A	13	21	12	13	8	12	9	12	11	14	16	12	8	21	13
WEYMOUTH 9N	Weymouth & Portland	B	A	17	23	21	17	14	14	14	21	18	20	21	15	14	23	18
JERSEY 7N	Jersey	B	A	21	24	24	17	12	12	15	17	16	20	22	24	12	24	19
JERSEY 8N	Jersey	B	A	11	12	15	9	7	7	8	11	9	13	13	17	7	17	11

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
REGIONAL SUMMARY				**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean			21	26	22	18	11	12	12	15	18	21	24	23			
	Regional Monthly Min			9	6	7	5	5	5	4	6	4	8	6	8			
	Regional Monthly Max			33	38	35	27	28	21	21	29	36	32	37	33			
	Regional Annual Mean			19														
	Regional Annual Min			9														
	Regional Annual Max			27														
	Number of Sites			51														
	% With Valid Annual Mean			100														

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B12.1 Roadside Sites in Northern Ireland

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
NEWTOWNARDS 1N	Ards	R	A	26	31	37	6	25	28	28	28	32	22	28	28	**6**	**37**	**26**
NEWTOWNARDS 7N	Ards	R	A	22	40	37	32	34	33	30	22	29	24		24	**22**	**40**	**30**
ARMAGH 1N	Armagh	R	A	50	34	15	10	17	25	25	25	35	37	36	53	**10**	**53**	**30**
ARMAGH 5N	Armagh	R	A	36	38	23	23	38	37	37	39	42	39	46	53	**23**	**53**	**38**
BALLYMENA 2N	Ballymena	R	A		34	19	8	8	17	27	17	15	31	48	38	**8**	**48**	**24**
BALLYMENA 5N	Ballymena	R	A	48	36	10	6	6	25	31	8	23	36	44	33	**6**	**48**	**25**
BALLYMONEY 1N	Ballymoney	R	A	36	45	28	26		24	24	17	20	26		39	**17**	**45**	**29**
BALLYMONEY 5N	Ballymoney	R	A	37	32	16	4	12	11	11	19	20	22		20	**4**	**37**	**19**
BELFAST 1N	Belfast	R	A	65	42	50	29	8	31	29	25		17	78	42	**8**	**78**	**38**
BELFAST 5N	Belfast	R	A	65	44	36	21	10	21	21	19	17	42	50	33	**10**	**65**	**32**
CARRICKFERGUS 1N	Carrickfergus	R	A	16	23	20	22	11	16	16	14	19	19	20	10	**10**	**23**	**17**
CASTLEREAGH 1N	Castlereagh	R	A	19			29	16			15	20	18			**15**	**29**	**19**
CRAIGAVON 5N	Craigavon	R	A		34	13	7	15	15	11	6	14		28	25	**6**	**34**	**17**
CRAIGAVON 9N	Craigavon	R	A		52	12	12	28	39		11	22		16	38	**11**	**52**	**26**
BALLYNAHINCH 9N	Down	R	A	23	26	27	31	26	22	20	24	25	20	23	13	**13**	**31**	**23**
DOWNPATRICK 1N	Down	R	A	35	29	39	37	37	33	28	29	24	26		20	**20**	**39**	**31**
DUNGANNON 1N	Dungannon	R	A		31	8	8	15	19	15	4	21	15	21	27	**4**	**31**	**17**
DUNGANNON 5N	Dungannon	R	A	42	33	17	25	10	31	10	4	19	13	29	25	**4**	**42**	**21**
LISBURN 1N	Lisburn	R	A	25	29	27	26	21	24	24	24	28	29	25	27	**21**	**29**	**26**
LISBURN 7N	Lisburn	R	A	21	22	24	21	22	23	20	20	25	23	28	21	**20**	**28**	**22**
LONDONDERRY 8N	Derry City Council	R	A	54	73		27	31	36	38	12		63			**12**	**73**	**42**
LONDONDERRY 9N	Derry City Council	R	A	52	44	31	17	19	23	23	6	36	31			**6**	**52**	**28**
NEWRY 10N	Newry & Mourne	R	A	61	38		27	40	48	25	29	31	34		37	**25**	**61**	**37**
NEWRY 6N	Newry & Mourne	R	A	61	38		13	38	27	34	54	50	48	55	36	**13**	**61**	**41**
NEWTOWNABBEY 11N	Newtownabbey	R	A	25	59	19	10	45	14		19	13	32	70	46	**10**	**70**	**32**
NEWTOWNABBEY 12N	Newtownabbey	R	A	39	39	19	4	26	9	11	8	6	17	36	24	**4**	**39**	**20**
NEWTOWNABBEY 1N	Newtownabbey	R	A	66	61	23	27	33	18	16	23	37	16	49	44	**16**	**66**	**34**
BANGOR NI 6N	North Down	R	A				29	20	20	21	26	23	20	27	20	**20**	**29**	**23**
BANGOR NI 7N	North Down	R	A	17	27	26	32	18	22	21	26	22	17	21	16	**16**	**32**	**22**

REGIONAL SUMMARY		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
	Regional Monthly Mean	39	38	24	19	22	25	23	20	25	27	37	30
	Regional Monthly Min	16	22	8	4	6	9	10	4	6	13	16	10
	Regional Monthly Max	66	73	50	37	45	48	38	54	50	63	78	53
	Regional Annual Mean	27											
	Regional Annual Min	17											
	Regional Annual Max	42											
	Number of Sites	29											
	% With Valid Annual Mean	100											

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.

Table B12.2 Urban Background Sites in Northern Ireland

Nitrogen Dioxide Concentrations 2003 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
NEWTOWNARDS 3N	Ards	B	A	9	18	13	12	8	9	8	9	11	7	13	9	**7**	**18**	**11**
NEWTOWNARDS 6N	Ards	B	A	12	20	13	10	6	9	8	7	10	7	12	10	**6**	**20**	**10**
ARMAGH 3N	Armagh	B	A	33	31	19		12	10	10	12	13	20	20	28	**10**	**33**	**19**
ARMAGH 4N	Armagh	B	A	25	25	10	12	15	14	14	15	22	28	21	34	**10**	**34**	**19**
BALLYMENA 1N	Ballymena	B	A	36	33	10	6	6	6	8	6	6	36	21	10	**6**	**36**	**15**
BALLYMENA 4N	Ballymena	B	A	27	27	6	4	4	8	8		8	38	13	15	**4**	**38**	**14**
BALLYMONEY 3N	Ballymoney	B	A	23	26	9	9	10	19		7	9	14		22	**7**	**26**	**15**
BALLYMONEY 4N	Ballymoney	B	A	28	25	8	5	11	6	4	6	13	15		14	**4**	**28**	**12**
BELFAST 3N	Belfast	B	A	55	44	25	23	15	21	12	15	21	31	25	27	**12**	**55**	**26**
BELFAST 4N	Belfast	B	A	15	29	21	8	8	10	8	13	27	15	29	6	**6**	**29**	**16**
CARRICKFERGUS 3N	Carrickfergus	B	A	10	16	14	9	16	8	8	8	8	10	11	16	**8**	**16**	**11**
CARRICKFERGUS 4N	Carrickfergus	B	A	12	18	19	16	7	11	10	11	10	7	12	9	**7**	**19**	**12**
CASTLEREAGH 5N	Castlereagh	B	A	15	22	13	15	10	10	9	10	12	13	14	14	**9**	**22**	**13**
CASTLEREAGH 6N	Castlereagh	B	A	13	22	14	12	9	9	8	5	11		14	13	**5**	**22**	**12**
CRAIGAVON 7N	Craigavon	B	A		33	40		6	12	5	4	10		22	26	**4**	**40**	**18**
CRAIGAVON 8N	Craigavon	B	A		16	12	4	9	4			8		13	11	**4**	**16**	**10**
DOWNPATRICK 3N	Down	B	A	12	17	12	12	9	8	9	10	9	11	13	12	**8**	**17**	**11**
DOWNPATRICK 4N	Down	B	A	8	18	9	8	5	6	6	6	7	8	9	9	**5**	**18**	**8**
DUNGANNON 3N	Dungannon	B	A	33	31	19	10	8	4	10		19	10	19	21	**4**	**33**	**17**
DUNGANNON 4N	Dungannon	B	A	21	12	21	4	6	8	4		8	4	17	13	**4**	**21**	**11**
LISBURN 3N	Lisburn	B	A	12	18	14	12	7	8	8				13		**7**	**18**	**12**
LISBURN 6N	Lisburn	B	A	14	20	12	17	8	9	10	9	13	15	14	13	**8**	**20**	**13**
LONDONDERRY 10N	Derry City Council	B	A	27	25	13	8	11	12	12	4	14	14			**4**	**27**	**14**
LONDONDERRY 11N	Derry City Council	B	A	36	29	17	10	8	17	8		12	17			**8**	**36**	**17**
NEWRY 11N	Newry & Mourne	B	A	36	27		15	12	10	6	8	8	12	18	18	**6**	**36**	**15**
NEWRY 9N	Newry & Mourne	B	A	34	15		8	12	8	15	8	8	11	27	17	**8**	**34**	**15**
NEWTOWNABBEY 13N	Newtownabbey	B	A	38	43	9	5	17	6	5	8	10	18	31	15	**5**	**43**	**17**
BANGOR NI 4N	North Down	B	A	12	19				8	9	8	10	9	13	10	**8**	**19**	**11**
BANGOR NI 8N	North Down	B	A	10	20	16	11	10	9	9	9		10	13	11	**9**	**20**	**12**

REGIONAL SUMMARY	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	22	24	15	10	9	10	8	9	12	15	17	15
Regional Monthly Min	8	12	6	4	4	4	4	4	6	4	9	6
Regional Monthly Max	55	44	40	23	17	21	15	15	27	38	31	34

Regional Annual Mean	14
Regional Annual Min	8
Regional Annual Max	26
Number of Sites	29
% With Valid Annual Mean	100

Sites with annual mean > AQS Objective of 40ug m^{-3} are indicated by shaded rows.