UK Nitrogen Dioxide Network 2004

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 twelfth in a series of annual reports on the UK Nitrogen Dioxide Diffusion Tube Network (the NO_2 Network), covering the calendar year 2004. The network operated from 1993 to 2005, measuring 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 were carried out using passive samplers (Palmes type diffusion tubes) at over 1200 sites. The network was operated with two principal aims:

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

The Network ceased operation at the end of 2005, following an independent review by Defra, which concluded that its objectives are now fulfilled by a combination of modelling (based on emission inventory data) and automatic monitoring data; the Network has therefore served its purpose. This is the final report in this series.

UK annual mean NO_2 concentrations for 2004, as measured by the NO_2 Network, were 40 μg m^{-3} at roadside locations and 21 μg m^{-3} at urban background locations. These are the mean of the individual annual means at all sites, without application of any bias adjustment factors. The previous report in this series highlighted an increase in UK average NO_2 concentrations in 2003, the result of meteorological conditions during that year. However, the 2004 data indicate that NO_2 concentrations in most regions returned to their pre-2003 levels in 2004.

The exception appears to be London, where it appears that average NO_2 concentrations at both roadside and urban background sites remained elevated in 2004, compared with 2002 and previous recent years. This pattern, (which was also observed in data from the Automatic Urban and Rural Network which uses the chemiluminescence monitoring technique), indicates that the increase observed in London was caused by other factors beside the meteorological conditions which affected much of the UK in 2003. This increase is the subject of a current investigation by the Air Quality Expert Group, to be reported in summer 2006.

For the second consecutive year, there has been sufficient information available to apply bias adjustment factors to a significant proportion of the dataset. 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 2004 from 40 μg m^{-3} to 33 μg m^{-3} at roadside locations, and 21 μg m^{-3} to 18 μg m^{-3} at urban background locations.

Annual mean NO_2 concentrations from all sites (with out bias adjustment) were compared with the Air Quality Strategy objective of 40 μg m^{-3}, which is to be achieved by the end of 2005. A total of 197 roadside sites, and nine urban background sites, measured annual average NO_2 concentrations in excess of 40μg m^{-3}, during 2004. It is estimated that while most urban background locations will meet the Air Quality Strategy objective by the end of 2005, exceedance at roadside sites may be widespread.

Using the procedure set out in the Technical Guidance, it is predicted that 95 roadside sites, and two urban background sites in the UK NO_2 Network may be at risk of exceeding the EC Daughter Directive Limit Value in 2010.

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1 Introduction

This report details the operation and findings of the UK Nitrogen Dioxide Diffusion Tube Network (the NO_2 Network) in 2004. The NO_2 Network was 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, with the objective of assessing 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 was done using NO_2 diffusion tubes: low-cost passive samplers ideal for indicative monitoring. The Network was originally planned to operate for ten years, but was extended for a further three. However, since 1993, there have been many developments in policy and legislation on air quality. This has led to changes in monitoring requirements. Also, automatic monitoring techniques are now much more readily available than in the early 1990s, and are now widely deployed across the UK. Earlier in 2005, Defra commissioned an independent review of the NO_2 Network. The review concluded that :–

- The network is no longer required to assess spatial distribution of NO_2, this role being now more effectively fulfilled by a combination of computer modelling, and data from automatic monitoring sites.
- The network is of limited use in monitoring compliance with today's limit values and objectives for NO_2; diffusion tube measurements are indicative in nature and are only applicable for comparison with the annual mean objective.

Consequently, the Network was deemed to have served its purpose, and ceased operation at the end of 2005.

This report for 2004 is the twelfth (and last) in a series of annual reports 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[1-11]. Concentrations measured in the UK during 2004 are presented in this report, together with national and regional statistics, and comparison with applicable air quality objectives.

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:

$1ppb = 1.91\mu g\ m^{-3}$ at 20°C and 101.3KPa

During 2004, the Network comprised a total of 1232 NO_2 diffusion tube monitoring sites, operated by 292 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 2004 can be downloaded with this report. 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, acted as the co-ordinating body for the UK NO_2 Network and provided the framework under which monitoring of NO_2 by participating Local Authorities took place. Diffusion tubes exposed by Local Authorities were 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 involved the provision of the following services and deliverables:

- A framework for monitoring, and an instruction manual providing instructions to participants in the form of the site operators' Instruction Manual[12], issued to all site operators;
- Central collation, checking and processing of data;
- Data interpretation, advice and report production; and
- QA/QC systems for assessment and control of laboratory performance. These are detailed in Appendix A.

Monthly measurements were 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); and
- **Urban Background** (2 sampling locations), >50m from any busy road and typically in a residential area.

"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)[13].

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 have been omitted from the network dataset. Five laboratories failed to meet the criteria in 2004 (see Appendix A for details of the criteria).
- All data below 2 μg m^{-3} 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 were required to take place within $\pm$ 2 days of the dates specified in the exposure calendar supplied to all Local Authorities. Data were 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[13], 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 chemiluminescence analyser (which is defined by the EU as the reference method of measurement for this pollutant). Palmes-type NO_2 diffusion tubes (the type predominantly used in

the UK) can be affected by several mechanisms which may cause them to exhibit positive bias (over-read), or negative bias (under-read) relative to the reference technique.

The two most important mechanisms causing over-read are as follows:-

- the shortening of the diffusive path length, by turbulence at the open end of the tube caused by wind[14,15,16,17,18]. Although several studies have reported this effect, it has proved difficult to quantify in terms of the relationship between wind speed and tube over-read.
- blocking of UV light by the tube material, resulting in reduced NO_2 photolysis in the tube[17,19,20]

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[19,20]. This is thought to be caused by degradation of the absorbed nitrite over time[20].
- Insufficient extraction of nitrite from the grids.
- The photochemical degradation of the triethanolamine-nitrite complex by light. This has been minimised by the widespread use of opaque diffusive end caps[3], but during 2005 one participating laboratory identified a significant difference in the bias of the results between tubes with end-caps of different colours (this is discussed in more detail in Appendix A).
- 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[21,22]. Such tubes are no longer widely used in the UK. 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.

Intercomparison studies carried out as part of the Network's QA/QC have highlighted that diffusion tubes prepared and analysed by different laboratories can give significantly different results, even when exposed at the same sites under identical conditions. It is thought that this arises from inter-laboratory differences in preparation and analytical techniques, as there is no clearly defined standard method.

2.4 UNCERTAINTY OF DIFFUSION TUBE MEASUREMENTS

Diffusion tube measurements, like all measurements, are subject to a certain degree of uncertainty. 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 addressed both of these stages.

The Health and Safety Laboratory's WASP programme, which formed 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 2004, the average (median) precision of the analysis (based upon an assessment of the relative standard deviation of the standardised result) was 9%, though some of the better-performing laboratories achieved within 5%. The results from this scheme are presented in Appendix A.

Laboratories were also required to participate in a Field Intercomparison, designed to test how the diffusion tubes themselves performed under actual exposure conditions, as well as the performance of the analytical laboratories. Diffusion tubes from each laboratory were co-located on a monthly basis with an automatic monitoring site in Defra's Automatic Urban and Rural Network (AURN). The automatic chemiluminescence 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 in triplicate was estimated to be around ±13%, 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 2004 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 -30% to an average over-read of +44%. The median (based on all laboratories with at least 9 months' data) was +20%. The mean precision of the bias, calculated at the 95% confidence interval, ranged from ±6% for the most consistent, to ±41% for the least consistent, with a median of 11%.

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)[13] 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 the 2003 report, bias adjustment factors were not used in NO_2 Network reports. This is primarily because, until that year, 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 was 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, this report includes 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, an ongoing monthly co-location study, in which diffusion tubes from each participating laboratory were exposed at an automatic monitoring site.

(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.

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 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. In addition, data may be rejected if the analysing laboratory fails to demonstrate satisfactory performance in the Network's QA/QC procedures (see Appendix A). In 2004, more sites than usual had their dataset rejected for this reason, because two laboratories which analysed diffusion tubes for a substantial number of Local Authorities failed to meet the set performance criteria. This reduced the number of sites for which data is reported for year 2004 in this report, from 1232 to 1076. This data rejection had a particularly significant impact on the dataset for Northern Ireland, as discussed below in section 3.2.2.

For the 1076 sites for which the analytical laboratory met the QA/QC requirements, data capture is shown in Table 3.1.

Table 3.1: Percentage of Sites Returning Valid Monthly Measurements from the UK NO_2 Network 2004

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

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.

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 1993-2004 are shown in Table 3.2. UK annual concentrations during 2004 were higher at roadside locations (40 μg m^{-3}) than at urban background locations (21 μg m^{-3}). This is the usual pattern observed, and is consistent with the expected urban pollutant distribution assuming road traffic as the major emission source. Trends are discussed in more detail in section 3.3.

Table 3.2: National Annual Average NO_2 Concentrations from the UK NO_2 Diffusion Tube Network 1993-2004 (Unadjusted Values)

Sites	*Annual Average NO_2 Concentration ($\mu g\ m^{-3}$)*											
	1993	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Roadside	44	46	48	46	44	44	43	39	39	39	43	**40**
Urban Backgd.	27	27	27	27	25	23	23	22	22	22	24	**21**

Table 3.3 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 3.3: Average NO_2 Concentration Ratios by Location Type from the UK NO_2 Diffusion Tube Network 1993-2004 (Unadjusted Values)

	1993	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*
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	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 triplicate 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 smaller 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 15 of the 21 participating laboratories that passed the QC criteria. However, these laboratories are responsible for analysis of tubes from a substantial proportion (89%) 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 that 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 2004 annual mean NO_2 concentration for each site 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 the 2004 UK annual means from 40 $\mu g\ m^{-3}$ to 33 $\mu g\ m^{-3}$ (roadside) and from 21 $\mu g\ m^{-3}$ to 18 $\mu g\ m^{-3}$ (urban background). Using Approach 2, the effect of bias adjustment was to reduce UK annual means from 40 $\mu g\ m^{-3}$ to 37 $\mu g\ m^{-3}$ (roadside) and from 21 $\mu g\ m^{-3}$ to 20 $\mu g\ m^{-3}$ (urban background). Table 3.4 shows the effect of this.

Table 3.4: UK Annual Average NO_2 Concentrations from the UK NO_2 Diffusion Tube Network 2004: Effect of Applying Bias Adjustment Factors from 2 main Sources

Approach	Roadside $\mu g\ m^{-3}$	Urban Background $\mu g\ m^{-3}$
Unadjusted	40	21
Approach 1 BAFs *(Field Intercomp. Only)*	33	18
Approach 2 BAFs *(AQC Ltd Spreadsheet & others)*	37	20

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 Regional Statistics

Tables 3.5 and 3.6 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 2004 ranged from 33 $\mu g\ m^{-3}$ to 57 $\mu g\ m^{-3}$ at roadside locations. Concentrations at urban background locations ranged from 15 to 34 $\mu g\ m^{-3}$.

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 2004 was London (57 $\mu g\ m^{-3}$), followed by the Eastern region (42 $\mu g\ m^{-3}$).

The region with the highest average urban background concentrations in 2004 was also London (34 $\mu g\ m^{-3}$), considerably higher than any other regions - the next highest being Yorkshire and the Humber (27 $\mu g\ m^{-3}$). The lowest average urban background concentrations (15 $\mu g\ m^{-3}$) were measured in Scotland.

No regional mean is shown for Northern Ireland. Most of the Local Authorities in Northern Ireland obtained their tubes from one of two laboratories. Neither of these laboratories met the Network's performance testing criteria in 2004, and this resulted in the rejection of the majority of Northern Ireland's dataset (all but four sites). This was considered insufficient to provide a representative mean for the region.

The previous report in this series highlighted that most (though not all) regions showed an increase in mean roadside and urban background NO_2 concentration in 2003. This was attributed to meteorological factors. The most notable increase was for London, where the annual mean roadside concentration increased from 46 $\mu g\ m^{-3}$ to 61 $\mu g\ m^{-3}$. The 2004 dataset indicates that mean roadside and urban background NO_2 concentrations in most regions returned to their 2002 levels (in some cases lower). However, London has proved to be an exception: although 2004 concentrations are lower than those measured last year, they remain high compared with those measured in previous recent years. This is discussed further in section 3.3.3 on regional trends.

Table 3.5: Summary of Regional Annual Average NO_2 Concentrations in the UK from the UK NO_2 Diffusion Tube Network 1993-2004; Roadside.

Region	Annual Average (µg m^{-3})											
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
North East	34	25	34	32	36	36	34	32	31	32	37	33
North West & Merseyside	53	50	50	48	48	50	52	43	43	44	41	40
Yorkshire & The Humber	46	53	55	50	52	48	45	43	44	45	48	41
East Midlands	50	52	53	52	50	48	49	45	41	38	39	39
West Midlands	32	38	50	50	46	46	44	43	43	40	45	41
Eastern	48	52	52	50	44	42	48	44	41	42	46	42
London	50	57	55	57	50	48	50	45	47	46	61	57
South East	40	44	46	46	42	42	45	43	43	40	45	39
South West	42	46	40	42	42	38	37	35	37	33	39	36
Wales	38	38	40	38	36	36	37	32	31	33	38	33
Scotland	42	42	44	36	36	38	34	32	32	38	39	35
Northern Ireland	38	40	42	40	36	36	33	29	27	27	27	-

Table 3.6: Summary of Regional Annual Average NO_2 Concentrations in the UK from the UK NO_2 Diffusion Tube Network 1993-2004; Non-Roadside.

Region	Annual Average (µg m^{-3})											
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
North East	23	23	27	23	21	21	20	20	19	22	21	17
North West & Merseyside	36	32	31	32	32	31	30	25	24	24	24	22
Yorkshire & The Humber	32	36	36	29	34	29	27	27	26	26	28	27
East Midlands	34	34	29	34	32	31	29	28	25	24	24	23
West Midlands	23	25	29	32	27	27	25	25	24	22	25	23
Eastern	31	34	32	32	29	27	30	29	25	25	27	24
London	36	40	38	38	36	36	35	32	29	29	35	34
South East	27	27	29	25	25	25	26	25	24	23	25	21
South West	23	23	23	23	25	23	20	19	17	16	19	16
Wales	23	23	23	31	19	19	18	16	15	17	20	16
Scotland	25	23	25	21	19	17	16	16	15	17	19	15
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 3.7 presents the monthly average NO_2 concentrations observed during 2004. There is a seasonal pattern, with the highest concentrations occurring in winter months for all location types. Table 3.8 shows the ratio of winter mean (October to March) to summer mean (April to September) for the years since 1993. Winter:summer ratios for 2004 are consistent with those measured in recent years.

Table 3.7: Monthly Average NO_2 Concentrations from the UK NO_2 Network (2004)

Sites	NO_2 Concentrations ($\mu g\ m^{-3}$)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All sites	34	35	32	29	28	23	25	27	26	32	37	36
Roadside	41	44	41	39	38	32	34	38	35	41	46	44
Urban Background	26	27	23	20	18	14	15	17	17	23	28	28

Table 3.8: Winter/Summer Ratios of UK Average NO_2 Concentrations (2004)

Sites	Winter:Summer Ratio											
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
All sites	1.17	1.20	1.18	1.21	1.28	1.29	1.20	1.28	1.38	1.31	1.31	1.32
Roadside	1.05	1.05	1.03	0.99	1.09	1.14	1.06	1.13	1.24	1.19	1.16	1.19
Urban Background	1.28	1.37	1.33	1.29	1.46	1.45	1.34	1.44	1.66	1.54	1.62	1.54

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 performance.

3.3.2 UK Trends

Annual mean NO_2 concentrations for all site types, 1993 to 2004, are shown in Table 3.9 below. The 2003 report highlighted that UK annual mean concentrations for both roadside and urban background sites increased during 2003. 2003 has been widely reported as an unusual (though not exceptional) year in terms of air pollution[23], when meteorological conditions gave rise to 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. It appears that in 2004, UK annual mean NO_2 concentrations returned to levels similar to those measured in 2002.

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. This downward trend remains statistically significant at the 95% confidence level.

Table 3.9: Annual Average NO_2 Concentrations as measured in the UK NO_2 Diffusion Tube Network

Sites	*Annual Average NO_2 Concentration ($\mu g\ m^{-3}$)*											
	1993	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*
Roadside	44	46	48	46	44	44	43	39	39	39	43	40
Intermediate	32	32	34	32	31	29	29	27	-	-	-	-
Urban Background	27	27	27	27	25	23	23	22	22	22	24	21
Intermediate & Urban Background	29	29	29	29	27	25	25	23	-	-	-	-

Figure 3.1 illustrates how the UK annual mean NO_2 concentration, as measured by this diffusion tube network, has changed between 1993-2004. 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. After 2000, there appears to have been little further decrease. The plot shows the small increase in 2003, for both site categories, before mean concentrations decreased again in 2004.

3.3.3 Regional Trends

Tables 3.5 and 3.6 above, and Figures 3.2 and 3.3, 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 3.2).

As discussed above, most (though not all) regions showed an increase in roadside NO_2 concentration in 2003[23], and this was particularly pronounced in the case of London. Most regions then showed a decrease in 2004, with roadside NO_2 concentrations returning to their pre-2003 levels. However, this was not the case for London. Roadside NO_2 concentrations in London remained substantially higher than they have been for several years.

Figure 3.3 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). As for the roadside category, most regions showed an increase in urban background NO_2 in 2003, before returning to their pre-2003 levels in 2004. However, urban background concentrations in London increased more than any other region in 2003, and have not returned to their pre-2003 levels.

3.3.4 Recent NO_2 concentrations in London

As discussed above, Figures 3.2 and 3.3 show:

(i) that in 2003, London showed a more marked increase in annual mean NO_2 concentration at both roadside and urban background sites, than did any other region.

(ii) that annual mean concentrations in London have not returned to their pre-2003 levels as has been the case for other regions.

This indicates that, in addition to the meteorological factors that affected most of the UK, something else caused NO_2 levels in London to increase in 2003 and remain elevated in 2004. One possibility was that this apparent effect was an "artefact" related to some aspect of diffusion tube monitoring. This was investigated by examining data from the Automatic Urban and Rural Network (AURN) sites in London. These use automatic (chemiluminescence) analysers to monitor oxides of nitrogen.

Figure 3.4 shows annual mean NO_2 concentrations in London, as measured by:

- Roadside and kerbside automatic monitoring sites in the AURN: in 2004 there were 7 roadside and 2 kerbside AURN sites in London.
- Urban Background, Urban Centre and Suburban automatic monitoring sites in the AURN: in 2004 there were a total of 13 such sites – five Urban Centre, five Urban Background and three Suburban.
- Roadside automatic monitoring sites in the NO_2 Network
- Urban Background automatic monitoring sites in the NO_2 Network.

The two Networks, which monitor NO_2 using different techniques at different sites, show a similar pattern. It therefore appears that the measured increase in NO_2 in London is genuine.

Research by the Institute of Transport Studies at the University of Leeds[24], based on data from London monitoring sites, has provided evidence that the ratio of NO_2 to total NO_x emitted by road vehicles has increased markedly in recent years, from around 5-6% by volume in 1997 to around 17% by volume in 2003. This has had a significant effect on roadside NO_2 concentrations in London. The Air Quality Expert Group (AQEG) is currently carrying out an investigation into these apparent increases in ambient roadside NO_2 concentrations, and plans to report its findings in the summer of 2006.

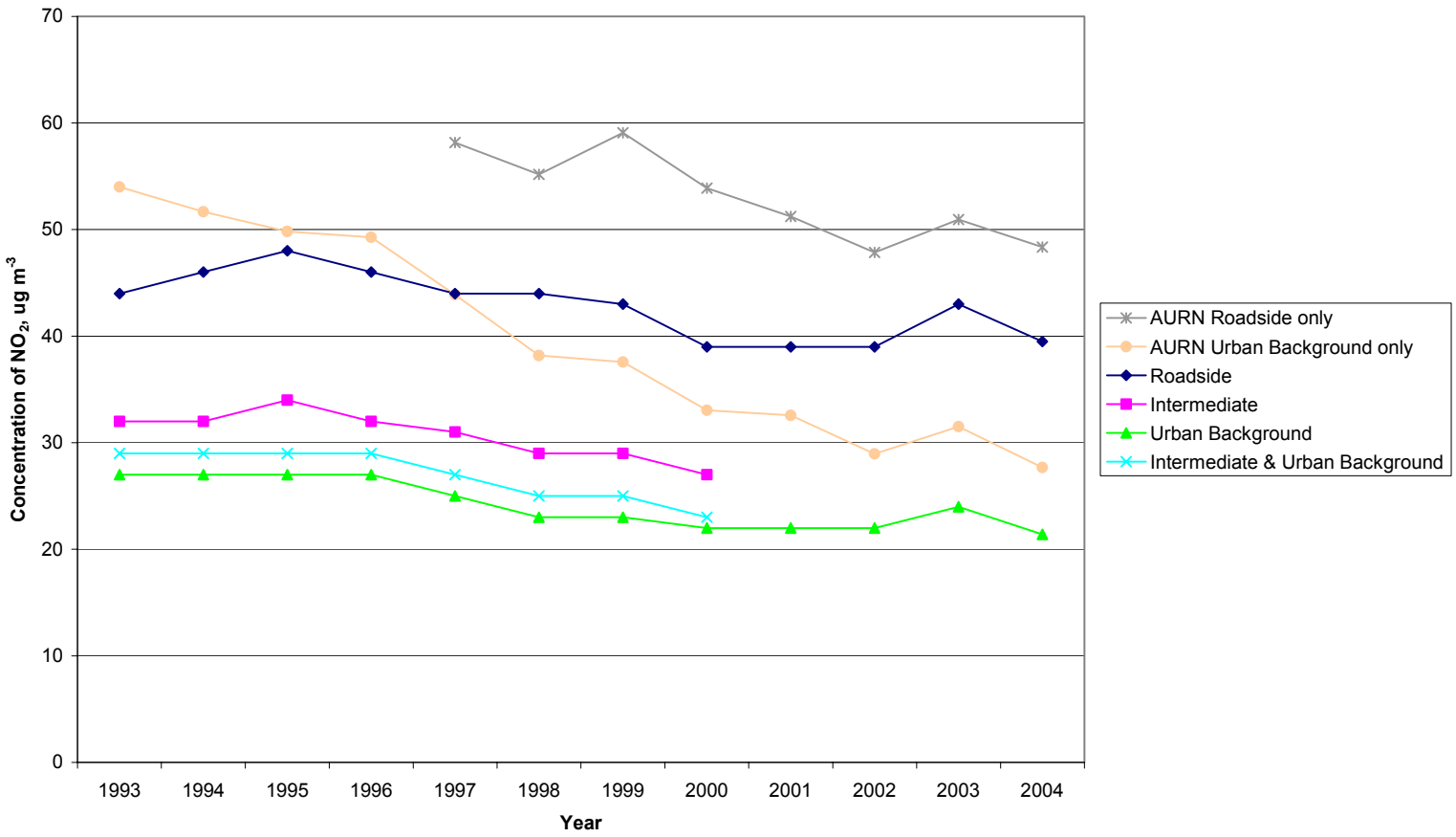

Figure 3.1: Trends in Annual Mean NO2 Concentration, as measured in the NO_2 Diffusion Tube Network and the AURN, 1993-2004.

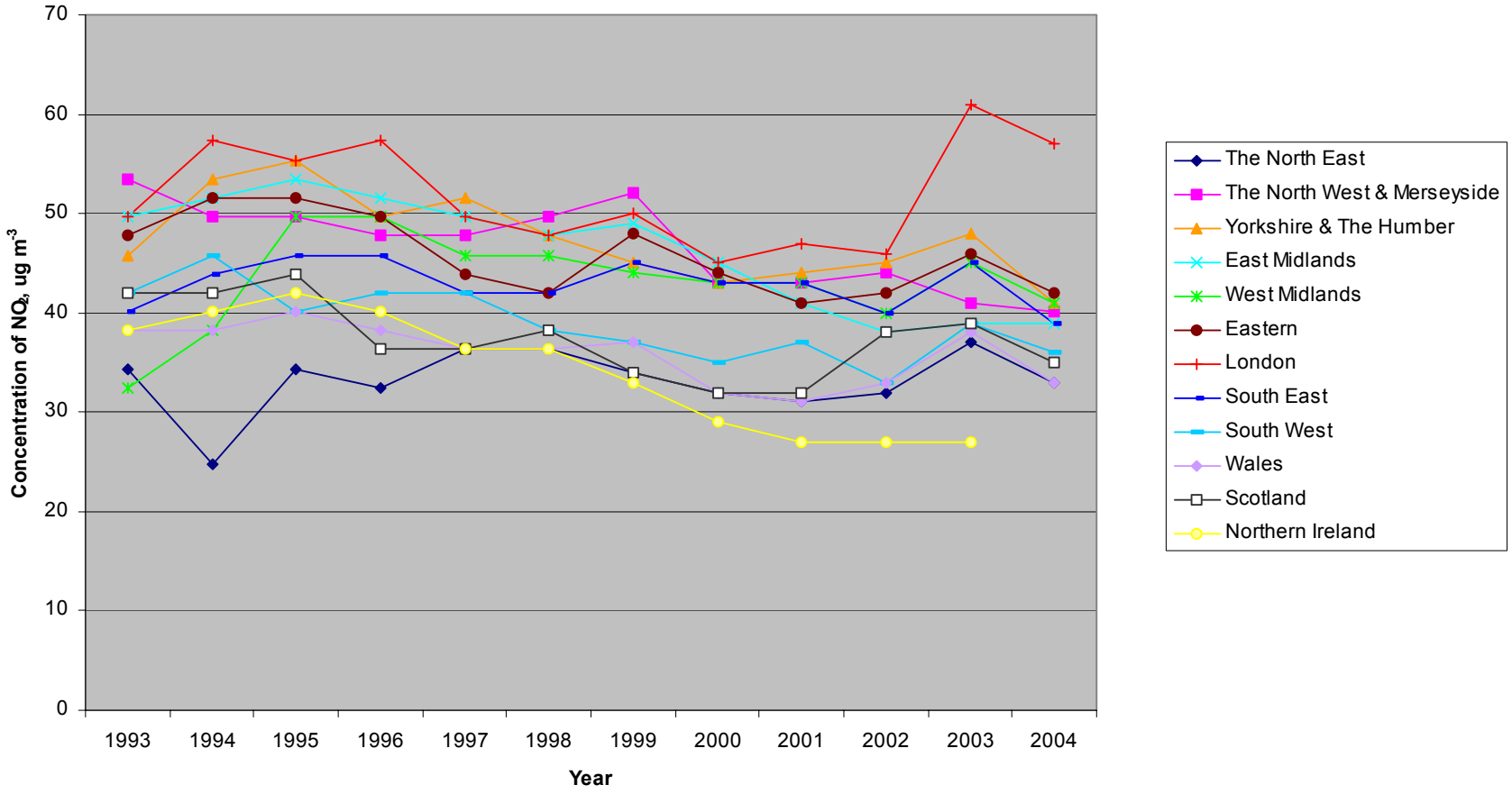

Figure 3.2: Regional Average NO_2 Concentrations at Roadside Sites in the UK, as measured in the UK NO_2 Diffusion Tube Network, 1993-2004.

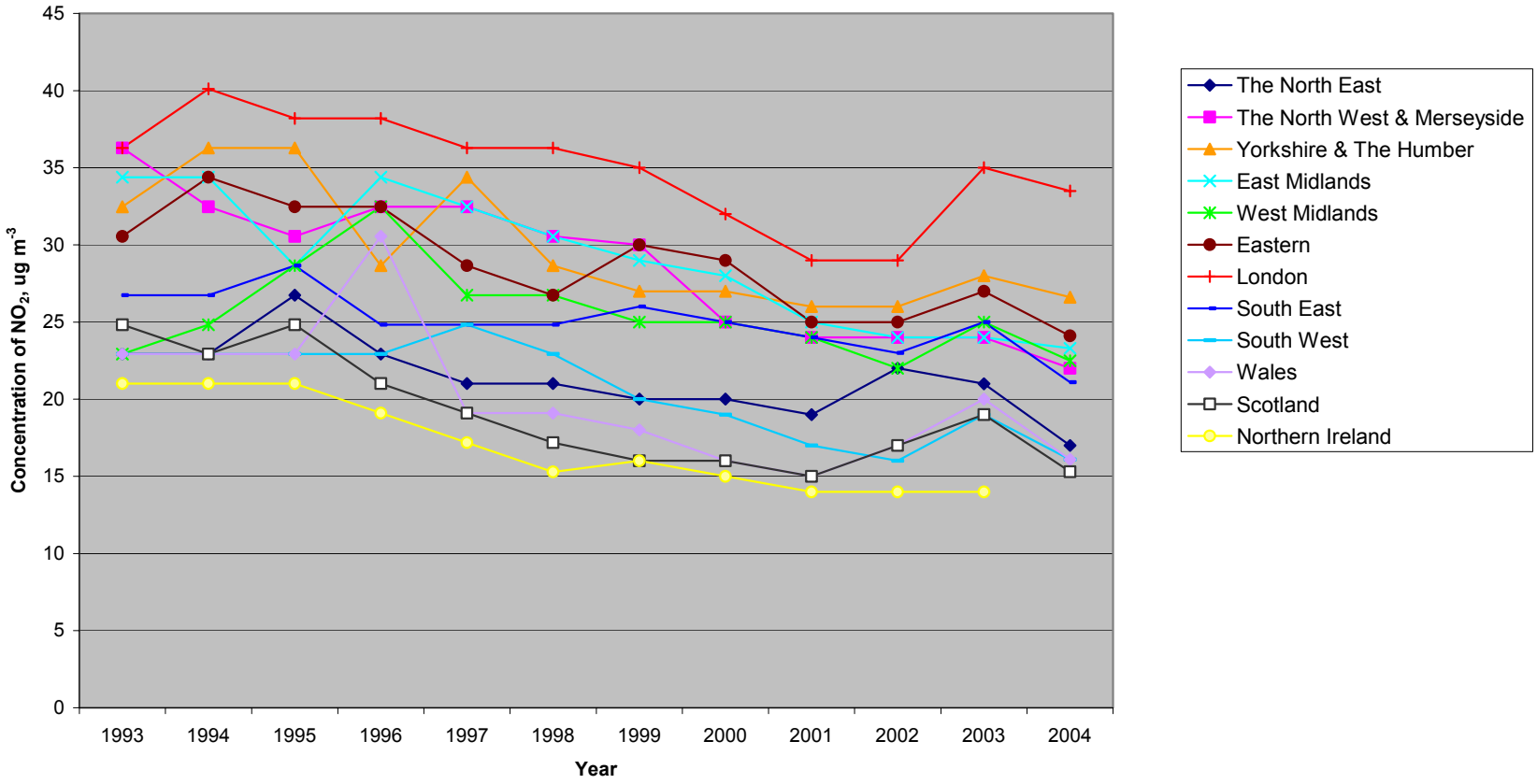

Figure 3.3: Regional Average NO_2 Concentrations at Urban Background Sites in the UK, as measured in the UK NO_2 Diffusion Tube Network, 1993-2004.

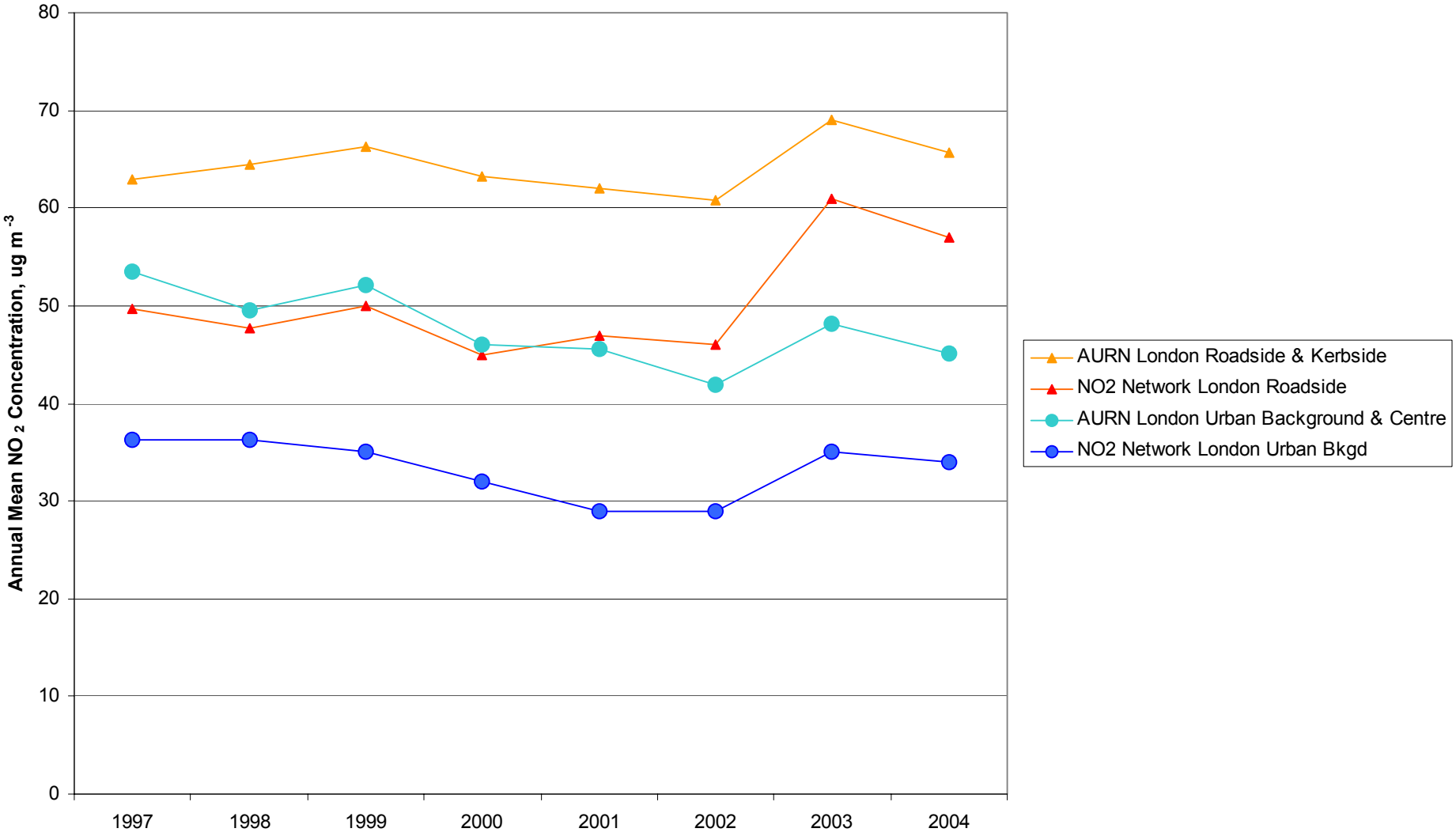

Figure 3.4: Comparison of Annual Mean NO_2 Concentrations in London, as Measured in the NO_2 Network and AURN, 1997-2004.

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)[25]. This has been superseded by a new EC Directive (the 1st Daughter Directive, 1999/30/EC[26]), 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[27], Wales[28], and Scotland[29], and the Air Quality Limit Values Regulations (Northern Ireland) 2002[30] , include standards and objectives for NO_2. These are explained in the Air Quality Strategy for England, Scotland, Wales and Northern Ireland (January 2000)[31]. Therefore, the following air quality standards for NO_2 were applicable to the UK in 2004:

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; and
- Guide Value of 50 μg m^{-3} (26 ppb) as the 50th percentile of hourly averages.

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; and
- 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

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;and
- 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, "exceedance" 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 2004, two roadside sites measured annual average NO_2 concentrations equal to or greater than 91 μg m^{-3}. The sites were Richmond Upon Thames 5N and London City 39N (Richmond Upon Thames 5N exceeded this value in 2003).

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 2004, 197 roadside sites (37% of all roadside sites with a valid annual mean), and 9 urban background sites (1.6% of all urban background sites) produced annual average concentrations greater than 40 μg m^{-3}. These proportions are comparable with those measured two years previously in 2002, which were 35% for roadside sites and 0.9% for urban background sites.

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 2004 concentration multiplied by a factor of 0.802 for roadside sites, and equivalent to the 2004 concentration multiplied by a factor of 0.839 at urban background sites[13]. On this basis, it is estimated that, on average, roadside sites measuring in excess of 49.8 μg m^{-3}, and urban background sites measuring in excess of 47.6 μg m^{-3} during 2004 may be at risk of exceeding the EC Daughter Directive Limit Value of 40μg m^{-3} in 2010. A total of 95 roadside sites had annual mean NO_2 concentrations greater than 49.8 μg m^{-3} in 2004, and are therefore predicted to be at risk of exceeding the EC Daughter Directive objective in 2010. Just two urban background sites had an annual mean greater than 47.6 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.

4.3 COMPARISON WITH THE AQS OBJECTIVE FOR ANNUAL AVERAGE NO_2

The Air Quality Regulations (2000) for England[27], Wales[28], and Scotland[29], and the Air Quality Limit Values Regulations (Northern Ireland) 2002[30] formally prescribe the following air quality objectives for the end of 2005, (as set out by the AQS[31]), 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; and

- 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[13,32] 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.

Annual mean NO_2 concentrations greater than 40 μg m^{-3} were measured at 206 Network sites in total, of which 197 were roadside and nine were urban background. These sites are at risk of exceeding the AQS objective in 2005, *if there is relevant public exposure*.

This is consistent with the conclusions of the 2004 report produced by the Air Quality Expert Group (AQEG)[32], which acknowledges that there are likely to be some exceedances of objectives and limit values for NO_2.

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 chemiluminescence analyser. Figure 3.5 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 1993-2004:

- AURN Roadside sites (1-5m from the kerb);
- AURN Urban Background sites (these are situated at urban background locations in larger towns and cities); and
- NO_2 Network roadside, intermediate (up to 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 over 20 in 2004, and the number of AURN urban background sites has risen from 5 in 1993 to over 20 in 2004, these totals remain much lower than NO_2 Network site numbers; and
- 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. Both roadside and urban background site categories in both networks show an increase in 2003 compared with recent years, followed by a decrease to pre-2003 levels. The two networks show very similar patterns in this respect.

5.2 COMPARISON WITH ESTIMATED NO_X EMISSIONS

Estimates of total NO_x emissions in the UK from National Atmospheric Emissions Inventory (NAEI)[33] are given in Table 5.1 below, and illustrated above in Figure 3.5. These show a decrease of 809 ktonnes (33% of the 1993 total) between 1993-2003 (2004 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 5.1: Estimated NO_x Emissions in the UK 1993-2003[33]

Source	*Estimated NO_x Emission (ktonnes)*										
	1993	***1994***	***1995***	***1996***	***1997***	***1998***	***1999***	***2000***	***2001***	***2002***	***2003***
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 in the NO_2 Network, has decreased by approximately 10% for roadside sites and approximately 20% for urban background sites over the same period. 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[25]. 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.

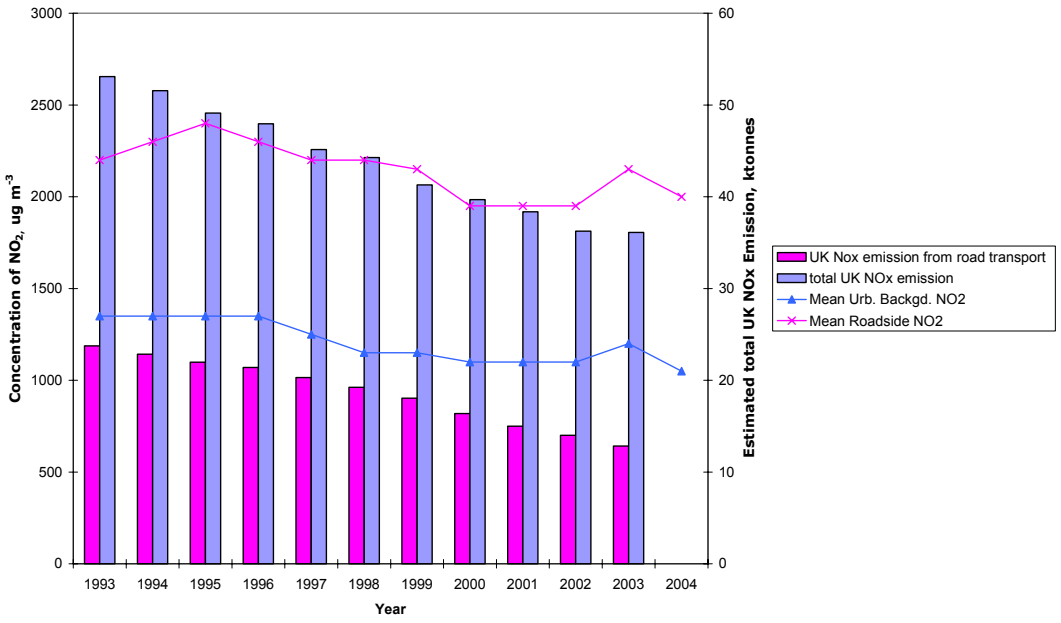

Figure 3.5 Comparison of Annual Mean NO_2 Cocnentrations (as measured by the NO_2 Network) and estimated UK emissions of total NO_x.

6 Future Developments

As explained in section 1, Defra's review in 2005 concluded that the NO_2 Network would cease operation as of the 31st December 2005. However, NO_2 diffusion tubes are now widely used by Local Authorities for LAQM purposes, and Defra acknowledged that the Network's QA/QC programme had been of benefit not only to the Network but in the wider context of LAQM, as it helped to improve and maintain the quality of all NO_2 diffusion tube measurements carried out by Local Authorities, not just those undertaken for the Network. Defra and the DA's have therefore decided to continue a central NO_2 diffusion tube QA/QC programme as part of a new contract, entitled **"Support to Local Authorities for Air Quality Management"**, which brings together the Air Quality Monitoring and Modelling Helpdesks, and QA/QC support for NO_2 diffusion tube monitoring. This new contract has now been awarded by Defra and the DA's to a project team led by Netcen, working together with Air Quality Consultants and Casella Stanger.

The following services will be provided, to assist Local Authorities using diffusion tubes as part of their Local Air Quality Management process:-

- The existing Web-Based Data Entry System will be extended to accept data from *all* Local Authority diffusion tube sites. It can also accept automatic monitoring data from co-located sites. This will provide Local Authorities with a safe and convenient means of storing NO_2 diffusion tube data, free of charge, and of making it available to others via the Defra Air Quality Archive.

- Co-ordination of a quality assurance/quality control (QA/QC) framework for laboratories carrying out diffusion tube analysis. The existing activities will be reviewed and enhanced, but will still include, as at present:

    - Promotion of the independent Workplace Analysis Scheme for Proficiency (WASP), operated by the Health and Safety Laboratory, with yearly assessment against agreed performance criteria;

    - Operation of a field intercomparison exercise, in which diffusion tubes are co-located with an automatic analyser: from January 2006 this is at a roadside site, as the majority of Local Authority monitoring is located at roadside; and

    - Operation of a QC solution testing scheme.

- A Data Verification Service, offering additional data management activities for any Local Authorities who wish to make use of it. This will be operated along similar lines to the Netcen Calibration Club, and it is envisaged that it will be particularly useful to authorities operating large numbers of diffusion tubes. Details of how this service will operate are still being finalised and will be provided to Local Authorities shortly.

- A Working Group on harmonisation of preparation and analysis methods. The aim will be to develop and agree an optimised technique for diffusion tube preparation and analysis, which will reduce the uncertainty of the data. This is to include representation from laboratories, Local Authorities and other stakeholders, and is scheduled to begin in early 2006.

7 Conclusions

The conclusions from the NO_2 Network for 2004 are as follows:

1. Overall annual average concentrations for 2004 at the sampler locations monitored were as follows: Roadside 40 μg m^{-3}; and Urban Background 21 μg m^{-3}. These annual averages show a return to pre-2003 concentrations, after the small increase observed by this and other networks during 2003.

2. Regional annual mean NO_2 concentrations for 2004, in most regions of the UK, were slightly lower than those measured in 2003: However, this was not the case for London. Both roadside and urban background NO_2 concentrations in London remained substantially higher than they have been for several years. Mean NO_2 concentrations in London increased more than any other region in 2003, and have not returned to their pre-2003 levels. This pattern has been observed not only by the NO_2 Network, but also by the AURN. The Air Quality Expert Group is investigating the reason for these increases, and plans to publish a report in the summer of 2006.

3. The downward trend reported in the 2002 report remains statistically significant at the 95% confidence level.

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

5. Bias adjustment factors from two sources were applied to the annual means. Using bias adjustment factors exclusively from the NO_2 Network's own Field Intercomparison reduced UK annual means from 40 μg m^{-3} to 33 μg m^{-3} (roadside) and from 21 μg m^{-3} to 18 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 40 μg m^{-3} to 37 μg m^{-3} (roadside) and from 21 μg m^{-3} to 20 μg m^{-3} (urban background).

6. Two 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 2004.

7. 95 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.

8. 197 roadside sites and nine 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 AQEG report on this pollutant, which predicts some exceedances of NO_2 objectives at roadside locations.

9. The NO_2 Network was discontinued at the end of 2005, and this report is the last in the series of annual reports. Data from the Network from 1993 to 2005 remain available from the Defra Air Quality Archive at www.airquality.co.uk .

10. Although the NO_2 Network has ceased operation, Defra and the Devolved Administrations continue to provide QA/QC activities and other support for Local Authorities using diffusion tubes as an indicative monitoring tool, in the context of LAQM.

8 Acknowledgements

All of the measurement data presented in this series of reports from 1993 to 2004 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, throughout the operational period of the Network (1993 to 2005) is gratefully acknowledged.

The central organisation of the study, analysis of data and organisation of laboratory field intercomparison has been funded by the Department for Environment, Food and Rural Affairs, the Scottish Executive, the Welsh Assembly Government and the Department of Environment in Northern Ireland as part of the Air Quality research programme.

The work of the Health and Safety Laboratory in the QA/QC programmes is also gratefully acknowledged.

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Appendix A
NO_2 Network QA/QC (2004)

A.1 THE NO_2 NETWORK QA/QC PROGRAMME

The aim of the NO_2 Network's quality assurance and quality control (QA/QC) programme was to assess uncertainties and variation in analytical performance. It consisted of four parts:-

1. **The Workplace Analysis Scheme for Proficiency (WASP) programme for NO_2 diffusion tube analysis.** A performance testing scheme which uses artificial analytes (doped tubes) to test the quality of laboratory analyses on a monthly basis. The scheme 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 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 within the Network were set on the basis of items 1 and 2 above. Laboratories were 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. Defra acknowledged that the Network's QA/QC programme was of benefit in the wider context of LAQM, as it helped to improve and maintain the quality of all NO_2 diffusion tube measurements carried out by Local Authorities. Therefore, parts 1-3 of this QA/QC programme have continued to operate under Defra's "Support to Local Authorities for Air Quality Management" contract, after the closure of the NO_2 Network at the end of 2005.

A.2 WASP SCHEME FOR NO_2 DIFFUSION TUBES

All laboratories carrying out diffusion tube analysis for the UK NO_2 Network had to participate in the Health and Safety Laboratory's Workplace Analysis Scheme for Proficiency (WASP) for diffusion tube analysis. The WASP scheme was different from other parts of the Network's QA/QC in that it was (and remains) an independent, internationally recognised performance testing programme. (In contrast, the other parts were 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.

A2.1 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 a standard deviation around 0.5%. Table A1 shows the results obtained by the participating laboratories during 2004. Monthly 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. HSL classify results as follows:

Good	$\leq$ 2 Standard deviations from actual value
Warning	2-3 Standard deviations from actual value
Action	$\geq$ 3 Standard deviations from actual value

Table A1: Results of Doped Tube Analysis in WASP Scheme, 2004

Laboratory Name (Abbreviated)	Mass of Nitrite Extracted from Doped Tube (ug)											
	Jan-04	Feb-04	Mar-04	Apr-04	May-04	Jun-04	Jul-04	Aug-04	Sep-04	Oct-04	Nov-04	Dec-04
	WASP R57	WASP R58	WASP R59	WASP R60	WASP R61	WASP R62	WASP R63	WASP R64	WASP R65	WASP R66	WASP R67	WASP R68
Bristol City Council Sci. Serv.	2.48	1.13	0.73	2.30	1.06	1.65	0.75	2.38	1.80	0.93	2.30	1.20
Cardiff Scientific Services	2.58	1.24	0.60	2.08	1.03	1.80	0.83	2.48	1.84	1.02	2.56	1.47
Clyde Analytical Ltd	2.49	1.36	0.84	2.44	1.14	1.96	0.73	2.45	1.48	0.82	2.56	1.45
Dundee City Council	2.74	1.27	0.84	2.51	1.03	1.74	0.83	2.30	1.84	0.90	2.27	1.51
City of Edinburgh Council	2.60	1.28	0.76	2.31	1.08	1.56	0.76	2.51	1.75	0.99	2.50	1.45
GRADKO International Ltd	1.42	1.19	0.75	2.43	0.86	1.80	0.82	2.06	1.61	0.89	2.37	1.43
Casella CRE	2.45	1.16	0.62	2.31	no result	1.74	0.74	2.30	1.76	0.99	no result	1.34
Harwell Scientifics	2.54	1.85	0.83	2.37	0.98	1.81	0.81	2.42	1.74	0.98	2.45	1.43
South Yorkshire	2.50	1.19	0.76	2.32	1.02	1.60	0.79	2.31	1.76	0.95	2.47	1.47
Kent Scientific Services	2.52	1.19	0.75	2.13	0.97	1.69	0.70	1.84	1.53	0.82	2.35	1.24
Lambeth Scientific Services Ltd	2.10	no result	no result	no result	no result	no result	1.06	1.92	1.61	0.93	2.34	1.38
Lancashire County Analyst	2.65	0.92	0.56	1.89	0.92	1.20	0.69	2.23	1.35	0.77	2.16	0.92
Glasgow Scientific Services	2.68	1.34	0.76	2.33	1.00	1.73	0.80	2.30	1.79	0.97	2.49	1.39
Jesmond Dene Laboratory	2.68	1.24	0.83	2.40	1.00	1.57	0.83	2.79	1.92	0.93	2.12	1.40
Walsall MBC	2.26	0.93	0.66	2.18	0.86	1.77	0.77	2.19	1.77	0.99	3.02	1.39
West Yorkshire Analytical Serv.	2.44	1.02	0.73	2.28	0.76	1.66	0.82	2.27	1.53	0.94	2.44	1.45
University of Essex	no result	1.17	1.01	2.39	0.99	no result	0.79	1.46	no result	0.67	2.57	1.22
Milton Keynes BC	2.50	1.25	0.83	2.17	1.01	1.69	0.84	2.33	1.67	0.94	2.33	1.43
Staffordshire CC	2.33	1.10	0.71	2.33	0.94	1.58	0.77	1.84	1.74	0.87	1.97	1.43
Ruddock & Sherratt	2.65	1.11	0.50	1.92	0.77	0.59	0.56	2.20	1.92	1.06	2.29	no result
Northampton BC	2.30	0.91	0.65	1.56	0.96	0.26	0.91	1.57	1.59	0.77	5.50	0.98
Aberdeen CC	2.67	1.24	0.78	2.48	1.00	1.71	0.78	2.39	1.80	0.96	2.31	1.41
STL Bridgend	2.32	2.59	0.79	2.24	1.01	1.70	0.76	2.41	1.71	0.87	2.23	1.43
Kirklees Environmental Services	2.74	1.22	0.82	2.48	1.11	1.80	0.85	2.54	1.95	1.16	2.66	1.43
Assigned Value	**2.56**	**1.17**	**0.75**	**2.30**	**1.01**	**1.73**	**0.79**	**2.39**	**1.80**	**0.93**	**2.45**	**1.42**
Mean of all labs' results	**2.46**	**1.26**	**0.74**	**2.25**	**0.98**	**1.57**	**0.79**	**2.23**	**1.72**	**0.92**	**2.53**	**1.36**
CoV of all labs' results	**11.4%**	**27.6%**	**14.8%**	**9.9%**	**9.9%**	**25.5%**	**11.2%**	**13.9%**	**8.8%**	**11.2%**	**26.8%**	**11.1%**

In 2004, the coefficient of variation of all laboratories' results ranged from 8.8% (Round 65) to 27.6% (Round 58), with a mean of 15% 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.

A2.2 WASP Performance Criteria used for Network QA/QC

Netcen used the monthly performance scores assigned by HSL only to keep track of laboratory performance and highlight any problems. Additional assessment of laboratory performance was carried out for each full calendar year, for Network QA/QC purposes. This was based on the following criteria, which were agreed with Defra and HSL (Please note, these applied only to the NO_2 Network).

1. Where a laboratory joined or left the WASP programme part way through the year, its data were 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 were allowed to miss no more than 2 of the 12 monthly WASP rounds.
3. If a participating laboratory *did* miss more than 2 rounds in the year, results from the preceding or following year may be taken into account. However, if significantly more than 2 rounds were missed, the laboratory's data were rejected.
4. The year's **single** worst result for the laboratory was discarded. This makes some limited allowance for one-off problems with analytical equipment etc.
5. Each laboratory's monthly standardised results were 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 was 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 was greater than 25%, the laboratory's performance for the year in the WASP scheme was deemed unsatisfactory. For 2005, this was tightened to 15%, as HSL consider that a competent analyst should be able to consistently obtain results within ±10% of the assigned value.

A2.3 WASP Programme Performance Test Results 2004

The monthly performance scores for 2004 were assessed according to these criteria. The relative standard deviations are shown in Table A2.

A substantial proportion of the laboratories were able to achieve a mean RSD well below 10%. The median RSD for all laboratories with at least 9 months' WASP results in the year was 8.6%. 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 ±10% of the assigned value. Laboratories were notified that the performance standard for the mean RSD was to be tightened to 15% for year 2005.

One laboratory (Northampton BC) failed to meet the performance standard of 25% for the RSD. Two further laboratories (Lambeth Scientific Services and University of Essex) failed to complete the required number of rounds. Lambeth missed five consecutive rounds (February to June 2004); this laboratory's data were rejected from the NO_2 Network's 2004 dataset, and have not been included in this report. It should be noted that Lambeth did not fail on the basis of poor performance, but on the basis on insufficient participation in the WASP scheme. University of Essex

missed three rounds: this laboratory also failed to meet the performance criteria for the Field Intercomparison (see section A2), so this laboratory's data also were rejected from the NO_2 Network's 2004 dataset.

Table A2: Overall Relative Standard Deviations of Standardised Results for Laboratories in WASP, 2004

Laboratory Code	Months Participated	RSD (%)	Comments
Bristol City Council	12	3.6	
Cardiff Scientific Services	12	5.4	
Clyde Analytical Ltd	12	9.6	
Dundee City Council	12	5.7	
Edinburgh City Council	12	4.7	
GRADKO International Ltd	12	7.5	
Casella CRE	10	4.1	
Harwell Scientifics	12	4.3	
South Yorkshire *	12	2.0	
Kent Scientific Services	12	8.3	
Lambeth Scientific Services Ltd	**7**	11.9	Missed 5 rounds
Lancashire County Analyst	12	18.4	
Glasgow Scientific Services	12	2.5	
Jesmond Dene Laboratory	12	6.9	
Walsall Metropolitan Borough Council	12	9.9	
West Yorkshire Analytical Services	12	6.6	
University of Essex	**9**	16.7	Missed 3 rounds
Milton Keynes Borough Council	12	4.4	
Staffordshire County Council	12	8.1	
Ruddock & Sherratt	11	17.8	
Northampton Borough Council	12	**32.8**	RSD > 25% - failure.
Aberdeen City Council Public Analyst	12	3.3	
STL Bridgend	12	5.1	
Kirklees Environmental Services	12	7.2	
Median		**8.6**	

**formerly Rotherham MBC*

A.3 FIELD INTERCOMPARISON EXERCISE

Although the WASP scheme, and the QC Solution testing scheme, provided a regular check of each laboratory's performance with respect to analysis of diffusion tubes, neither scheme provided any information on how the diffusion tubes themselves performed under actual exposure conditions. Therefore, a field intercomparison exercise was 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, was that diffusion tubes from each laboratory were 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 chemiluminescence NO_x monitoring equipment at the site provides a reference measurement, with which the diffusion tube results can be compared.

The Field Intercomparison was (and continues to be) 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. There was an unavoidable change of location for the intercomparison during 2004; the original site (Defra's Wigan Leigh AURN site) was closed for refurbishment of the Police Station in which it was housed. It was therefore necessary to relocate the intercomparison. The Liverpool (Speke) AURN site was selected as the most suitable

replacement, and the change was made at the time of the June/July tube change. Thus, the intercomparison was operated at Wigan Leigh for the first six months of the year, then at Liverpool Speke for the second half. Both sites are classified as Urban Background and located in suburban surroundings. The tubes were exposed at Wigan Leigh on a purpose-built rack within 5m of the inlet to the automatic monitor, and at Speke they were fixed to railings on the top of the hut housing the monitoring equipment.

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 chemiluminescence 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 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 chemiluminescence analyser.

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

While the majority of laboratories participated monthly, some of the smaller laboratories considered that it was not feasible for them to do so, 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 RSDs 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 ±35%** 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.

A3.1 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
All laboratories completed the minimum number of rounds in the Field Intercomparison. One laboratory (Kent Scientific Services, a quarterly participant) completed the required minimum 3 rounds: however, one round was invalid because the tubes were believed to be faulty. This left 2 rounds – insufficient for valid assessment. Because the laboratory had completed the requisite minimum number of rounds, Netcen took the decision not to reject its data on this occasion.

(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 8.5%.

(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 Bias B for all laboratories. This clearly varies from month to month, and shows a similar pattern to that observed in 2004; the lowest values of B appear to occur in spring, and the highest during October – December. Diffusion tubes are known to be affected by environmental factors (such as wind and sunlight): further indication that there may be a consistent seasonal pattern. However, because of the change of site (from Wigan Leigh to Liverpool Speke) at the beginning of July, any apparent seasonal variation should be treated with caution in this year's intercomparison.

Annual mean bias for laboratories with at least 9 months data varied from –30% to +45%: a considerable variation. The reasons for such a wide variation between laboratories remain unclear. As part of the new Support to Local Authorities for Air Quality Management contract, Netcen together with Air Quality Consultants will be setting up a Working Group on harmonisation of diffusion tube measurements, in and attempt to address the issue of inter-laboratory variation.

The 95% confidence interval on the annual mean bias is also shown: this is the parameter on which our performance criteria are set, of 25% maximum for monthly participants, and 35% maximum for quarterly participants. Not all laboratories met the required criteria. Three failed to meet the criteria by a large margin: University of Essex, Ruddock and Sherratt, and Kirklees Environmental Services. Data from these laboratories were therefore rejected from the Network dataset and have not been included in this report. One other laboratory, Kent Scientific Services, reported a problem with one set of tubes, leaving only two months' valid results – insufficient for valid comparison. As the lab had completed the minimum three rounds, the decision was taken not to reject this lab's data in 2004.

Table A3: Mean NO_2 Concentrations, as Measured by Triplets of Diffusion Tubes in Field Intercomparison, 2004 (Jan-Jun 2004 at Wigan Leigh, Jul–Dec 2004 at Liverpool Speke).

Laboratory Name (Abbreviated)	Jan-04	Feb-04	Mar-04	Apr-04	May-04	Jun-04	Jul-04	Aug-04	Sep-04	Oct-04	Nov-04	Dec-04	Mean ug m^{-3}
Bristol CC	37.6	36.7	34.6	28.4	28.8	23.2	21.7	23.2	22.3	28.5	28.2	21.3	**27.9**
Cardiff Scientific Serv. Q			39.4			24.1			25.6			38.0	**-**
Clyde Analytical	43.2	48.3	38.9	37.3	34.1	23.4	27.7	29.0	26.1	35.4	39.0	33.0	**34.6**
Dundee CC Q			37.6			22.7			23.2				**-**
Edinburgh CC	32.0	26.2	26.8	21.1	17.1	21.5	24.2	25.0	20.3	28.2	32.1	23.2	**24.8**
Gradko tube type 1	29.6	32.4	36.1	30.9	30.3	23.6	23.6	23.6	23.4	31.3	38.1	33.8	**29.7**
Gradko tube type 2	22.9	23.0	26.9	25.8	26.9	19.7	21.6	20.3	19.4	26.1	30.4	36.5	**25.0**
Gradko tube type 3	26.7	28.3	30.0	26.6		22.6	17.0	23.0	20.7	14.5	29.0	28.2	**24.2**
Casella CRE	29.0	38.1	31.2	31.9	29.9	24.6	24.4	21.8	26.8	35.9	41.5	38.8	**31.2**
Harwell Scientifics	40.0	43.8	38.5		31.1	23.5	27.4	21.4	27.4	36.5	41.6	40.1	**33.8**
South Yorkshire	42.3	46.7	34.0	33.0	31.0	25.0	27.3	29.3	29.0	37.0	35.7	36.7	**33.9**
Kent Sci. Serv. Q			26.6			14.6			faulty				**-**
Lambeth Sci. Serv. Q[1]							20.8	19.7	19.3	32.4		24.0	**23.2**
Lancashire CC Q [2]				18.3	16.0	12.3	18.3	25.0	17.7	26.3		24.7	**19.8**
Glasgow Sci. Serv.	40.5	43.0	33.6	32.7			25.7	14.7	25.0	36.0	37.0	27.5	**31.6**
Jesmond Dene	42.5	32.5	30.9	27.7	27.1	15.7	22.6	17.0	20.2	29.3	35.5	30.1	**27.6**
Walsall MBC	37.0	39.3	35.7	34.3	28.7	19.0	22.7	25.3	13.0	34.3	33.3	28.7	**29.3**
West Yorks Q			36.3					19.0	23.7			30.3	**-**
Uni. Of Essex			28.2						30.2			15.0	**-**
Milton Keynes	41.0	41.1	32.8	30.3	24.9	22.5		22.8	23.1	31.2	37.2	30.4	**30.6**
Staffordshire CC	26.6	34.6	31.1	27.9	20.8	15.9	22.5	19.5	24.5	25.8	31.7	23.2	**25.3**
Ruddock & Sherratt Q			26.0			10.9			22.7				**-**
Northampton BC	23.0	33.8	19.2			11.8	18.2	23.1	25.3	43.3	38.9	25.4	**26.2**
Aberdeen CC	38.8	45.5	33.4	31.7	30.4	21.9	24.8	23.3		30.9	39.3	25.9	**31.5**
STL Bridgend Q			26.5			20.5			25.6			30.7	**-**
Kirklees Env. Serv.	31.6	34.3	12.8	8.2	7.3	7.0	5.2	4.5	8.6	29.3	41.6	29.2	**18.3**
Reference Value	**30**	**39**	**31**	**22**	**23**	**16**	**18**	**21**	**18**	**23**	**28**	**24**	**24.4**

"Q" and name in italics denotes quarterly participant.
**Kent Scientific Services' September tube results rejected as faulty.*

1. *Lambeth Scientific Services changed to monthly participation as of July 2004.*
2. *Lancashire Scientific Services changed to monthly participation as of April 2004.*

Table A4: Relative Standard Deviations for Monthly Tube Triplets in Field Intercomparison, 2004 (%)

Laboratory (abbreviated)	Jan-04	Feb-04	Mar-04	Apr-04	May-04	Jun-04	Jul-04	Aug-04	Sep-04	Oct-04	Nov-04	Dec-04	Count	Average
Bristol CC	2.8	5.2	10.6	7.4	2.6	0.2	0.9	10.9	4.2	7.8	3.5	14.9	12	**5.9**
Cardiff Scientific Serv. Q			3.9			1.3			3.4			3.0	4	**2.9**
Clyde Analytical	2.1	3.3	4.2	1.3	3.8	10.7	10.3	3.9	4.5	1.6	10.6	25.2	12	**6.8**
Dundee CC Q			5.4			1.2			2.5				3	**3.0**
Edinburgh CC	5.3	12.0	16.3	8.0	43.2	15.2	12.5	3.0		6.1	6.1	18.7	11	**13.3**
Gradko tube type 1	2.4	5.8	4.6	4.0	1.0	3.4	6.9	8.9		1.5	2.5	5.8	11	**4.2**
Gradko tube type 2	19.1	17.1	3.3	1.8	5.3	8.3	5.9	11.5	1.7	2.7	1.6	5.0	12	**6.9**
Gradko tube type 3	6.0	16.7	8.4	3.6		2.7	11.3	3.7	6.9	5.1	20.3	3.1	11	**8.0**
Casella CRE	12.9	0.9	10.8	12.0	2.4	2.3	9.2	20.1	4.5	2.1	3.5	10.4	12	**7.6**
Harwell Scientifics	2.9	9.4	2.7		8.0	6.2	6.9	22.0	6.6	7.2	7.1	2.2	11	**7.4**
South Yorkshire	1.4	1.2	0.0	0.0	0.0	0.0	2.1	2.0	0.0	0.0	1.6	1.6	12	**0.8**
Kent Sci. Serv. Q			54.0			26.6			faulty				3	**40.3**
Lambeth Sci. Serv. Q[1]							13.5	16.5	18.2	12.6		7.2	5	**13.6**
Lancashire CC Q [2]				9.3	10.8	9.4	3.1	0.0	3.3	2.2		2.3	8	**5.1**
Glasgow Sci. Serv.	4.1	3.0	6.7	1.6			8.6	2.3	16.6	3.9	10.3	7.6	10	**6.5**
Jesmond Dene	8.6	6.4	7.3	0.9	3.6	1.3	5.6	35.7	7.2	7.7	6.1	5.1	12	**7.9**
Walsall MBC	17.7	7.8	3.2	4.4	8.8	19.0	6.7	16.0	7.7	1.7	7.5	7.3	12	**9.0**
West Yorks Q			1.6					9.1	3.8			6.9	4	**5.3**
Uni. Of Essex			4.3						7.1			0.0	3	**3.8**
Milton Keynes	2.9	3.1	6.4	3.2	8.9	5.2		14.3	5.8	5.9	4.6	7.6	11	**6.2**
Staffordshire CC	7.3	5.6	5.1	4.0	24.8	23.9	6.1	13.6	2.5	17.1	8.2	0.7	12	**9.9**
Ruddock & Sherratt Q			5.8			3.2			4.6				3	**4.5**
Northampton BC	68.6	15.4	9.2			73.6	11.6	17.4	9.9	22.4	9.4	30.9	10	**26.8**
Aberdeen CC	2.2	2.5	4.1	2.2	2.5	6.0	2.2	6.8		2.9	3.8	10.3	11	**4.1**
STL Bridgend Q			2.5			3.0			17.3			6.7	4	**7.4**
Kirklees Env. Serv.	5.1	0.5	3.9	10.6	10.0	3.4	4.6	16.5	13.7	3.4	1.4	0.7	12	**6.1**
Mean	**10.1**	**6.8**	**7.7**	**4.7**	**9.1**	**10.3**	**7.1**	**11.7**	**8.1**	**6.0**	**6.4**	**8.0**	**8.9**	**8.5**

"Q" and name in italics denotes quarterly participant.
CoV only shown where there were 3 valid tube results for the month.

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

Lab Name	Jan-04	Feb-04	Mar-04	Apr-04	May-04	Jun-04	Jul-04	Aug-04	Sep-04	Oct-04	Nov-04	Dec-04	Mean	95% CI (+/-)
Bristol CC	25%	-6%	12%	29%	25%	45%	21%	11%	24%	24%	1%	-11%	16.6%	9%
Cardiff Scientific Serv. Q			27%			51%			42%			58%	44.6%	15%
Clyde Analytical	44%	24%	25%	70%	48%	46%	54%	38%	45%	54%	39%	37%	43.8%	6%
Dundee CC Q			21%			42%			29%				30.6%	20%
Edinburgh CC	7%	-33%	-14%	-4%	-26%	34%	35%	19%	13%	23%	15%	-3%	5.4%	13%
Gradko tube type 1	-1%	-17%	16%	40%	32%	47%	31%	12%	30%	36%	36%	41%	25.4%	10%
Gradko tube type 2	-24%	-41%	-13%	17%	17%	23%	20%	-4%	8%	14%	9%	52%	6.5%	14%
Gradko tube type 3	-11%	-28%	-3%	21%		41%	-6%	10%	15%	-37%	3%	17%	2.1%	15%
Casella CRE	-3%	-2%	1%	45%	30%	54%	35%	4%	49%	56%	48%	62%	31.5%	12%
Harwell Scientifics	33%	12%	24%		35%	47%	52%	2%	52%	59%	49%	67%	39.3%	10%
South Yorkshire	41%	20%	10%	50%	35%	56%	52%	40%	61%	61%	27%	53%	42.1%	7%
Kent Sci. Serv. Q			-14%			-9%			Faulty				-11.5%	n/a
Lambeth Sci. Serv. Q[1]							16%	-6%	7%	41%		0%	11.5%	20%
Lancashire CC Q [2]				-17%	-30%	-23%	2%	19%	-2%	14%		3%	-4.3%	15%
Glasgow Sci. Serv.	35%	10%	8%	49%			43%	-30%	39%	57%	32%	15%	25.8%	15%
Jesmond Dene	42%	-17%	0%	26%	18%	-2%	26%	-19%	12%	27%	27%	26%	13.8%	11%
Walsall MBC	23%	1%	15%	56%	25%	19%	26%	21%	-28%	49%	19%	19%	20.4%	11%
West Yorks Q			17%					-10%	31%			26%	16.4%	25%
Uni. Of Essex			-9%						68%			-38%	7.2%	126%
Milton Keynes	37%	5%	6%	38%	8%	40%		9%	28%	36%	33%	27%	24.2%	8%
Staffordshire CC	-11%	-11%	0%	27%	-10%	0%	25%	-7%	36%	12%	13%	-3%	5.8%	10%
Ruddock & Sherratt Q			-16%			-32%			26%				-7.2%	80%
Northampton BC	-23%	-13%	-38%			-26%	1%	10%	40%	88%	39%	6%	8.3%	25%
Aberdeen CC	29%	17%	8%	44%	32%	37%	38%	11%		35%	40%	8%	27.1%	7%
STL Bridgend Q			-14%			28%			42%			28%	21.0%	32%
Kirklees Env. Serv.	5%	-12%	-59%	-63%	-68%	-56%	-71%	-78%	-52%	28%	48%	22%	-29.8%	41%
Mean	**15%**	**-5%**	**0%**	**27%**	**11%**	**21%**	**22%**	**3%**	**26%**	**36%**	**28%**	**22%**	**15%**	

95% confidence intervals have been calculated based on the t-distribution. Median 95% CI for labs with at least 9 months only = 13%.
"Q" and name in italics denotes quarterly participant.
Q superscript indicates laboratories that have opted to take part quarterly – the minimum for NO_2 Network QA/QC.

A3.2 Impact of Data Rejection on 2004 Dataset

The following laboratories failed to meet the NO_2 Network's performance criteria performance in 2004: Lambeth Scientific Services (which missed five rounds of WASP), also University of Essex, Ruddock and Sherratt, and Kirklees Environmental Services (the latter three failed to meet the Intercomparison performance criteria).

There have been occasions in past years when one or more laboratories have failed to meet the NO_2 Network's performance criteria, with the result that data has been rejected. However, this has usually only affected a limited number of smaller laboratories, and the effect on the annual dataset has been minimal. By contrast, in 2004, the rejection of data has had a much more significant effect. While University of Essex and Kirklees carried out analysis for a relatively small proportion of Network sites (less than 1% of Network sites each in 2004), Lambeth Scientific Services analysed tubes for Local Authorities operating approximately 8% of the sites in the Network, including a significant proportion of those in Northern Ireland. Ruddock and Sherratt were based in Northern Ireland, and were responsible for analysis for a large proportion of the sites in that region (although the proportion of tubes analysed by them in 2004 was less than 2% of the Network).

Together, Lambeth Scientific Services and Ruddock and Sherratt analysed diffusion tubes for the majority of NO_2 Network sites in Northern Ireland (all but two Local Authorities). The rejection of data from both of these two laboratories in 2004 meant that there was insufficient data to calculate valid annual statistics for Northern Ireland.

A3.3 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 18%. This is comparable with the mean of 16% reported the previous year. The error bars show the 95% confidence interval on the mean B. This ranged from ±6% to ±41% with a median of 11%. 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.

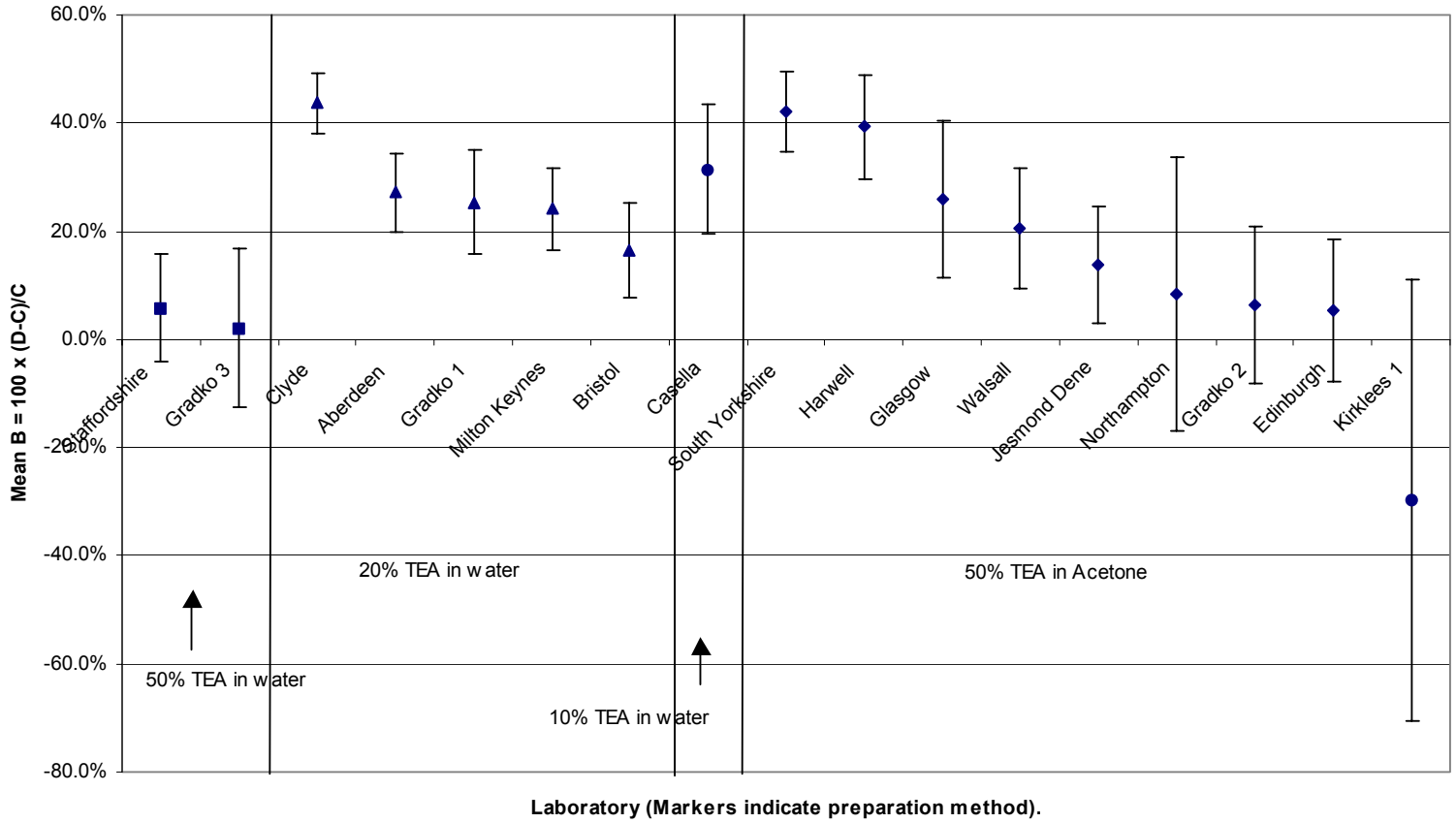

Figure A1: Relationship Between Diffusion Tube and Automatic Analyser Measurements for Monthly Participants in Field Intercomparison, 2004.

Two laboratories show particularly large error bars. These are Northampton BC and Kirklees Environmental Services. Northampton BC's results in the WASP programme were very variable, with the result that they failed to meet the Network performance criteria in 2004. This indicates that this laboratory had some problems with analytical performance during 2004. By contrast, Kirklees Environmental Services met the WASP performance criteria without difficulty, but their Intercomparison results showed considerable variation and often substantial under-read. Despite this, the precision of their tubes triplets was generally good. It came to light in the summer of 2005 that Kirklees were using end-caps of different colours, alternating colours each month, and that although all the end caps were opaque, their diffusion tubes with red end caps gave significantly lower results that those with blue or green end caps. The end caps were being repeatedly re-used, and the red end caps were prone to sun-bleaching and therefore losing their opacity. This variation in end cap colour or opacity was thought to be contributing to both under-read and variation in accuracy. Kirklees now use blue or green end-caps only, and their most recent intercomparison results appear to indicate that this problem has been resolved. Netcen's advice to laboratories is to stick to end caps of one colour, and (if end caps are re-used) to discard any that have become bleached.

In the 2003 report, it was noted that the laboratories whose tubes tended to under-read compared with the reference value also showed the largest error bars, i.e. that there was an association between diffusion tube under-read and poor precision. A weak inverse relationship (correlation coefficient $r^2 = 0.44$) was found, 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.

In 2004, only one laboratory with at least 9 months results showed an average under-read relative to the automatic analyser - Kirklees Environmental Services. As discussed above, it is believed that this is attributable to variation in the colour and/or opacity of the end caps used. However, if Kirklees' result is excluded, the 2004 data still show a weak inverse relationship (correlation coefficient $r^2 = 0.35$) between the mean "bias" value B, and mean triplet RSD.

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. 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 just under 12%, and most laboratories had RSDs below 20%.

Table A6: Overall Relative Standard Deviations of Standardised Results for Monthly Participants in the Field Intercomparison, 2004

Laboratory Name	**2004 %RSD**
Bristol City Council	11.6
Bodycote Clyde Analytical	16.7
Edinburgh City Council	17.6
Gradko tube type 1	8.2
Gradko tube type 2	16.7
Gradko tube type 3	6.9
Casella	6.6
Harwell Scientifics	8.4
South Yorks Lab	10.8
Lambeth Scientific services	26.0
Glasgow Scientific services	7.6
Jesmond Dene Lab	17.1
Walsall MBC	15.8
Milton Keynes Council	11.2
Staffordshire County Council	11.9
Northampton Borough Council	29.4
Aberdeen Public Analysts	8.1
Kirklees MBC	19.4
Bristol City Council	11.6
Median	**12%**

A3.4 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 chemiluminescence analyser.

The bias adjustment factor 'A',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 chemiluminescence 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 2004, for monthly participants only. Please note that **LAQM.TG(03) requires bias adjustment factors to be based upon a minimum of 9 months co-located measurements, so a value is only shown where this is the case.** These values are NOT calculated exactly as specified in LAQM.TG(03); Because of the unavoidable site move at

the end of June 2004, it is not possible to calculate 'C' for the full year. Instead, in this case we have resorted to calculating the ratio C/D for each month, then taking the mean for all 12 months. For this reason, the values of A shown here should be used with caution.

With the permission of the laboratories concerned, these bias adjustment factors were copied to Air Quality Consultants Ltd, for inclusion in their database of NO_2 diffusion tube co-location studies, available on the Review and Assessment Website at http://www.uwe.ac.uk/aqm/review/ , and updated regularly.

Table A7: Ratio 'A' of 2004 automatic analyser mean NO_2 over co-located triplet diffusion tube 2004 mean NO_2 (for labs with at least 9 months' data).

Lab Code	No. of Months	2004 Mean ratio "A"	95% confidence interval, +/-
Bristol CC	12	0.87	0.08
Clyde Analytical	12	0.70	0.04
Edinburgh CC	12	0.99	0.15
Gradko tube type 1	12	0.82	0.10
Gradko tube type 2	12	0.99	0.18
Gradko tube type 3	11	1.03	0.17
Casella CRE	12	0.79	0.10
Harwell Scientifics	11	0.73	0.08
South Yorkshire	12	0.71	0.06
Glasgow Sci. Serv.	10	0.84	0.17
Jesmond Dene	12	0.91	0.11
Walsall MBC	12	0.86	0.12
Milton Keynes	11	0.82	0.07
Staffordshire CC	12	0.96	0.09
Northampton BC	10	1.02	0.24
Aberdeen CC	11	0.80	0.06
Kirklees Env. Serv.	12	2.09	0.80

Because of site change between Jun-July exposure periods, the overall value of A is **not** calculated as prescribed by LAQM.TG(03), using the mean measured continuously by the automatic analyser over the entire period, but instead as the average of the individual monthly values of A.

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 2004, and Table A9 shows the performance scores assigned to them.

Table A8: NO_2 Network QC Solution Analyses, 2004

	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	1935	1909	1912	1935	1929	1924	1923	1937	1927	1935	1940	1926
Cardiff Scientific Services	2022	2074	1976	1975	1898	1886	1875	2035	2062	1903	1982	2074
Bodycote Clyde Analytical Ltd	2093	1980	1980	1920	1947	1903	2217	1930	1847		2230	2150
Dundee City Council Scientific Services	1949	1917	1975	1931	1925	1947		1920	1928	1917	1897	1933
City of Edinburgh Council	1958	1863	2002		1950	1853	2012	2050	1995			1925
Gradko International Ltd	1972	1944	2000	1971	1944	1899	1920	1924	1943	1931	1958	1986
Casella CRE Air	1945	1952	1900	1956	1930	1924	1920	1904	1907	1888		
Harwell Scientifics Ltd	1928	1939	1928		1926	1931		1938	1958	1966	1918	
South Yorkshire Laboratories	1926	1929	1933	1931	1927	1940	1928	1936	1936	1937	1933	1931
Kent Scientific Services	1949	1946	1964	1950	1963	1959	1960	1937	1922	1934	1943	1933
Lambeth Scientific Services Ltd	1980	1999	1940	2100	2050	2210	1990	2050	1970	1980	1920	2010
Lancashire County Analyst	1930	1938	1934	1938	1932	1936	1945	1925	1940	1931	1939	1931
Glasgow Scientific Services	2116	2136	1958	1933	1997	1974	1997	1993	1996	2054	2021	2009
Jesmond Dene Laboratory	1910	1945	1909	1916	1916	1916	1943	1970	1925	1938	2000	1938
Walsall Metropolitan Borough Council	1844	1816	1930	1901	1936	1919	1811	1915	2018	1842	1904	1900
West Yorkshire Analytical Services	1946	1931		1921	1894	1955	1865	1898	1966	1923	1944	1926
University of Essex			1943		1949	1947				1930	1932	1929
Milton Keynes Council	1942	1968	1954	1974	1963	1947	1949	1921	1970	1914	1965	1987
Staffordshire County Council	1956	1920	2000	1926	1913	1939	1978	2086	1987	1974	1920	1955
Ruddock & Sherratt	1971	1939	1939	1939	1971	1947	1947	1980	1939	1963		
Northampton Borough Council	1847	2032	1938	1907	1952	1858	2024	1966	1991	1928	1980	2020
Aberdeen City Council Public Analyst	2001	2001	2034	1959	1969	1924	1965	2030	1986	1953	1952	1963
STL Bridgend	1990	1948	1948	1960	1882	1869	1920					2038
Kirklees Environmental Services	1970	1840	1990	1980	1950	1900	1970	1910	2040	1950	1980	1920
Average	1960	1951	1956	1949	1942	1934	1955	1962	1961	1938	1963	1971
Standard Deviation	61	69	34	42	35	67	78	55	47	41	70	62
Coefficient of Variation	3.1	3.6	1.7	2.1	1.8	3.5	4.0	2.8	2.4	2.1	3.6	3.1

Table A9: Performance Scores Assigned to QC Solution Analyses, 2004

	Assigned Performance Scores											
Laboratory Name	***Jan***	***Feb***	***Mar***	***Apr***	***May***	***Jun***	***Jul***	***Aug***	***Sep***	***Oct***	***Nov***	***Dec***
Bristol CC	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 Sci. Serv.	Good (0)	Good (1)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (1)	Good (1)	Good (0)	Good (0)	Good (1)
Bodycote Clyde Analytic.	Good (1)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Warning (2)	Good (0)	Good (0)	No Data	Action (3)	Warning (2)
Dundee City Council	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	No Data	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
City of Edinburgh	Good (0)	Good (0)	Good (0)	No Data	Good (0)	Good (0)	Good (0)	Good (1)	Good (0)	No Data	No Data	Good (0)
Gradko International	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 (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	No Data	No Data
Harwell Scientifics	Good (0)	Good (0)	Good (0)	No Data	Good (0)	Good (0)	No Data	Good (0)	Good (0)	Good (0)	Good (0)	No Data
South Yorkshire Labs.	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
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 Sci. Services	Good (0)	Good (0)	Good (0)	Good (1)	Good (1)	Warning (2)	Good (0)	Good (1)	Good (0)	Good (0)	Good (0)	Good (0)
Lancashire County 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)
Glasgow Scientific Services	Good (1)	Warning (2)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (1)	Good (0)	Good (0)
Jesmond Dene Laboratory	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
Walsall MBC	Good (0)	Good (1)	Good (0)	Good (0)	Good (0)	Good (0)	Good (1)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
West Yorkshire	Good (0)	Good (0)	No Data	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
University of Essex	No Data	No Data	Good (0)	No Data	Good (0)	Good (0)	No Data	No Data	No Data	Good (0)	Good (0)	Good (0)
Milton Keynes 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)
Staffordshire CC	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (1)	Good (0)	Good (0)	Good (0)	Good (0)
Ruddock & Sherratt	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	No Data	No Data
Northampton BC	Good (0)	Good (1)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)
Aberdeen City Council	Good (0)	Good (0)	Good (1)	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 (0)	Good (0)	No Data	No Data	No Data	No Data	Good (1)
Kirklees Environ. Services	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (0)	Good (1)	Good (0)	Good (0)	Good (0)

A4 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 (2004)

Appendix B presents the validated 2004 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 2004 (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	30	27	28	27	27	22	26	34	20	21	26	25	**20**	**34**	**26**
DUNDEE 7N	Dundee	R	A	68	72	66	51	40	44	42	36	37	48	59	58	**36**	**72**	**52**
DUNDEE 8N	Dundee	R	A	60	63	60	47	48	40	42	48	43	48	54	50	**40**	**63**	**50**
EDINBURGH 5N	Edinburgh	R	A	38	33	40	44	37	35	48	31	33	53	48	38	**31**	**53**	**40**
EDINBURGH 7N	Edinburgh	R	A		37	44	46	47	31	39	54	34	45			**31**	**54**	**42**
GLASGOW 1N	Glasgow	R	A					84	69	77	90	103				**69**	**103**	
GLASGOW 6N	Glasgow	R	A					35	34			42				**34**	**42**	
ALLOA 1N	Clackmannanshire	R	A	49	39	47	31	34	30	29	34	32	39	45	40	**29**	**49**	**37**
TULLIBODY 8N	Clackmannanshire	R	A	35		36	27	22	19	22	31	25	31	32	37	**19**	**37**	**29**
BEARSDEN 10N	East Dunbartonshire	R	A	48	42	42	28	21	24	24	31	30	32	43	44	**21**	**48**	**34**
BEARSDEN 1N	East Dunbartonshire	R	A	44	34	41	28	27	23	22	29	26	36	32	34	**22**	**44**	**31**
BISHOPBRIGGS 12N	East Dunbartonshire	R	A	42	51	39	37	30	23	23	42	32	49	40	42	**23**	**51**	**38**
BISHOPBRIGGS 6N	East Dunbartonshire	R	A	52	49	47	37	37	34	29	38	34	44	49	45	**29**	**52**	**41**
MUSSELBURGH 1N	East Lothian	R	A	32	43	34	37	39	38	37	42	35	44	74	25	**32**	**74**	**40**
TRANENT 1N	East Lothian	R	A	35	42	41	42	33	40	45	44	36	52	68	22	**22**	**68**	**42**
GIFFNOCK 3N	East Renfrewshire	R	A	54	37	47	30	26	26	32	48	34	52	48	42	**26**	**54**	**40**
THORNLIEBANK 1N	East Renfrewshire	R	A	35	35	34	24	21	20	17	31	24	39	34	32	**17**	**39**	**29**
FALKIRK 13N	Falkirk	R	A	42	33	36	27	31	33	20	42	29	45	43	40	**20**	**45**	**35**
CUPAR 1N	Fife	R	A	39	38		67	36	25						36	**25**	**67**	
DUNFERMLINE 5N	Fife	R	A	38	38	36	36	25	25		26	27	28	36	35	**25**	**38**	**32**
DUNFERMLINE 9N	Fife	R	A	45	51	50	37	35	40		44	37	43	54	47	**35**	**54**	**44**
ST ANDREWS 1N	Fife	R	A	30	37			22	27						25	**22**	**37**	
DINGWALL 12N	Highland	R	A			20	32	37	32	31	35	30		38	32	**20**	**38**	**32**
DINGWALL 13N	Highland	R	A			11	22	14	17	16	16	17	21	23	23	**11**	**23**	**18**
GREENOCK 5N	Inverclyde	R	A	43	48	41	36	32	69	29	42	32	44	35	41	**29**	**69**	**41**
GREENOCK 7N	Inverclyde	R	A	36	38	33	25	26	21	14	30	23	34		33	**14**	**38**	**28**
DALKEITH 1N	Midlothian	R	A	51	46	38	46	38	39	41	62	53	44	37	25	**25**	**62**	**43**
PENICUIK 3N	Midlothian	R	A	30	23	24	41	22	27	22	45	25	33	19	23	**19**	**45**	**28**
IRVINE 1N	North Ayrshire	R	A	63	65	68	60	64	49	46	49	50	52	53	57	**46**	**68**	**56**
IRVINE 5N	North Ayrshire	R	A	41	45	40	37	34	24		33	29	31	27	36	**24**	**45**	**34**
COATBRIDGE 1N	North Lanarkshire	R	A	52	56	55	45	12	30	23	36		55	55	49	**12**	**56**	**43**
COATBRIDGE 3N	North Lanarkshire	R	A	42	40	33	22			13	24		33	41		**13**	**42**	**31**
MOTHERWELL 9N	North Lanarkshire	R	A	34	38	29	19	16	11	10	21		25			**10**	**38**	**23**
PERTH 1N	Perth and Kinross	R	A	49	53	50	47	40	34	35	49	32	47	47	41	**32**	**53**	**44**
PERTH 7N	Perth and Kinross	R	A	42	43	43	42	41	34	36	42	30	41	43	34	**30**	**43**	**39**
PAISLEY 7N	Renfrewshire	R	A	70	68	63	53	54	37	47	62	47	67	64	52	**37**	**70**	**57**
PAISLEY 8N	Renfrewshire	R	A	54	65	56	49	44	30	29	50	40	51	52	45	**29**	**65**	**47**
GALASHIELS 1N	Scottish Borders	R	A	25	36	29	30	31	21	25	36	21	33	28	23	**21**	**36**	**28**
HAWICK 2N	Scottish Borders	R	A	42	43	39	39	33	30	33	32	32		39	41	**30**	**43**	**37**
HAWICK 4N	Scottish Borders	R	A	37	46	39	37	32	29	32	37	28	39	40	38	**28**	**46**	**36**
HAWICK 5N	Scottish Borders	R	A	11	16	12	10	7	6	7	8	5	13	15	15	**5**	**16**	**10**
HAWICK 6N	Scottish Borders	R	A	30	33	30	27	21	20	19	24	23	29	29	28	**19**	**33**	**26**
KELSO 1N	Scottish Borders	R	A	20	27	21	20	21	18	20	19	17	25	20	18	**17**	**27**	**21**
PEEBLES 5N	Scottish Borders	R	A		33	25		28	21	22	20	19	29	28	25	**19**	**33**	**25**
AYR 1N	South Ayrshire	R	A	40	42	49	48	45	38	42	34	34	43	36	39	**34**	**49**	**41**
AYR 5N	South Ayrshire	R	A	42	43	49	37	36	32	28	39	29	44	34	38	**28**	**49**	**38**
EAST KILBRIDE 1N	South Lanarkshire	R	C	27	37	29	26	27	14	16	31	23	34	30	23	**14**	**37**	**26**
HAMILTON 1N	South Lanarkshire	R	C	31	25	43	31	29	24	23	44	25	43	43	30	**23**	**44**	**33**
LANARK 1N	South Lanarkshire	R	C	36	64	55	53	8	26	25	61	35	51	53	31	**8**	**64**	**42**
STIRLING 1N	Stirling	R	A	47	46	41	20	32		40	35	38	44	38	38	**20**	**47**	**38**
STIRLING 7N	Stirling	R	A	55	57	45	31			47		32		53	50	**31**	**57**	**46**
BALLOCH 1N	West Dunbartonshire	R	A	23	16	22	16	9	10	12		31	19	18	28	**9**	**31**	**19**
BALLOCH 2N	West Dunbartonshire	R	A												28	**28**	**28**	

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

Nitrogen Dioxide Concentrations 2004 (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 1N	West Dunbartonshire	R	A	38	44	47	32	30	20	24	29	30	34	38	41	**20**	**47**	**34**
CLYDEBANK 5N	West Dunbartonshire	R	A	35	39	30	25	18	12	16	28	19	22	30	33	**12**	**39**	**26**
DUMBARTON 1N	West Dunbartonshire	R	A	54	54	57	48	76	28	35	42	42	49	52	54	**28**	**76**	**49**
LINLITHGOW 6N	West Lothian	R	A	27	22	25	27	28	23	26	37	25	41	30	18	**18**	**41**	**27**
WHITBURN 1N	West Lothian	R	A	20	25	22	22	18	19	14	28	20	36	25	18	**14**	**36**	**22**
STORNOWAY 1N	Western Isles	R	A			24	21	14	17	17	17	19				**14**	**24**	**18**
STORNOWAY 5N	Western Isles	R	A			22	7	5	5	4	15	17				**4**	**22**	**11**

REGIONAL SUMMARY, Scotland R	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	40	42	39	34	31	28	28	37	31	39	40	35
Regional Monthly Min	11	16	11	7	5	5	4	8	5	13	15	15
Regional Monthly Max	70	72	68	67	84	69	77	90	103	67	74	58

Regional Annual Mean	34
Regional Annual Min	10
Regional Annual Max	57
Number of Sites	60
% With Valid Annual Mean	92

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 2004 (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	15	14	13	11	8	7	7	6	9	12	13	17	**6**	**17**	**11**
STONEHAVEN 6N	Aberdeenshire	B	A		10	13	10	7	7	6	6	8	12	13	16	**6**	**16**	**10**
DUNDEE 3N	Dundee	B	A	20	19	17	12	9	8	8	9	11	16	19	19	**8**	**20**	**14**
DUNDEE 5N	Dundee	B	A	30	27	21	15	13	9	14	15	16	22	32	28	**9**	**32**	**20**
EDINBURGH 3N	Edinburgh	B	A	20	24	20	14	14	16	18	10	16	25	14	20	**10**	**25**	**18**
EDINBURGH 4N	Edinburgh	B	A	27	20	15	9	15	13	13	14	15	19	21	19	**9**	**27**	**17**
GLASGOW 4N	Glasgow	B	A					22	16	14	18	19				**14**	**22**	
GLASGOW 5N	Glasgow	B	A					15	14	12	17	14				**12**	**17**	
ALLOA 4N	Clackmannanshire	B	A	19	21	19	10	6		7	9	9	16	13	4	**4**	**21**	**12**
ALLOA 6N	Clackmannanshire	B	A				8	8	7				18		27	**7**	**27**	
BEARSDEN 3N	East Dunbartonshire	B	A	31	34	29	16	11	10	10	19		27	22	27	**10**	**34**	**21**
BEARSDEN 4N	East Dunbartonshire	B	A	18	18	17		8	5		10	11	15	11	19	**5**	**19**	**13**
BISHOPBRIGGS 5N	East Dunbartonshire	B	A	28	21	20	12	9	10			15	23	24	23	**9**	**28**	**19**
BISHOPBRIGGS 8N	East Dunbartonshire	B	A	25	17	24	11	8	6	10	16	14	25	19	23	**6**	**25**	**17**
HADDINGTON 5N	East Lothian	B	A	15	14	14	11	9	10	6	7	9	15	24	6	**6**	**24**	**12**
GIFFNOCK 1N	East Renfrewshire	B	A	26	26	21	11	12		6	16	8	24	24	20	**6**	**26**	**18**
NEWTON MEARNS 1N	East Renfrewshire	B	A		24	17	7		7	5		8	18	19	16	**5**	**24**	**13**
FALKIRK 3N	Falkirk	B	C	29	29	29	20	20	17	17	19	9	39	35	33	**9**	**39**	**25**
FALKIRK 4N	Falkirk	B	C	32		31	25	19	18	14	21			35	35	**14**	**35**	**25**
CUPAR 4N	Fife	B	A	17	18		12	15	6						21	**6**	**21**	
DUNFERMLINE 6N	Fife	B	A	24	25	20		13			13	12	20	25	21	**12**	**25**	**19**
DUNFERMLINE 8N	Fife	B	A	22	23	19	15	11			14	13	19	22	21	**11**	**23**	**18**
ST ANDREWS 4N	Fife	B	A	12	30		8	10	4						13	**4**	**30**	
DINGWALL 11N	Highland	B	A			6	8	7	6	7	6	7	10	14	12	**6**	**14**	**8**
DINGWALL 14N	Highland	B	A			5	7	6	5	5	6	6	8	10	11	**5**	**11**	**7**
GREENOCK 3N	Inverclyde	B	A	20	24	18	9	23	9	8	18	10	20	20	17	**8**	**24**	**16**
GREENOCK 6N	Inverclyde	B	A	36	33	36	25	26	21	19	24		31	29	30	**19**	**36**	**28**
DALKEITH 2N	Midlothian	B	A	20	9	14	15	12	11	11	16	14	25	12	11	**9**	**25**	**14**
PENICUIK 2N	Midlothian	B	A	10	5	6	7	4	4	5	10	5	11	10	5	**4**	**11**	**7**
IRVINE 3N	North Ayrshire	B	A	20	25	21	6	13	7	10	13	11	21	17	22	**6**	**25**	**16**
IRVINE 4N	North Ayrshire	B	A	17	23	19	7	9	7	7	12	9	19	14	20	**7**	**23**	**14**
AIRDRIE 1N	North Lanarkshire	B	A	51	37	33	18	26		14	20		35	45	39	**14**	**51**	**32**
AIRDRIE 3N	North Lanarkshire	B	A	39	28	30	18	13	10	13	18		25	37	32	**10**	**39**	**24**
MOTHERWELL 6N	North Lanarkshire	B	A	27	27	17	11	13	11	12	16		26	29	25	**11**	**29**	**19**
MOTHERWELL 7N	North Lanarkshire	B	A	20	29	25	12	9	6	8	13		21	24	19	**6**	**29**	**17**
PERTH 3N	Perth and Kinross	B	A	30		23	19	15	11	13	12	15	25	29	25	**11**	**30**	**20**
PERTH 6N	Perth and Kinross	B	A		21	20	12	6	8	9	7	10	15	19	21	**6**	**21**	**14**
PAISLEY 3N	Renfrewshire	B	A	17	29	16	10	7	7	6	16	8	19	20	16	**6**	**29**	**14**
PAISLEY 6N	Renfrewshire	B	A	25	27	26	14	12		7	18	13	25	27	26	**7**	**27**	**20**
GALASHIELS 2N	Scottish Borders	B	A	10	16	12	10	7	7	8	8	8	15	13	12	**7**	**16**	**11**
HAWICK 3N	Scottish Borders	B	A	9	13	11	9	7	6	6	42	5	12	10	12	**5**	**42**	**12**
KELSO 2N	Scottish Borders	B	A	8	10	9	8	9	7	8	5	8	11	11	10	**5**	**11**	**9**
MELROSE 1N	Scottish Borders	B	A	9	15	10	8	7	7	7	8	7	13	14	12	**7**	**15**	**10**
PEEBLES 6N	Scottish Borders	B	A		20	12	9	8	7	7	7	7	12	14	13	**7**	**20**	**11**
AYR 3N	South Ayrshire	B	A	9	12	10	4	5	4		6	5	9	5	11	**4**	**12**	**7**
AYR 4N	South Ayrshire	B	A	7	11			4		4	7		7		7	**4**	**11**	**7**
EAST KILBRIDE 3N	South Lanarkshire	B	C	22	45	20	9	12	9	7	10	11	17	25	17	**7**	**45**	**17**
EAST KILBRIDE 4N	South Lanarkshire	B	C	15	25	18	9	13	4	6	14	8	17	20	14	**4**	**25**	**14**
HAMILTON 6N	South Lanarkshire	B	C		27	18	11	14	8	7	13	10	21	19	12	**7**	**27**	**15**
LANARK 5N	South Lanarkshire	B	A	12	20	16	9	30	7	7	7	7	13	17	12	**7**	**30**	**13**
LANARK 6N	South Lanarkshire	B	A	8	15	12	6	10	4	5	6	6	9	14	10	**4**	**15**	**9**
STIRLING 3N	Stirling	B	A	26	34	24	13	23	15	19	27	13	32	25	22	**13**	**34**	**23**
STIRLING 6N	Stirling	B	A	25	33	22	11	14	7		18	14	22	19	17	**7**	**33**	**18**

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

Nitrogen Dioxide Concentrations 2004 (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	C	18	27	22	13	13	8	10	14	13	17	54	20	**8**	**54**	**19**
CLYDEBANK 4N	West Dunbartonshire	B	C	23	23	25		15	11	9	15			19		**9**	**25**	**18**
DUMBARTON 7N	West Dunbartonshire	B	A	14	14	14	6	6	5	5	7	7	12	8	14	**5**	**14**	**9**
DUMBARTON 9N	West Dunbartonshire	B	A	22	26	20	13	9	5	8	13	12	15	14	27	**5**	**27**	**15**
BATHGATE 4N	West Lothian	B	A	11	16	14	16	8	7	10		12	18	21	19	**7**	**21**	**14**
LIVINGSTON 3N	West Lothian	B	A	21	21	10	14	10	11	12	12	15	15	48	17	**10**	**48**	**17**
STORNOWAY 3N	Western Isles	B	A				18	17	14	14						**14**	**18**	
STORNOWAY 4N	Western Isles	B	A			8					4					**4**	**8**	

REGIONAL SUMMARY, Scotland B	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	21	22	18	12	12	9	9	13	10	19	21	18
Regional Monthly Min	7	5	5	4	4	4	4	4	5	7	5	4
Regional Monthly Max	51	45	36	25	30	21	19	42	19	39	54	39

Regional Annual Mean	15
Regional Annual Min	7
Regional Annual Max	32
Number of Sites	61
% With Valid Annual Mean	89

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 2004 (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	17		12	15	15	11	19	14	10	14	25	20	**10**	**25**	**16**
ALNWICK 7N	Alnwick	R	A	22		24	22	27	16	29	29	16	28	23	22	**16**	**29**	**23**
BLYTH 4N	Blyth Valley	R	A		7	13		20	16	17	23	13	27	32	12	**7**	**32**	**18**
DARLINGTON 1N	Darlington	R	A	45	37	40	43		34	42	48	30	42	35	41	**30**	**48**	**40**
DARLINGTON 7N	Darlington	R	A	40	31	30		27	22				26			**22**	**40**	
DURHAM 1N	Durham	R	A												50	**50**	**50**	
GATESHEAD 5N	Gateshead	R	A	36	19	35	28	19	19	27		18	32	35	35	**18**	**36**	**28**
GATESHEAD 9N	Gateshead	R	A		26	39	31	41	19			47		66	52	**19**	**66**	**40**
HARTLEPOOL 1N	Hartlepool	R	A			36										**36**	**36**	
NEWCASTLE UPON TYNE 10N	Newcastle	R	A	43	38	40	41	33	20	34	37	21	42	39	35	**20**	**43**	**35**
NEWCASTLE UPON TYNE 9N	Newcastle	R	A	56	47	59	61	55	30	46	56	48	59	54	56	**30**	**61**	**52**
SEDGEFIELD 3N	Sedgefield	R	C	30	18		13									**13**	**30**	
SEDGEFIELD 5N	Sedgefield	R	C	26	19		22									**19**	**26**	
EAST BOLDON 5N	South Tyneside	R	A		25	25	18	26	21		23	20	25	33	28	**18**	**33**	**24**
SOUTH SHIELDS 8N	South Tyneside	R	A		27	27	43	38	24		31	22	35	30	30	**22**	**43**	**31**
STOCKTON 4N	Stockton-on-Tees	R	A	63	29	56	50	52	40	51	49	43	53	62	65	**29**	**65**	**51**
STOCKTON 8N	Stockton-on-Tees	R	A	31	27	28	23	24		22	27	19	36	34	36	**19**	**36**	**28**
BISHOP AUCKLAND 1N	Wear Valley	R	A	44	47	34		31	39		64	40	36	44		**31**	**64**	**42**
BISHOP AUCKLAND 4N	Wear Valley	R	A				37		27				48	45		**27**	**48**	

REGIONAL SUMMARY, North East R	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	38	28	33	32	31	24	32	36	27	36	40	37
Regional Monthly Min	17	7	12	13	15	11	17	14	10	14	23	12
Regional Monthly Max	63	47	59	61	55	40	51	64	48	59	66	65

Regional Annual Mean	33
Regional Annual Min	16
Regional Annual Max	52
Number of Sites	19
% With Valid Annual Mean	68

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 2004 (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	9		11	10	6	5	8	7	5	13	16	16	**5**	**16**	**9**
ALNWICK 4N	Alnwick	B	A	11		11	7	7		8	5	4			11	**4**	**11**	**8**
CARLISLE 6N	Carlisle	B	A	9	20	12	14	12	8	12	15	7	18	21	19	**7**	**21**	**14**
DARLINGTON 3N	Darlington	B	A	24	21	16	18	18	16	16	21	13	23	22	24	**13**	**24**	**19**
DARLINGTON 4N	Darlington	B	A	18	17	15	16	17	10	11	15	12	19	15	20	**10**	**20**	**15**
DURHAM 3N	Durham	B	A												24	**24**	**24**	
DURHAM 4N	Durham	B	A												28	**28**	**28**	
GATESHEAD 7N	Gateshead	B	A	29	41	28	19	15	10	18	14	15	26	27	31	**10**	**41**	**23**
GATESHEAD 8N	Gateshead	B	A	13	27	18	11	22	6	8	11	8	20	19	17	**6**	**27**	**15**
HARTLEPOOL 3N	Hartlepool	B	A			21										**21**	**21**	
HARTLEPOOL 4N	Hartlepool	B	A			22										**22**	**22**	
NEWCASTLE UPON TYNE 5N	Newcastle	B	A	23	13	24	20	19	12	17	20	18	68	21	26	**12**	**68**	**23**
NEWCASTLE UPON TYNE 6N	Newcastle	B	A	20	32	18	10		9	10	9	9	21	22	23	**9**	**32**	**17**
SEDGEFIELD 1N	Sedgefield	B	C	29	38		17									**17**	**38**	
SEDGEFIELD 4N	Sedgefield	B	C	31	33		37									**31**	**37**	
HEBBURN 4N	South Tyneside	B	A		14	14	21	17	12		14	9	21	23	24	**9**	**24**	**17**
SOUTH SHIELDS 7N	South Tyneside	B	A				23	16	15		17	12	20	31	31	**12**	**31**	**21**
STOCKTON 6N	Stockton-on-Tees	B	A	36	22	33	25	22	17	30	27	21	35	35	42	**17**	**42**	**29**
STOCKTON 7N	Stockton-on-Tees	B	A	19	23	21	18	15	9	10	12	13	23	26	30	**9**	**30**	**18**
BISHOP AUCKLAND 3N	Wear Valley	B	A	21		13		8			9	19	19	15		**8**	**21**	**15**
CROOK 1N	Wear Valley	B	C	14	17	12	10	7								**7**	**17**	

REGIONAL SUMMARY, North East B	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	20	24	18	17	14	11	13	14	12	25	23	24
Regional Monthly Min	9	13	11	7	6	5	8	5	4	13	15	11
Regional Monthly Max	36	41	33	37	22	17	30	27	21	68	35	42

Regional Annual Mean	17
Regional Annual Min	8
Regional Annual Max	29
Number of Sites	21
% With Valid Annual Mean	67

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 2004 (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 BC	R	A	28	24	24	24	23	17	20	20	16	24	26	25	**16**	**28**	**22**
BARROW-IN-FURNESS 5N	Barrow BC	R	A	24	34	25	26	21	11	20	24	15	21	29	26	**11**	**34**	**23**
BLACKBURN 1N	Blackburn with Darwen	R	A	27	25	20	28	33	13	28	37	22	72	33	17	**13**	**72**	**30**
BLACKBURN 6N	Blackburn with Darwen	R	A			28	37	33	20	29	41	26	33	59	26	**20**	**59**	**33**
BLACKPOOL 1N	Blackpool	R	A	20	31	22	28	18	12	24	13		29	19	32	**12**	**32**	**23**
BLACKPOOL 5N	Blackpool	R	A	29	29	29	32	17	6	25	21		34	33	29	**6**	**34**	**26**
BOLTON 1N	Bolton	R	A	47	40	37	47	47	40	40	54	43	51	54	67	**37**	**67**	**47**
BOLTON 9N	Bolton	R	A	45	45	52	56	56	36	41	55	46	40	57	69	**36**	**69**	**50**
BURNLEY 1N	Burnley	R	A	25	51				41	36	25	31	40	36	42	**25**	**51**	**36**
BURNLEY 5N	Burnley	R	A	52	64				35	38	38	38	55	58	51	**35**	**64**	**48**
CARLISLE 1N	Carlisle	R	A	44	40	36	40	39	34	39	38	35	46	49	44	**34**	**49**	**40**
CARLISLE 5N	Carlisle	R	A	46	48		50		32	49	50	49				**32**	**50**	**46**
CHESTER 1N	Chester	R	A	45	42	39	39	39	36	37	41	37	42	44	50	**36**	**50**	**41**
CHESTER 5N	Chester	R	A	23	27	42	37		33		38			44		**23**	**44**	**35**
CHORLEY 7N	Chorley	R	A	29				18	15	20	26		63	59	27	**15**	**63**	**32**
CHORLEY 8N	Chorley	R	A	41				24	15	21	35			39	16	**15**	**41**	**27**
CONGLETON 1N	Congleton	R	A	56	38	41	29	33	29	37						**29**	**56**	**37**
CONGLETON 6N	Congleton	R	A	35	41	37	40	34	31	36						**31**	**41**	**36**
WHITEHAVEN 1N	Copeland	R	A			27	18	21	12				20		20	**12**	**27**	
WHITEHAVEN 5N	Copeland	R	A			13	10	7	22				10			**7**	**22**	
ELLESMERE PORT 2N	Ellesmere Port and Neston	R	C		44	34	26	27	19	19	26	24	28			**19**	**44**	**27**
ELLESMERE PORT 7N	Ellesmere Port and Neston	R	A	34	47	40	36	36	27	22	32	31	27	39	33	**22**	**47**	**33**
ELLESMERE PORT 8N	Ellesmere Port and Neston	R	A											38	36	**36**	**38**	
LYTHAM ST ANNES 1N	Fylde	R	A	28	21	33	16	16		36	25		64	15	11	**11**	**64**	**27**
ACCRINGTON 1N	Hyndburn	R	A	41	24		16	20	20	27	32	25	23	39	10	**10**	**41**	**25**
CLAYTON-LE-MOORS 5N	Hyndburn	R	A		33	37	41	48	25	41	42	23	34	69	22	**22**	**69**	**38**
LANCASTER 1N	Lancaster	R	A	56	48	47	43	38	36	44	67		67	48	52	**36**	**67**	**50**
LANCASTER 5N	Lancaster	R	A	31	31	25	27	23	23	32	40	29	40	41	18	**18**	**41**	**30**
MACCLESFIELD 1N	Macclesfield	R	A	34	47	42	36	34	25	24	21	30	33	43	33	**21**	**47**	**34**
MACCLESFIELD 2N	Macclesfield	R	A	35	42	37	29	45	24	24	27	25	30		29	**24**	**45**	**32**
MACCLESFIELD 8N	Macclesfield	R	A	42	53	44	41	38	32	31	32	36	41	49	38	**31**	**53**	**40**
MANCHESTER 1N	Manchester	R	A	49	30	64	69	60	63	69	66	69	73	70	78	**30**	**78**	**63**
MANCHESTER 6N	Manchester	R	A	35	31	48	48	42	32	40	39	42	55	62	64	**31**	**64**	**45**
OLDHAM 1N	Oldham	R	A		73	8	56	77	67	74	84	78	85	102	100	**8**	**102**	**73**
OLDHAM 5N	Oldham	R	A		44	20	39	33	35	35	18	35	45	54	58	**18**	**58**	**38**
PRESTON 1N	Preston	R	A	44	24	26	29		34	30	42	37	37	49	44	**24**	**49**	**36**
PRESTON 7N	Preston	R	A	44	40	31	41		72		41	27	34	44	36	**27**	**72**	**41**
ROCHDALE 1N	Rochdale	R	A	33	41	47	31	23	31	32	38	33	44	45	46	**23**	**47**	**37**
ROSSENDALE 13N	Rossendale	R	A	38	57	38	56	60	47	48	43	49	55	68	61	**38**	**68**	**52**
ROSSENDALE 14N	Rossendale	R	A		16		31	37	26	39	48	36	52	51	45	**16**	**52**	**38**
SALFORD 14N	Salford	R	C	54	50	39	62	41	37	37	45	36	40	68	59	**36**	**68**	**47**
CROSBY 1N	Sefton	R	A	66	72			46		44	50	43	57	64	59	**43**	**72**	**56**
SOUTHPORT 4N	Sefton	R	A	67	70			43	50	52	45	50	64	73	65	**43**	**73**	**58**
KENDAL 1N	South Lakeland	R	C	49	36	44		30	25	24	36	29	37	44	41	**24**	**49**	**36**
KENDAL 4N	South Lakeland	R	C	45	48	36		39	31	28	41	35	41	44	40	**28**	**48**	**39**
LEYLAND 1N	South Ribble	R	A	31	34	24	26	20	14	23	36	20	74	36	20	**14**	**74**	**30**
PENWORTHAM 5N	South Ribble	R	A	38	37	37	32	22	24	27	33	28	57	27	13	**13**	**57**	**31**
ST HELENS 8N	St. Helens	R	A	29	26	43	39	33	33	38	49	42	39	64	53	**26**	**64**	**41**
ST HELENS 9N	St. Helens	R	A	29	20	41	34	39	36	42	44	44	53	76	53	**20**	**76**	**43**
STOCKPORT 14N	Stockport	R	A	64	71	76	90	93	91	78	84	75	107	97	84	**64**	**107**	**84**
STOCKPORT 18N	Stockport	R	A	58	77	52	51	54	54	55	55			58	52	**51**	**77**	**57**
ASHTON 3N	Tameside	R	A	56	53	44	54	47	49	59	55	58	56	82	78	**44**	**82**	**58**
DUKINFIELD 1N	Tameside	R	A	43	50	18		32	8	29	37	11	43	44		**8**	**50**	**32**

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

Nitrogen Dioxide Concentrations 2004 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
TRAFFORD 1N	Trafford	R	A	35	41	30	30	23	29	21	30	27	32	45	44	**21**	**45**	**32**
TRAFFORD 6N	Trafford	R	A	43	45			42	23		32					**23**	**45**	
TRAFFORD 7N	Trafford	R	A											47	49	**47**	**49**	
WARRINGTON 1N	Warrington	R	A		62	43	58		58		56		60	82	58	**43**	**82**	**60**
ORMSKIRK 1N	West Lancashire	R	A	34	45	38	32	32	22	28	36	21	46	37	38	**21**	**46**	**34**
ORMSKIRK 6N	West Lancashire	R	A	43	58	54	41	44	25	46	45		37	23	29	**23**	**58**	**40**
LEIGH 1N	Wigan	R	A		50		50	53	47	53	58	50	52	22	66	**22**	**66**	**50**
LEIGH 8N	Wigan	R	A		39	36	42	30	24	30	39	35	41			**24**	**42**	**35**
BIRKENHEAD 1N	Wirral	R	A	32	32		31	31	24	34	30	30	56	43	41	**24**	**56**	**35**
PORT SUNLIGHT 1N	Wirral	R	A	43	60	38	46	56	32	49	45	41	74	52	53	**32**	**74**	**49**
DOUGLAS IOM 1N	Isle of Man	R	A	29	30	32	30	30	25	27	28	29	24	35	26	**24**	**35**	**29**
DOUGLAS IOM 5N	Isle of Man	R	A	33	31	34	35	34	34	28	26		25	25	29	**25**	**35**	**30**

REGIONAL SUMMARY, NW & Merseyside R	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	40	42	36	38	36	32	36	40	36	46	49	43
Regional Monthly Min	20	16	8	10	7	6	19	13	11	10	15	10
Regional Monthly Max	67	77	76	90	93	91	78	84	78	107	102	100

Regional Annual Mean	40
Regional Annual Min	22
Regional Annual Max	84
Number of Sites	65
% With Valid Annual Mean	92

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 2004 (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 BC	B	A	17	12	13	9	10	7			9	15	19	18	**7**	**19**	**13**
BARROW-IN-FURNESS 4N	Barrow BC	B	A	11	10	12	8	7	6	6	7	5	10	13	14	**5**	**14**	**9**
BLACKBURN 3N	Blackburn with Darwen	B	A	21	20	19	16	14	10	19	21	18	30	33	37	**10**	**37**	**22**
BLACKBURN 4N	Blackburn with Darwen	B	A	22	16	18	10	7	7	8	14	16	28	23	20	**7**	**28**	**16**
BLACKPOOL 3N	Blackpool	B	A	15	12	12	11	7	18	13	11		45		14	**7**	**45**	**16**
BLACKPOOL 4N	Blackpool	B	A	20		6	21	8	29	11	12		26	15	16	**6**	**29**	**16**
BOLTON 6N	Bolton	B	A	24	29	24	23	23	13	16	23	18	26	28	36	**13**	**36**	**24**
BOLTON 8N	Bolton	B	A	4	29	32	23	23		18	24	23	34	33	46	**4**	**46**	**26**
BURNLEY 3N	Burnley	B	A	22	30				11	11	15	17	26	28	25	**11**	**30**	**20**
BURNLEY 4N	Burnley	B	A	24	29				12	15	10	17	25	21	29	**10**	**29**	**20**
CARLISLE 7N	Carlisle	B	A		19	17	17	15	11	16	20	13	27	19	14	**11**	**27**	**17**
CARLISLE 6N	Carlisle	B	A	9	20	12	14	12	8	12	15	7	18	21	19	**7**	**21**	**14**
CHESTER 3N	Chester	B	A	25	31	23	26	18	16	20	21	21	28	33	34	**16**	**34**	**25**
CHESTER 4N	Chester	B	A	26	26	22	17	18	16	18	21	18	29	34	33	**16**	**34**	**23**
CHORLEY 4N	Chorley	B	A	16				8		12	18		21	74	25	**8**	**74**	**25**
CHORLEY 6N	Chorley	B	A					17	19	17	22		36	22	31	**17**	**36**	**23**
CONGLETON 3N	Congleton	B	A	34	25	24	18	20	10	17						**10**	**34**	**21**
CONGLETON 4N	Congleton	B	A	22	18	18	13	12	17	11						**11**	**22**	**16**
WHITEHAVEN 3N	Copeland	B	A			14	9	7	7				11		12	**7**	**14**	
WHITEHAVEN 4N	Copeland	B	A			13	29	28	4				31		13	**4**	**31**	
ELLESMERE PORT 4N	Ellesmere Port and Neston	B	A	27	35	31	24	21	13	19	19	20	32	28	29	**13**	**35**	**25**
ELLESMERE PORT 6N	Ellesmere Port and Neston	B	A	22	34	21	17	10	8	9	16	16	24	23	25	**8**	**34**	**19**
LYTHAM ST ANNES 3N	Fylde	B	A	12		11				8	10		23	18	14	**8**	**23**	**14**
LYTHAM ST ANNES 4N	Fylde	B	A		8											**8**	**8**	
ACCRINGTON 4N	Hyndburn	B	A	15	13	15		7		9	12	10	12	19	5	**5**	**19**	**12**
RISHTON 3N	Hyndburn	B	A		19	17		12	10	9	22	16	46	43	7	**7**	**46**	**20**
LANCASTER 2N	Lancaster	B	A	29	23	16	18	16	12	18	27	13	81	36	21	**12**	**81**	**26**
LANCASTER 4N	Lancaster	B	A	26	22	13	18	13	7	12	20	10	26	36	34	**7**	**36**	**20**
MACCLESFIELD 10N	Macclesfield	B	A	25	31	24	23	22	16	16	11	14	30	29	20	**11**	**31**	**22**
MANCHESTER 3N	Manchester	B	A	39	24	33	30	30	24	26	29	32	35	47	41	**24**	**47**	**33**
MANCHESTER 5N	Manchester	B	A	27	40	44	30	60	24	28	32	25	35	44	46	**24**	**60**	**36**
OLDHAM 4N	Oldham	B	A		33	16	24			23	21	25	30	33	42	**16**	**42**	**27**
OLDHAM 6N	Oldham	B	A		38	21	35	31	33	25	32	36	45	54	60	**21**	**60**	**37**
PRESTON 6N	Preston	B	A	17	25	22	21	17	17	14	20	16	27	30	32	**14**	**32**	**21**
PRESTON 8N	Preston	B	A	26	26	21	24			14	26		28	25	29	**14**	**29**	**24**
ROCHDALE 4N	Rochdale	B	A	34	22	28	28	19	19	17	18	18	25	21	29	**17**	**34**	**23**
ROSSENDALE 15N	Rossendale	B	A	22	13	17	18	16	14		7	18	32	30		**7**	**32**	**19**
ROSSENDALE 16N	Rossendale	B	A	20	23	15	23	20	13	15	22	16		26	26	**13**	**26**	**20**
SALFORD 16N	Salford	B	C	28	31	22	29	23	16	20	25	24	31	35	37	**16**	**37**	**27**
SALFORD 17N	Salford	B	C	42	29	23	31	22	18	19	23	25	37	39	44	**18**	**44**	**29**
BOOTLE 2N	Sefton	B	A	48	44			21	21	23	28	27	47	43	38	**21**	**48**	**34**
CROSBY 3N	Sefton	B	A		36					19	25	18	32	51	34	**18**	**51**	**31**
KENDAL 2N	South Lakeland	B	A	22	23	20	15	11	9	10	14	9	20	24	23	**9**	**24**	**16**
KENDAL 3N	South Lakeland	B	A	20	16	17	11	9	8	7	6	6	17	17	22	**6**	**22**	**13**
BAMBER BRIDGE 4N	South Ribble	B	A	21	25	18	16	10	6	14	28	6	29	23	8	**6**	**29**	**17**
LEYLAND 3N	South Ribble	B	A	18	21	17	15	11		13	25	11	29	30	11	**11**	**30**	**18**
ST HELENS 6N	St. Helens	B	A	12	14	28	16	16	15	18	24	22	28	32	33	**12**	**33**	**22**
ST HELENS 7N	St. Helens	B	A	20	12	21	18	13	13	18	21	24	11	44	36	**11**	**44**	**21**
STOCKPORT 16N	Stockport	B	A	22	22	16	20	16	16	10	12	15	27	26	25	**10**	**27**	**19**
STOCKPORT 17N	Stockport	B	A	28	29	8	23	18	14			18	25	44	24	**8**	**44**	**23**
DENTON 9N	Tameside	B	A	27	31	24	24	20	16		19	16	25	34		**16**	**34**	**24**
HOLLINGWORTH 5N	Tameside	B	A	29	21	17	17	16	13	15	16			29	32	**13**	**32**	**21**
TRAFFORD 4N	Trafford	B	A	21	26	19	17	19	12	13	17	15	20	28	29	**12**	**29**	**20**

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

Nitrogen Dioxide Concentrations 2004 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
TRAFFORD 5N	Trafford	B	A		37	19	21	25	18	19	23	22	29	36	38	**18**	**38**	**26**
WARRINGTON 3N	Warrington	B	A	5	36	29	24	28	24	19	21	20	29	36	30	**5**	**36**	**25**
WARRINGTON 4N	Warrington	B	A	42	27	34	24	26	24	21	23	23	30	32	35	**21**	**42**	**28**
WARRINGTON 5N	Warrington	B	A	35	33	26	25	26	25	17	21	20	33	29	33	**17**	**35**	**27**
ORMSKIRK 3N	West Lancashire	B	A	29	29	29	19	18	13	16	17	12	26	58	55	**12**	**58**	**27**
ORMSKIRK 5N	West Lancashire	B	A	23	26	23	16	16	10	12	15	11	21	29	30	**10**	**30**	**19**
LEIGH 4N	Wigan	B	A		28	23	23	21	16	20	27	24	27	11	33	**11**	**33**	**23**
LEIGH 6N	Wigan	B	A		28	27	19	17	14	17	22	22	31	11	33	**11**	**33**	**22**
LISCARD 4N	Wirral	B	A	22	23	25	16	13	11	17	21	17	42	25	40	**11**	**42**	**23**
WALLASEY 9N	Wirral	B	A	20	27	30	19	18	15	19	25	17	38	28	36	**15**	**38**	**24**
DOUGLAS IOM 3N	Isle of Man	B	A	13	10	15	6	8	8	7	8	9	11	12	11	**6**	**15**	**10**
DOUGLAS IOM 4N	Isle of Man	B	A	12	11	8	7	6	6	7	7	8	15	10	11	**6**	**15**	**9**

REGIONAL SUMMARY, NW & Merseyside B	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	23	25	20	19	17	14	15	19	17	28	30	28
Regional Monthly Min	4	8	6	6	6	4	6	6	5	10	10	5
Regional Monthly Max	48	44	44	35	60	33	28	32	36	81	74	60

Regional Annual Mean	22
Regional Annual Min	9
Regional Annual Max	37
Number of Sites	65
% With Valid Annual Mean	95

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 2004 (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	38	48	41	39	36	24	30	33	29		35	43	**24**	**48**	**36**
BARNSLEY 7N	Barnsley	R	A	61	73		63	60	44	47	48	47	63	54	63	**44**	**73**	**57**
BRADFORD 1N	Bradford	R	A	61					52	55	57	44	55	74	44	**44**	**74**	**55**
BRADFORD 5N	Bradford	R	A	66				24	30	79	62	70	25	76	29	**24**	**79**	**51**
HALIFAX 5N	Calderdale	R	A	61	55	53	59		35	54	53	51	59	60	49	**35**	**61**	**54**
HEBDEN BRIDGE 1N	Calderdale	R	A	53	42	38	49	41	38	44		43	46	52	43	**38**	**53**	**44**
HULL 1N	Kingston-upon-Hull	R	A	57	55	50	51	56	32		55	50	58	68	63	**32**	**68**	**54**
HULL 8N	Kingston-upon-Hull	R	A	62	62	68	67	55		54	54	54	62	74	69	**54**	**74**	**62**
DONCASTER 1N	Doncaster	R	A	67	62	69		52	35	46	48	51	64	67		**35**	**69**	**56**
DONCASTER 6N	Doncaster	R	A	58	58	40		49	25	37	44	43	54	55	55	**25**	**58**	**47**
BRIDLINGTON 1N	East Riding of Yorkshire	R	A	34	39	35	33	32	26	32	41	29	34	38	23	**23**	**41**	**33**
BRIDLINGTON 5N	East Riding of Yorkshire	R	A	33	39	36	35	28	25	28	37	26	37	38	31	**25**	**39**	**33**
GOOLE 1N	East Riding of Yorkshire	R	A						37	39	40	35	41	50	48	**35**	**50**	**41**
GOOLE 8N	East Riding of Yorkshire	R	A						25	23	46	47	50	64	63	**23**	**64**	**45**
NORTHALLERTON 1N	Hambleton	R	A	47	33	42	34	29	19	29	30	34	38	60	44	**19**	**60**	**37**
NORTHALLERTON 6N	Hambleton	R	A	25	27	22	14	10	4	8	11	11	48	27	29	**4**	**48**	**20**
LEEDS 5N	Leeds	R	A	53	45			54	23	21			36		64	**21**	**64**	**42**
GREAT GRIMSBY 17N	North East Lincolnshire	R	C	32		31	34									**31**	**34**	
GREAT GRIMSBY 1N	North East Lincolnshire	R	C	40		20	50									**20**	**50**	
BRIGG 1N	North Lincolnshire	R	A	25	22	31	24	22	21	23	21	23	26	33	34	**21**	**34**	**25**
BRIGG 5N	North Lincolnshire	R	A	43	31	39	31	30	31	40	34	33	35	40	45	**30**	**45**	**36**
RICHMOND N.YORKS 2N	Richmondshire	R	A	24	32	26	25		9	18	31	22	19	24	32	**9**	**32**	**24**
RICHMOND N.YORKS 7N	Richmondshire	R	A	18	45	20			7	20	17	12	29	24	25	**7**	**45**	**22**
RICHMOND N.YORKS 8N	Richmondshire	R	A	19	33	22	18		6	21	14	17	26	25	23	**6**	**33**	**20**
ROTHERHAM 5N	Rotherham	R	A	60	52		54	53	43	43	52	47	56	65	59	**43**	**65**	**53**
ROTHERHAM 7N	Rotherham	R	A	52			48	48	33	33	42	36	46	59	51	**33**	**59**	**45**
MALTON 10N	Ryedale	R	A	62	55			47	43			53	54	72	49	**43**	**72**	**54**
MALTON 1N	Ryedale	R	A	56	58			41	51			52	50	60		**41**	**60**	**53**
SCARBOROUGH 1N	Scarborough	R	A	33	30	24	24	26	21	25	29	26	29	66	65	**21**	**66**	**33**
SCARBOROUGH 5N	Scarborough	R	C	30	22	23	28	22	15	23	22	21	22	76	22	**15**	**76**	**27**
SELBY 7N	Selby	R	A	34	32	33	20	20	14	19	24	20	29	37	46	**14**	**46**	**27**
CASTLEFORD 1N	Wakefield	R	A	70	71	56	68	56	36	53	33	41	40	72	48	**33**	**72**	**54**
WAKEFIELD 1N	Wakefield	R	A	59	59	53	30	51	31	29	36	38	33	63	58	**29**	**63**	**45**

REGIONAL SUMMARY, Yokshire & Humber R	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	46	45	38	39	39	28	35	38	37	42	54	45
Regional Monthly Min	18	22	20	14	10	4	8	11	11	19	24	22
Regional Monthly Max	70	73	69	68	60	52	79	62	70	64	76	69

Regional Annual Mean	41
Regional Annual Min	20
Regional Annual Max	62
Number of Sites	33
% With Valid Annual Mean	94

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 2004 (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				28	27	21	23	24	24	39	31	33	**21**	**39**	**28**
BARNSLEY 6N	Barnsley	B	A	38	43		34	35	25	30		27	44	29	41	**25**	**44**	**35**
BRADFORD 3N	Bradford	B	A	19				174	14	22	19	21	75	29	76	**14**	**174**	**50**
BRADFORD 4N	Bradford	B	A	20				31	8	15	16	14	26	11	23	**8**	**31**	**18**
ELLAND 4N	Calderdale	B	A	36	34	35	33	22	19	27	31	26	33	35	19	**19**	**36**	**29**
HALIFAX 2N	Calderdale	B	A	30	29	31	17	23	16	24	12	23	31	29	19	**12**	**31**	**24**
HULL 5N	Kingston-upon-Hull	B	A	26	27	26	23	15	11	18	19	18	31	31	40	**11**	**40**	**24**
HULL 6N	Kingston-upon-Hull	B	A	27	27	27	19	13	18	16	15	19	27	31	38	**13**	**38**	**23**
DONCASTER 4N	Doncaster	B	A	36	35			23	16	15	20	22	32	43	36	**15**	**43**	**28**
BRIDLINGTON 3N	East Riding of Yorkshire	B	A	26	23	25	18		12	13	16	15	24	26	22	**12**	**26**	**20**
BRIDLINGTON 4N	East Riding of Yorkshire	B	A	25	22	23		11	33	12	16	15	23	26	19	**11**	**33**	**20**
GOOLE 5N	East Riding of Yorkshire	B	A						52	48	25	27	34	41	38	**25**	**52**	**38**
GOOLE 6N	East Riding of Yorkshire	B	A							26	24	26	31	39	40	**24**	**40**	
NORTHALLERTON 4N	Hambleton	B	C	39	43	47	41	43	25	33	43	40	25	46	39	**25**	**47**	**38**
NORTHALLERTON 5N	Hambleton	B	C	26	25	21	16	15	7	11	9	14		26	31	**7**	**31**	**18**
LEEDS 3N	Leeds	B	A	28	42	34	24	31	23	22	26	23	30	81	39	**22**	**81**	**34**
GREAT GRIMSBY 3N	North East Lincolnshire	B	C	25		12	23									**12**	**25**	
GREAT GRIMSBY 4N	North East Lincolnshire	B	C	24		11	20									**11**	**24**	
BRIGG 3N	North Lincolnshire	B	A	34	28	22	16	15	16	16	14	19	18	23	25	**14**	**34**	**21**
KILLINGHOLME 4N	North Lincolnshire	B	A	31	23	24	23	17	20	21	22	23	25	28	35	**17**	**35**	**24**
RICHMOND N.YORKS 6N	Richmondshire	B	A	15	23	14	8		4	5	4	7	17	17	18	**4**	**23**	**12**
ROTHERHAM 3N	Rotherham	B	A	51				36	29	29	30	33	44	55	50	**29**	**55**	**40**
ROTHERHAM 6N	Rotherham	B	A	46	36	38	37	31	27	27	29	34	41	46	48	**27**	**48**	**37**
MALTON 8N	Ryedale	B	A	28	25				7			15	22	26	26	**7**	**28**	**21**
MALTON 9N	Ryedale	B	A	24	19			12	8			18	23	30	25	**8**	**30**	**20**
SCARBOROUGH 4N	Scarborough	B	A	13	9	14	9			7	10	7	16	25	7	**7**	**25**	**12**
SCARBOROUGH 6N	Scarborough	B	A	11	8	9	10			9	8	10	15	23	16	**8**	**23**	**12**
SELBY 3N	Selby	B	A	53	72	57	44	53	37	48	36	47	43	57	38	**36**	**72**	**49**
SELBY 9N	Selby	B	A	31	32	28	19	19	14	19	20	21	28	34	23	**14**	**34**	**24**
PONTEFRACT 1N	Wakefield	B	A	56	48	60	27	28	19	20	18	22	45	47	39	**18**	**60**	**36**
WAKEFIELD 3N	Wakefield	B	A	47	46	39	31	28	25	25	21	21	16	44	44	**16**	**47**	**32**

REGIONAL SUMMARY, Yorks & Humber B	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	31	31	28	24	32	19	22	20	22	31	35	33
Regional Monthly Min	11	8	9	8	11	4	5	4	7	15	11	7
Regional Monthly Max	56	72	60	44	174	52	48	43	47	75	81	76

Regional Annual Mean	27
Regional Annual Min	12
Regional Annual Max	50
Number of Sites	31
% With Valid Annual Mean	90

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 2004 (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	64	58	67	61	55	42	63		55	58	77	63	**42**	**77**	**60**
ASHFIELD 8N	Ashfield	R	A	48	57	56	55	56	33	40	48	42	52	63	60	**33**	**63**	**51**
DUNHAM 1N	Bassetlaw	R	A	46	34		35	34	34		38	33		46	41	**33**	**46**	**38**
WORKSOP 7N	Bassetlaw	R	A	45	52	44	39	38	28		27	35	36	50	45	**27**	**52**	**40**
BLABY 1N	Blaby	R	A		31							61				**31**	**61**	
BLABY 5N	Blaby	R	A		29								53	73		**29**	**73**	
BOLSOVER 5N	Bolsover	R	A	40	50	44			19	39	39	37	44	47	35	**19**	**50**	**39**
BOLSOVER 6N	Bolsover	R	C	42			37									**37**	**42**	
BOLSOVER 7N	Bolsover	R	C								32			48	31	**31**	**48**	
BOSTON 1N	Boston	R	A	62	27	43	55	51	39	48			51	40		**27**	**62**	**46**
BOSTON 6N	Boston	R	A	44	54	30	44			38			36	37		**30**	**54**	**40**
BROXTOWE 1N	Broxtowe	R	C	39	37	42	43	26	28	35	34	30	40	38	39	**26**	**43**	**36**
BROXTOWE 5N	Broxtowe	R	C	43	37	39	31	25	24	25	28	27	35	39	35	**24**	**43**	**32**
LOUGHBOROUGH 1N	Charnwood	R	A	57	76	75	60	62	69	61	62	57	56	77	63	**56**	**77**	**65**
LOUGHBOROUGH 7N	Charnwood	R	A	30	39	38	33	33	20	16	26	19	26	36	32	**16**	**39**	**29**
CORBY 1N	Corby	R	C	27		52	37	43	25	23	33	34	38	44	36	**23**	**52**	**36**
CORBY 2N	Corby	R	C	29		35	31	28	34	35	24	28	31	42	37	**24**	**42**	**32**
CORBY 3N	Corby	R	C	28		28	23	20	16	18	16	19	21	33	30	**16**	**33**	**23**
CORBY 4N	Corby	R	C	18		35	24	23	21	21	25	24	28	34	33	**18**	**35**	**26**
DERBY 7N	Derby	R	A	55	49	38	52		47	41	54	46	50	67	64	**38**	**67**	**51**
DERBY 8N	Derby	R	A	54	48	42		54	27	41	49	43	50	54		**27**	**54**	**46**
MATLOCK 5N	Derbyshire Dales	R	A	45	49	47	43	46	32	37			45		45	**32**	**49**	**43**
MATLOCK 9N	Derbyshire Dales	R	A	6	35	36	29	21	18	29			35	36		**6**	**36**	**27**
RUSHDEN 1N	East Northamptonshire	R	A	42	40	35	50	49	40	34	44	32	28	47	41	**28**	**50**	**40**
RUSHDEN 5N	East Northamptonshire	R	A	32	34	21	21	22	15	12	20	17	24	34	26	**12**	**34**	**23**
LONG EATON 1N	Erewash	R	A	54	43	54	35	32	40	40	52	40	42	42	45	**32**	**54**	**43**
LONG EATON 5N	Erewash	R	A	34	33	38	28	33	22					36	35	**22**	**38**	**32**
ARNOLD 1N	Gedling	R	A	47	42	47	37	34				31	49		39	**31**	**49**	**41**
ARNOLD 3N	Gedling	R	A	46	18	43	33	23	21	21	29	37	39	41	50	**18**	**50**	**33**
HARBOROUGH 1N	Harborough	R	A	46		52	68	62	57	48	63	48	55	75	75	**46**	**75**	**59**
HARBOROUGH 5N	Harborough	R	A	58	69	31		69	64		75	67	76	91	91	**31**	**91**	**69**
BUXTON DERBYSHIRE 1N	High Peak	R	A	48	49	44		59	42	46	52	48	56	71	51	**42**	**71**	**51**
DOVE HOLES 1N	High Peak	R	A	21	26	26	31	28	20				4	46	26	**4**	**46**	**25**
HINCKLEY 1N	Hinckley and Bosworth	R	A		42	17		33	31		36	33	42	57	42	**17**	**57**	**37**
HINCKLEY 7N	Hinckley and Bosworth	R	A	15	34	15		19	15	17	21	19	27	42	36	**15**	**42**	**24**
KETTERING 1N	Kettering	R	A	44		33						17	36		31	**17**	**44**	
LINCOLN 3N	Lincoln	R	A	42	53	42	57	42	51	41	47		40	59	47	**40**	**59**	**47**
LINCOLN 6N	Lincoln	R	A	42	47	37		43	41	44	38		36	44	45	**36**	**47**	**42**
MANSFIELD 1N	Mansfield	R	A	40	38	31	33	30	29	29	28	26	39	42	44	**26**	**44**	**34**
MANSFIELD 5N	Mansfield	R	A	34	24	35	27	26	18	21	25	15	17	39	30	**15**	**39**	**26**
NEWARK 1N	Newark and Sherwood	R	C	47	54	49	45	43	42	40	45	43	44	70	59	**40**	**70**	**48**
NEWARK 5N	Newark and Sherwood	R	C			42	38	34			38	40	38	57	57	**34**	**57**	**43**
NORTH HYKEHAM 1N	North Kesteven	R	A	44	39	39	34	36	30	29	36	30		35		**29**	**44**	**35**
NORTH HYKEHAM 6N	North Kesteven	R	A	25	34	34	32	24	35	26		30	32	40	39	**24**	**40**	**32**
COALVILLE 10N	North West Leicestershire	R	A	43	48	30	42	31	35	34		32	40	49		**30**	**49**	**38**
COALVILLE 1N	North West Leicestershire	R	A	34	32	29	38	38	27	30				38	36	**27**	**38**	**34**
NOTTINGHAM 1N	Nottingham	R	A	31	42	27	34	34	22	27	28	29	30	45	34	**22**	**45**	**32**
SWADLINCOTE 7N	South Derbyshire	R	A	38	34	41	32	28	21	26		29	51	35	54	**21**	**54**	**35**
SWADLINCOTE 8N	South Derbyshire	R	A		51	43	39	44	30	36	18	36	37	50	32	**18**	**51**	**38**
SPALDING 2N	South Holland	R	A	22	19		16	15	13	11	12	13	16	23	22	**11**	**23**	**16**
SPALDING 7N	South Holland	R	A	30	18	23	21	15	13	12	15	15	20	23	30	**12**	**30**	**20**
GRANTHAM 11N	South Kesteven	R	A	39	41	50	50	48	32	40	33	30	37	41	35	**30**	**50**	**40**
GRANTHAM SK 50N	South Kesteven	R	A	53	43	45	48	48	40	36	30	32	36	46	37	**30**	**53**	**41**

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

Nitrogen Dioxide Concentrations 2004 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
STAMFORD 1N	South Kesteven	R	A	32	33	36	38	36	33	25	32	25	25	37	29	**25**	**38**	**32**
STAMFORD 31N	South Kesteven	R	A	30	28	29	34	29		29	34	27	32	34	35	**27**	**35**	**31**
WELLINGBOROUGH 10N	Wellingborough	R	A	39	24	20	42	34				31	21	35	34	**20**	**42**	**31**
WELLINGBOROUGH 1N	Wellingborough	R	A	43	36	24	29	64	19	33		39	30	39	34	**19**	**64**	**35**

REGIONAL SUMMARY, East Midlands R	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	40	40	38	38	37	31	32	35	33	38	47	42
Regional Monthly Min	6	18	15	16	15	13	11	12	13	4	23	22
Regional Monthly Max	64	76	75	68	69	69	63	75	67	76	91	91
Regional Annual Mean	38											
Regional Annual Min	16											
Regional Annual Max	69											
Number of Sites	57											
% With Valid Annual Mean	91											

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 2004 (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	40	37	32	31	31	16	25	27	25	35	43	36	**16**	**43**	**31**
ASHFIELD 4N	Ashfield	B	A	44	42	43	39	36	21	26	26	29	42	52	44	**21**	**52**	**37**
RETFORD 2N	Bassetlaw	B	A	22	31	33	22	22	16		19	19	25	34	23	**16**	**34**	**24**
WORKSOP 8N	Bassetlaw	B	A	27	37	34	29	24	14		20	22	26	37	31	**14**	**37**	**27**
BLABY 3N	Blaby	B	A		12							39	39	45		**12**	**45**	
BLABY 4N	Blaby	B	A									34	42	44		**34**	**44**	
BOLSOVER 3N	Bolsover	B	A	35	35	29	25	21	16	18	19	18	29	36	31	**16**	**36**	**26**
BOLSOVER 4N	Bolsover	B	A	40	43	34	31	28	24	25	26	31	37	51	37	**24**	**51**	**34**
BOSTON 3N	Boston	B	A	24	23		23	7	14	11			20	31		**7**	**31**	**19**
BOSTON 5N	Boston	B	A	29	20	17	11	13	14				19	23		**11**	**29**	**18**
BROXTOWE 3N	Broxtowe	B	C	29	39	35	29	23	17	20	21	24	28	40	31	**17**	**40**	**28**
BROXTOWE 6N	Broxtowe	B	C	37	33	41	36	27	19	29	23	28	33	42	36	**19**	**42**	**32**
LOUGHBOROUGH 4N	Charnwood	B	A	25	39	30	19			16	19	17	22	31	29	**16**	**39**	**25**
LOUGHBOROUGH 5N	Charnwood	B	A	26	31	26	20	18	15	15	19	16	22	35	28	**15**	**35**	**23**
DERBY 6N	Derby	B	A	27		26	23	22	15	17	19	14	29	33	33	**14**	**33**	**23**
DERBY 9N	Derby	B	A		35	28	28	25	24	30	29	31	41	46	51	**24**	**51**	**33**
MATLOCK 7N	Derbyshire Dales	B	A	17	21	21	14	14	7	13			22	23	24	**7**	**24**	**18**
MATLOCK 8N	Derbyshire Dales	B	A	18	24	23	18	20	8	10			22	26	25	**8**	**26**	**19**
RUSHDEN 3N	East Northamptonshire	B	A	27	25	18	17	7	12	13	13	11	19	25	28	**7**	**28**	**18**
RUSHDEN 4N	East Northamptonshire	B	A	26	20	20	20	13	11	12	11	10	18	23	23	**10**	**26**	**17**
LONG EATON 3N	Erewash	B	A	35	31	34	22	38	25	25	26	23	26	38	31	**22**	**38**	**30**
LONG EATON 4N	Erewash	B	A	30	26	24	21		20	21	17	27	28	37	34	**17**	**37**	**26**
CARLTON 3N	Gedling	B	A	36	29	37	23	18		12	20	20	30	40	24	**12**	**40**	**26**
CARLTON 4N	Gedling	B	A	30	23	29	20	15	11	13	17	18	26	42	36	**11**	**42**	**23**
HARBOROUGH 3N	Harborough	B	A	21	24	19	17	18	13	13	13	14	24	28	28	**13**	**28**	**19**
HARBOROUGH 4N	Harborough	B	A	31	32	13	24			16	14	17	21	40	40	**13**	**40**	**25**
BUXTON DERBYSHIRE 4N	High Peak	B	A	14	17	18		17		23	13	14	17	26	16	**13**	**26**	**18**
GLOSSOP 3N	High Peak	B	A	20	16	16		17	13	12	12	16	19	28	32	**12**	**32**	**18**
HINCKLEY 5N	Hinckley and Bosworth	B	A	29	36	27		33	23		34	31	36	46	40	**23**	**46**	**33**
HINCKLEY 6N	Hinckley and Bosworth	B	A	25	34	17		21	17	17	21	21	29	40	34	**17**	**40**	**25**
KETTERING 3N	Kettering	B	A	25		8						20	25		28	**8**	**28**	
KETTERING 4N	Kettering	B	A	28		9						15	28			**9**	**28**	
LINCOLN 4N	Lincoln	B	A	23	30	18	21	18	16	16	21		20	32	26	**16**	**32**	**22**
LINCOLN 5N	Lincoln	B	A	29	24	20	23	16	13	13	14		21	28	27	**13**	**29**	**21**
MANSFIELD 4N	Mansfield	B	A	38	29	22	19	18	12	15	13	15	25	26	26	**12**	**38**	**21**
NEWARK 3N	Newark and Sherwood	B	C	32	39	33	29	27	21	21	23	24	28	38	39	**21**	**39**	**29**
NEWARK 4N	Newark and Sherwood	B	A	30	34	26	20	18	16	16	17	20	25	33	38	**16**	**38**	**24**
NORTH HYKEHAM 3N	North Kesteven	B	A	35	26	22	17	15	14	13	15	13	20	30	31	**13**	**35**	**21**
NORTH HYKEHAM 4N	North Kesteven	B	A	27	23	19	19	15	12	12	15	15	17	26	24	**12**	**27**	**19**
COALVILLE 6N	North West Leicestershire	B	A		31	19	25		16	17		16	26	33	31	**16**	**33**	**24**
COALVILLE 9N	North West Leicestershire	B	A	27	26	19	21	27	16	16		16	24	31	28	**16**	**31**	**23**
NOTTINGHAM 3N	Nottingham	B	A	25	27	27	27	22	13	19	21	24	32	50	40	**13**	**50**	**27**
NOTTINGHAM 4N	Nottingham	B	A	28	19	15	16	20	8	8		14	6	12	11	**6**	**28**	**14**
SWADLINCOTE 5N	South Derbyshire	B	A	24	29		19	19	6	17	29	17	26		32	**6**	**32**	**22**
SWADLINCOTE 9N	South Derbyshire	B	A		24		38	17	13	13	17	14	46	26	28	**13**	**46**	**24**
SPALDING 5N	South Holland	B	A	26	11	18	15	7	11	9	9	11	17	20	23	**7**	**26**	**15**
SPALDING 6N	South Holland	B	A	22	18	13	14	12	11	9	11	10	18	14	23	**9**	**23**	**15**
GRANTHAM 13N	South Kesteven	B	A	21	25	18	19	14	13	13	15	42	20	24	24	**13**	**42**	**21**
GRANTHAM 14N	South Kesteven	B	A	22	21	21	17	13		11	11		18	24	24	**11**	**24**	**18**
STAMFORD 13N	South Kesteven	B	A		22	20	18	14	13	13	15	13	19	28	25	**13**	**28**	**18**
STAMFORD 24N	South Kesteven	B	A	35	22	24	21	16	22	16	16	17	24	35	33	**16**	**35**	**23**
WELLINGBOROUGH 3N	Wellingborough	B	A	26	20		23	28	8	7		16	22	25	27	**7**	**28**	**20**
WELLINGBOROUGH 4N	Wellingborough	B	A	30	22	17	30	16	14	13		21	30	25	30	**13**	**30**	**22**

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

Nitrogen Dioxide Concentrations 2004 (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, East Midlands B			**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean		28	27	24	23	20	15	16	19	20	26	33	30			
	Regional Monthly Min		14	11	8	11	7	6	7	9	10	6	12	11			
	Regional Monthly Max		44	43	43	39	38	25	30	34	42	46	52	51			
	Regional Annual Mean		23														
	Regional Annual Min		14														
	Regional Annual Max		37														
	Number of Sites		53														
	% With Valid Annual Mean		92														

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 2004 (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	56	60	63	58	53	56		38	49	46	58	59	**38**	**63**	**54**
BIRMINGHAM 536N	Birmingham	R	A	43	63	59			45	46	48	47	50		51	**43**	**63**	**50**
BIRMINGHAM 538N	Birmingham	R	A	57	60	30	63	65	48	57	48	60	60	57	62	**30**	**65**	**55**
BRIDGNORTH 1N	Bridgnorth	R	A	37	49	51	49	50	30	43	31	34	47	52	42	**30**	**52**	**43**
BRIDGNORTH 5N	Bridgnorth	R	A	31	41	35	37	31	23	28	29	27	36	37	27	**23**	**41**	**32**
BROMSGROVE 1N	Bromsgrove	R	A	37	47	37	41	39	28	27		32	35	53	44	**27**	**53**	**38**
BROMSGROVE 5N	Coventry	R	A	25	40	33	37	30		23	29	17	33	46	41	**17**	**46**	**32**
COVENTRY 1N	Coventry	R	A	57	34	49	48	43	39		44			50	50	**34**	**57**	**46**
COVENTRY 6N	Coventry	R	A	31	26	53	49	51	42	45	51		47			**26**	**53**	**44**
DUDLEY 5N	Dudley	R	A	39	51	46	49	34	32	26	35	33	39	48	40	**26**	**51**	**39**
DUDLEY 9N	Dudley	R	A	45	55	49	44	54	41	43	47	39	48	52	40	**39**	**55**	**46**
BURTON 1N	East Staffordshire	R	A	41	40	48		42	35	33	38	31	43	34	41	**31**	**48**	**39**
BURTON 6N	East Staffordshire	R	A	35	39	45	33	30	26	27		33	46	50	52	**26**	**52**	**38**
HEREFORD 1N	Herefordshire	R	A	38	44	44	36		37	24	34	34	35		49	**24**	**49**	**37**
HEREFORD 7N	Herefordshire	R	A	53	25	49	49	43	34	39	39	31	24		50	**24**	**53**	**40**
LEOMINSTER 5N	Herefordshire	R	A	32	35	35		37	42						56	**32**	**56**	
LEOMINSTER 6N	Herefordshire	R	A	44	40	40	44	39	46	42	42	36	46		49	**36**	**49**	**42**
MALVERN 5N	Malvern Hills	R	A	32	33	32	33	31	25	22	30			37	49	**22**	**49**	**32**
MALVERN 6N	Malvern Hills	R	A	28	34	35	36	43	26	31	29			37	41	**26**	**43**	**34**
NEWCASTLE UNDER LYME 1N	Newcastle-under-Lyme	R	A	44	48	58	45	46	50	33	58	47	65	65	48	**33**	**65**	**51**
NEWCASTLE UNDER LYME 8N	Newcastle-under-Lyme	R	A	32	29	40	19	28	26	24	20	24	39	39	39	**19**	**40**	**30**
NORTH WARWICKSHIRE 1N	North Warwickshire	R	A	37	48	44	36	44	30	46	41	20	38	50	33	**20**	**50**	**39**
NORTH WARWICKSHIRE 5N	North Warwickshire	R	A	27	39	34	33	33	17	30		19		36	35	**17**	**39**	**30**
NUNEATON 1N	Nuneaton and Bedworth	R	A	49	54	45	39	47	53	36	45	36	46	59		**36**	**59**	**46**
NUNEATON 5N	Nuneaton and Bedworth	R	A	57	64	48	48	43	64	51	45	42	46	55		**42**	**64**	**51**
OSWESTRY 1N	Oswestry	R	A		41	40	27	22	10	18	17	18	26	31	31	**10**	**41**	**26**
OSWESTRY 6N	Oswestry	R	A		34	40	34	31	18	22	29	24	34	31	33	**18**	**40**	**30**
SANDWELL 5N	Sandwell	R	A	27	34	30	33	25	21	26		27	29	29	33	**21**	**34**	**28**
SANDWELL 8N	Sandwell	R	A	31	33	40	40	45	25	31	36	32	31	41	35	**25**	**45**	**35**
ROSS-ON-WYE 1N	Herefordshire	R	A		39	39	45	36	29	29	31	29	41		37	**29**	**45**	**35**
ROSS-ON-WYE 6N	Herefordshire	R	A	35	33	33	35	33	27	24	29	28	29		39	**24**	**39**	**31**
CODSALL 2N	South Staffordshire	R	C	33	37	32	36	34	26	27	33	29		32	34	**26**	**37**	**32**
CODSALL 9N	South Staffordshire	R	C	33	40	34	33	36	24	32	35	35	32	43	28	**24**	**43**	**34**
STAFFORD 7N	Stafford	R	A	35	33		25			25		31				**25**	**35**	
LEEK 5N	Staffordshire Moorlands	R	C	31	38	41	41	25	37	42	38	40	35	42	37	**25**	**42**	**37**
STOKE ON TRENT 1N	Stoke-on-Trent	R	A		46	51	48	43	37	42	53	48	44	46	47	**37**	**53**	**46**
STOKE ON TRENT 6N	Stoke-on-Trent	R	A		52	42		59	44	52	49	51	48	55	38	**38**	**59**	**49**
TAMWORTH 1N	Tamworth	R	A	23	35	39	36	36	22	28	35	32	40	44	45	**22**	**45**	**35**
WALSALL 1N	Walsall	R	A	95	86		88			32	23				88	**23**	**95**	
WALSALL 8N	Walsall	R	A	80			82			60	53		27	56	56	**27**	**82**	**59**
LEAMINGTON SPA 1N	Warwick	R	A	61	51	36	51	59		42	35	40	51	51	57	**35**	**61**	**49**
LEAMINGTON SPA 6N	Warwick	R	A	65	55	62	49	66	54	62	63	45	46	62	47	**45**	**66**	**56**
BILSTON 1N	Wolverhampton MBC	R	A	48	62	65	51	58	68	49	50	36	58	48	48	**36**	**68**	**53**
WOLVERHAMPTON 10N	Wolverhampton MBC	R	A	48	58	58	50	52	59	39	36	43	42	61	51	**36**	**61**	**50**
WOLVERHAMPTON 5N	Wolverhampton MBC	R	A	46	46	49	45	51	57		45	40		45	45	**40**	**57**	**47**
WOLVERHAMPTON 9N	Wolverhampton MBC	R	A	49	48	48	42	44	60	37	63	37	41	53	46	**37**	**63**	**47**
WORCESTER 1N	Worcester	R	A	45	45	48	71	66	66	54	54	50	52	70	51	**45**	**71**	**56**
PERSHORE 1N	Wychavon	R	A	30	40	34	33	31		22	21	25		43		**21**	**43**	**31**
PERSHORE 5N	Wychavon	R	A	36	36	40	19	30		26	22	26	32	43	40	**19**	**43**	**32**
KIDDERMINSTER 1N	Wyre Forest	R	A	63		47	32	49	37	32	49	37	45	51	40	**32**	**63**	**44**
KIDDERMINSTER 8N	Wyre Forest	R	A	51	43	30	32		25	27	32	30	31	41	31	**25**	**51**	**34**

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

Nitrogen Dioxide Concentrations 2004 (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, West Midlands R			**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean		43	44	43	43	42	37	35	39	35	41	47	44			
	Regional Monthly Min		23	25	30	19	22	10	18	17	17	24	29	27			
	Regional Monthly Max		95	86	65	88	66	68	62	63	60	65	70	88			
	Regional Annual Mean		41														
	Regional Annual Min		26														
	Regional Annual Max		59														
	Number of Sites		51														
	% With Valid Annual Mean		94														

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 2004 (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	22	27	28	24	26	15	18	19	15	25	28	29	**15**	**29**	**23**
BIRMINGHAM 528N	Birmingham	B	A	23	32	24	15	23	14	18	18	19	23	31	29	**14**	**32**	**22**
BRIDGNORTH 3N	Bridgnorth	B	A	15	21	19	14	10	8	10	8	11	19	21	11	**8**	**21**	**14**
BRIDGNORTH 4N	Bridgnorth	B	A		19			13	9	10	10		19	22	22	**9**	**22**	**15**
BROMSGROVE 3N	Bromsgrove	B	A	37	42	25	27	23	17	18	18	21	16	40	29	**16**	**42**	**26**
BROMSGROVE 4N	Bromsgrove	B	A	29	31	20	22	24		16	16	29	9	31	28	**9**	**31**	**23**
COVENTRY 3N	Coventry	B	A	59	24	27	24	24	15	33	19	18	27	35	35	**15**	**59**	**28**
COVENTRY 5N	Coventry	B	A	32	22	26	23	24	14	18		14		32	32	**14**	**32**	**24**
DUDLEY 6N	Dudley	B	A	23	31	27	21	19	9	11	15	13	18	21	22	**9**	**31**	**19**
DUDLEY 8N	Dudley	B	A	27	26	26	16	16	8	12	14	15	22	25	25	**8**	**27**	**19**
BURTON 3N	East Staffordshire	B	A	23	28	23	19		13			13	27	29	30	**13**	**30**	**23**
BURTON 4N	East Staffordshire	B	A	23	26	22	15	12	13	9	11	18	31	25	37	**9**	**37**	**20**
HEREFORD 3N	Herefordshire Council	B	A	26	24	24	16	12	28	11	11		18		32	**11**	**32**	**20**
HEREFORD 6N	Herefordshire Council	B	A	19	17	17	11	8	7	7	8	10	15		20	**7**	**20**	**13**
LEOMINSTER 4N	Herefordshire Council	B	A	13	15	15	12	11	8	8	10	8	14		18	**8**	**18**	**12**
WEOBLEY 3N	Herefordshire Council	B	A	12	12	12	7	6	4	4	5	5	11		14	**4**	**14**	**8**
MALVERN 3N	Malvern Hills	B	A	17	19	14	13	14	5	9	8			18	26	**5**	**26**	**14**
MALVERN 4N	Malvern Hills	B	A	13	21	14	10	13	4	6	7			14	22	**4**	**22**	**12**
NEWCASTLE UNDER LYME 4N	Newcastle-under-Lyme	B	A	25	24	29	21	19	13	14	17	21	31	31	26	**13**	**31**	**23**
NEWCASTLE UNDER LYME 7N	Newcastle-under-Lyme	B	A	22	74		28	17	10	14	36	13	27	27	26	**10**	**74**	**27**
NORTH WARWICKSHIRE 3N	North Warwickshire	B	A	42	44	36	27	31	28	32	34	31	31	41	38	**27**	**44**	**35**
NORTH WARWICKSHIRE 4N	North Warwickshire	B	A	25	34	35	23	18	13	19	16	17	17	30	30	**13**	**35**	**23**
NUNEATON 3N	Nuneaton and Bedworth	B	A	32	34	28	23	24	38	16	23	20	28	38		**16**	**38**	**28**
NUNEATON 4N	Nuneaton and Bedworth	B	A	34	33	31	23	21	40	16	23	19	28	40		**16**	**40**	**28**
OSWESTRY 3N	Oswestry	B	A		14	13	10	10	4	6	8	6	12	12	14	**4**	**14**	**10**
OSWESTRY 5N	Oswestry	B	A		18	16	14	14	6		8	7	16	17	18	**6**	**18**	**13**
REDDITCH 1N	Redditch	B	C	17	16	16	15	16	9	13	18	14	14	23	15	**9**	**23**	**16**
REDDITCH 2N	Redditch	B	C	17	21	21	19	22	13	19	37	19	19	27	23	**13**	**37**	**21**
REDDITCH 5N	Redditch	B	C	53	40	40	40	33	32	18	32	39	39	60	49	**18**	**60**	**40**
SANDWELL 3N	Sandwell	B	A	30	33	39	27	29	16	21	24	26	31	32	35	**16**	**39**	**29**
SANDWELL 7N	Sandwell	B	A	25	30	31	27	24	13	18	21	20	24	33	32	**13**	**33**	**25**
ROSS-ON-WYE 3N	Herefordshire Council	B	A	17	21	21	14	13	13	12	12	12	17		19	**12**	**21**	**15**
ROSS-ON-WYE 7N	Herefordshire Council	B	A								12	13			22	**12**	**22**	
CODSALL 6N	South Staffordshire	B	C	29	29	28	21	21	15	19	21	24	27	34	38	**15**	**38**	**25**
CODSALL 8N	South Staffordshire	B	C	29	35	35	26	29	20	23	21	27	22	33	28	**20**	**35**	**27**
STAFFORD 3N	Stafford	B	A	23	37		17		29	18		21				**17**	**37**	
STAFFORD 4N	Stafford	B	A		23		20		26	20		20				**20**	**26**	
LEEK 3N	Staffordshire Moorlands	B	C	14	17	17	37	13	35	39	13	12	14	21	22	**12**	**39**	**21**
LEEK 6N	Staffordshire Moorlands	B	C	18	21	18	16	13	9	11	11	9	16	19	21	**9**	**21**	**15**
STOKE ON TRENT 4N	Stoke-on-Trent	B	A			32	25	23	17	21	23		29	37	17	**17**	**37**	**25**
STOKE ON TRENT 5N	Stoke-on-Trent	B	A		24		23	19	18	15	20	20	24	32		**15**	**32**	**22**
TAMWORTH 3N	Tamworth	B	A	29	21	26	24	20	16	13	18	21	25	30	34	**13**	**34**	**23**
TAMWORTH 6N	Tamworth	B	A	29	29	24	23	21	15	14	17	28	27	31	39	**14**	**39**	**25**
WALSALL 6N	Walsall	B	A	53	44		51				36		47	47	54	**36**	**54**	**47**
WALSALL 7N	Walsall	B	A	58	67		55			41	30		54	51	71	**30**	**71**	**53**
LEAMINGTON SPA 4N	Warwick	B	A	31	38	28	20	24	11	10	19	20	21	30	19	**10**	**38**	**23**
LEAMINGTON SPA 5N	Warwick	B	A	51	43	30	20	26	17	18	20		29	43	43	**17**	**51**	**31**
BILSTON 3N	Wolverhampton MBC	B	A	38	43	42	30	28	46	16		26	21	34	39	**16**	**46**	**33**
BILSTON 4N	Wolverhampton MBC	B	A	35	40	38	28	27			23	21	29	36	35	**21**	**40**	**31**
WOLVERHAMPTON 3N	Wolverhampton MBC	B	A	21	29	20	18		22	13	12	13	18	23	18	**12**	**29**	**19**
WOLVERHAMPTON 8N	Wolverhampton MBC	B	A	32	32	25	24	21	37	17	21	19	27	24	32	**17**	**37**	**26**
WORCESTER 3N	Worcester	B	A	28	19	21		18	8	13	12	16	20	25	16	**8**	**28**	**18**
WORCESTER 4N	Worcester	B	A	20	19	22	20	17	17	14	14	12	21	26	28	**12**	**28**	**19**

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

Nitrogen Dioxide Concentrations 2004 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
PERSHORE 3N	Wychavon	B	A	30	32	31	22	19		16	16	17	24	33	40	**16**	**40**	**25**
PERSHORE 4N	Wychavon	B	A	21	29	25							15	28	36	**15**	**36**	
KIDDERMINSTER 4N	Wyre Forest	B	A	30	23	23	18	14	8	11	16	12	20	23	25	**8**	**30**	**19**
KIDDERMINSTER 6N	Wyre Forest	B	A	32	28		19	14	10	9	11	14	21	24	31	**9**	**32**	**19**

REGIONAL SUMMARY, West Midlands B	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	28	29	25	22	19	16	16	17	17	23	30	29
Regional Monthly Min	12	12	12	7	6	4	4	5	5	9	12	11
Regional Monthly Max	59	74	42	55	33	46	41	37	39	54	60	71

Regional Annual Mean	23
Regional Annual Min	8
Regional Annual Max	53
Number of Sites	57
% With Valid Annual Mean	93

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 2004 (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	18	27	22	21	25	12	16	14	16	21	23	21	**12**	**27**	**20**
BRYNMAWR 4N	Blaenau Gwent	R	A	22	29	26	22	25	16	19	21	25	26	24	26	**16**	**29**	**23**
BRIDGEND 5N	Bridgend	R	A	49	51	44	42	44		39	37	36		48	47	**36**	**51**	**44**
BLACKWOOD 1N	Caerphilly	R	A	49	89	89		34	36	45	40	36	46	50	50	**34**	**89**	**51**
CAERPHILLY 5N	Caerphilly	R	A	44	52	52	42	37	28	35	38	35	49	27	47	**27**	**52**	**41**
CAERPHILLY 8N	Caerphilly	R	A	37	43	43	29	29	26	29	36	28	36	8	44	**8**	**44**	**32**
RHYMNEY 1N	Caerphilly	R	A	23	21	21	17	12	12	14	14	13	24	26	21	**12**	**26**	**18**
CARDIFF 1N	Cardiff County	R	A	45	70	76	64	57	40	58	57	59	74	81	26	**26**	**81**	**59**
CARDIFF 5N	Cardiff County	R	A	52	51	52	42	37	36	36	42	17	49	47		**17**	**52**	**42**
LLANELLI 1N	Carmarthenshire County	R	A											49		**49**	**49**	
COLWYN BAY 1N	Conwy	R	A	18	26	31	32		18		22	24	29	29	28	**18**	**32**	**26**
LLANDUDNO 5N	Conwy	R	A	10	16	12	12	14	8	16	16	18	25	22	19	**8**	**25**	**16**
LLANDUDNO 6N	Conwy	R	A	14	12	12	10	8	7	7	9	13	17	18	17	**7**	**18**	**12**
RHYL 1N	Denbighshire County	R	A	27	31	37	42	32	22	36		32	39	29	32	**22**	**42**	**33**
RHYL 6N	Denbighshire County	R	A	34	35	29	57	37	30	38	41	36	42	38	27	**27**	**57**	**37**
MOLD 5N	Flintshire County	R	A	19	37	35	38	34	23	26	29	27	34	34	31	**19**	**38**	**31**
SHOTTON CLWYD 1N	Flintshire County	R	A	17	43	37	35	36	26	31	35	25	38	41	34	**17**	**43**	**33**
MERTHYR 1N	Merthyr Tydfil	R	A	41	44	40	29	25	28	35	33	24	40		38	**24**	**44**	**34**
MERTHYR 5N	Merthyr Tydfil	R	A	19	24	21	13	12	9	7	15	15	21	41	21	**7**	**41**	**18**
MONMOUTH 1N	Monmouthshire County	R	A	45	55	50	39					20	30	30	25	**20**	**55**	**37**
NEATH 1N	Neath Port Talbot	R	A	74	61	59	36	41	37	29	39	47	55	64	54	**29**	**74**	**50**
PONTARDAWE 1N	Neath Port Talbot	R	A	31	44	33	27	30	19	20	27	27	36	38	38	**19**	**44**	**31**
PORT TALBOT 1N	Neath Port Talbot	R	A	57	42	45	27	43	25	25	32			64	47	**25**	**64**	**41**
NEWPORT GWENT 5N	Newport	R	A	59	72	62		58	38	39	44	50	61	75	43	**38**	**75**	**55**
NEWPORT GWENT 8N	Newport	R	A	62	32	63	61	66	49	48	44	28	65	63	66	**28**	**66**	**54**
HAVERFORDWEST 1N	Pembrokeshire County	R	A	25	26	24	23	23	15	22	24	24	26	31	25	**15**	**31**	**24**
HAVERFORDWEST 8N	Pembrokeshire County	R	A	41		36	39	44	44	44	41	49	40	36	49	**36**	**49**	**42**
PEMBROKE 11N	Pembrokeshire County	R	A	30		45	42		38	32	43	31	34	33	31	**30**	**45**	**36**
PEMBROKE 15N	Pembrokeshire County	R	A	16		23	18	18	14	15	16	19	15	21	21	**14**	**23**	**18**
CRICKHOWELL 1N	Powys	R	A	30	26	29	28	28	30		61	27	25	33	24	**24**	**61**	**31**
LLANDRINDOD WELLS 1N	Powys	R	A	18			19	19	13	17	17	13	18	21	20	**13**	**21**	**17**
LLANDRINDOD WELLS 8N	Powys	R	A				17	16	15	16	19	9	18	22	18	**9**	**22**	**16**
NEWTOWN 1N	Powys	R	A	11	23	38	42	40	31	34	44	37	50	45	41	**11**	**50**	**36**
WELSHPOOL 1N	Powys	R	A	11	5	4	21	18	13	13	21		22	25	24	**4**	**25**	**16**
WELSHPOOL 5N	Powys	R	A	19	6	22	20	24	21	18	22	20	25	23	26	**6**	**26**	**20**
WELSHPOOL 6N	Powys	R	A	27	17		17	23		13			20			**13**	**27**	
ABERDARE 3N	Rhondda Cynon Taff	R	C	33												**33**	**33**	
MOUNTAIN ASH 1N	Rhondda Cynon Taff	R	C	36												**36**	**36**	
PONTYPRIDD 1N	Rhondda Cynon Taff	R	C	36	40	46		37	22	29			32			**22**	**46**	**35**
TREORCHY 1N	Rhondda Cynon Taff	R	C	33	34	30	28	26	21	23	25		27	36	34	**21**	**36**	**29**
SWANSEA 1N	Swansea	R	A		65	68	58	61	54	41		55	63	77	67	**41**	**77**	**61**
SWANSEA 5N	Swansea	R	A		45	57	51	20	44	37		47	45	52	61	**20**	**61**	**46**
CWMBRAN 2N	Tor-Faen - Torfaen	R	A			25	18	18	12	19	22	18	34	28	35	**12**	**35**	**23**
PONTYPOOL 1N	Tor-Faen - Torfaen	R	A			39	38	34	34	37	43	41	54	32	56	**32**	**56**	**41**
BARRY 1N	Vale of Glamorgan	R	A	38	44			32	30	31	26			29	37	**26**	**44**	**33**
RHUR CROSS 1N	Vale of Glamorgan	R	A	42	42	38	33	32	19	25	35	21	40	27	37	**19**	**42**	**33**

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

Nitrogen Dioxide Concentrations 2004 (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, Wales R			**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean		33	38	39	32	31	25	28	31	29	36	38	35			
	Regional Monthly Min		10	5	4	10	8	7	7	9	9	15	8	17			
	Regional Monthly Max		74	89	89	64	66	54	58	61	59	74	81	67			
	Regional Annual Mean		33														
	Regional Annual Min		12														
	Regional Annual Max		61														
	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 B7.2 Urban Background Sites in Wales

Nitrogen Dioxide Concentrations 2004 (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	16	17	14		9	8	7	7	11	16	15	20	**7**	**20**	**13**
BRYNMAWR 1N	Blaenau Gwent	B	A	20	23	21	13	14	10	11	10	15	21	21		**10**	**23**	**16**
BRIDGEND 3N	Bridgend	B	A	18	14	16	14	10		8	8	10		19	20	**8**	**20**	**14**
BRIDGEND 4N	Bridgend	B	A	23	27	20	14	16		10	10	15		31	28	**10**	**31**	**19**
BARGOED 3N	Caerphilly	B	A	27	22	22	14	10	8	11	14	13	22	18	10	**8**	**27**	**16**
CAERPHILLY 7N	Caerphilly	B	A	12	25	25	14	17	4	14	10	15		27	4	**4**	**27**	**15**
CROESPENMAEN 3N	Caerphilly	B	A	11	20	20	8	11	7	10	11	10	18	23	18	**7**	**23**	**14**
CWMCARN 4N	Caerphilly	B	A	20	17	17	11	5	4	10	11	11	17	22	21	**4**	**22**	**14**
CARDIFF 3N	Cardiff County	B	A	40	42	37	22	23	16	14	18	23	13	40	34	**13**	**42**	**27**
CARDIFF 6N	Cardiff County	B	A	47	51	51	37	33	27	31	30	37	43	47	47	**27**	**51**	**40**
COLWYN BAY 4N	Conwy	B	A	10	14	11	11	13	7	18	11	12	17	15	14	**7**	**18**	**13**
RHYL 4N	Denbighshire County	B	A	15	20	15	14	11	8	8	11	12	14	14	17	**8**	**20**	**13**
RHYL 5N	Denbighshire County	B	A	13	21	22	16	10	8	10	12	12	18	18	19	**8**	**22**	**15**
ASTON CLWYD 2N	Flintshire County	B	A	29	28	22	16	20	10	16	30	16	21	29	27	**10**	**30**	**22**
SHOTTON CLWYD 4N	Flintshire County	B	A	23	23	21	14	11	8	11	15	13	22	20	25	**8**	**25**	**17**
MERTHYR 3N	Merthyr Tydfil	B	A	30	36	32	22	21	12	15	19	25	15	37	25	**12**	**37**	**24**
MERTHYR 4N	Merthyr Tydfil	B	A	24	26	25	18	15	14	19	22		24	24	25	**14**	**26**	**21**
NEATH 3N	Neath Port Talbot	B	A	31	30	30	22	18	15	14	11	29	32	44	35	**11**	**44**	**26**
NEATH 4N	Neath Port Talbot	B	A	19	24	20	11	11	7			15	20	19	21	**7**	**24**	**17**
PORT TALBOT 3N	Neath Port Talbot	B	A	23	20	24			14	13	10		19	34		**10**	**34**	**20**
PORT TALBOT 4N	Neath Port Talbot	B	A	32	30	22	21	19	14	11	14	13	22	35	28	**11**	**35**	**22**
NEWPORT GWENT 4N	Newport	B	A	23	25	25	19	19	12	14	13	17	20	22	29	**12**	**29**	**20**
NEWPORT GWENT 6N	Newport	B	A	31	30	32	21	22	17	19	14	19	26	25	35	**14**	**35**	**24**
HAVERFORDWEST 3N	Pembrokeshire County	B	A	9	11	12	8	7	10	9	9	13	11		12	**7**	**13**	**10**
HAVERFORDWEST 9N	Pembrokeshire County	B	A	7	11	10	8	5	8	7	7	11	8	9	13	**5**	**13**	**9**
PEMBROKE 13N	Pembrokeshire County	B	A	8	14	11	7	9	5	8	9	9	11	11	12	**5**	**14**	**9**
PEMBROKE 14N	Pembrokeshire County	B	A	9	13	8	8	8	7	8	9	12	9	11	10	**7**	**13**	**9**
BRECON 4N	Powys	B	A	14	14	11	10	6	8		14	7	10	16	12	**6**	**16**	**11**
CRICKHOWELL 3N	Powys	B	A	15	15	10	9	9	6		18	8	11	14	13	**6**	**18**	**12**
LLANDRINDOD WELLS 4N	Powys	B	A	8	12		7	9		5		12	10	11	8	**5**	**12**	**9**
LLANDRINDOD WELLS 7N	Powys	B	A	6	11			6	4	5	5	4	8	10	9	**4**	**11**	**7**
NEWTOWN 3N	Powys	B	A	11	13	12	9	8	5	5	8	6	12	12	13	**5**	**13**	**9**
NEWTOWN 4N	Powys	B	A	11	9	13	11	8	6	7	8	6	12	12	11	**6**	**13**	**9**
WELSHPOOL 3N	Powys	B	A	25	14	9	7	7		4	6	5	10	10	11	**4**	**25**	**10**
WELSHPOOL 7N	Powys	B	A	48	24	9	5	8	5	5	6	6	10	9	11	**5**	**48**	**12**
MOUNTAIN ASH 2N	Rhondda Cynon Taff	B	C	12												**12**	**12**	
PENDERYN 1N	Rhondda Cynon Taff	B	C	12	12	10	7	7	4	6	6	6	6	12	6	**4**	**12**	**8**
PONTYPRIDD 8N	Rhondda Cynon Taff	B	C	20		22	13	12	10	11	12		19		16	**10**	**22**	**15**
SWANSEA 3N	Swansea	B	A		31	29	24	24	20	42			27	32	34	**20**	**42**	**29**
SWANSEA 4N	Swansea	B	A		20		11	11	9	6			16	20	21	**6**	**21**	**14**
CWMBRAN 4N	Tor-Faen - Torfaen	B	A			24	17	9	11	14	16	15	29	27	33	**9**	**33**	**19**
PONTYPOOL 3N	Tor-Faen - Torfaen	B	A			20	15	11	10	10	11	14	26	25	33	**10**	**33**	**18**
BARRY 6N	Vale of Glamorgan	B	A	19	27	24	12	15	10	10	11	13	23	19	23	**10**	**27**	**17**
BARRY 7N	Vale of Glamorgan	B	A	24	24	25	12	8	9	11	11	13	26	23	14	**8**	**26**	**17**

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

Nitrogen Dioxide Concentrations 2004 (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, Wales B			**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean		20	21	20	14	12	10	12	12	13	18	21	20			
	Regional Monthly Min		6	9	8	5	5	4	4	5	4	6	9	4			
	Regional Monthly Max		48	51	51	37	33	27	42	30	37	43	47	47			
	Regional Annual Mean		16														
	Regional Annual Min		7														
	Regional Annual Max		40														
	Number of Sites		44														
	% With Valid Annual Mean		98														

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 2004 (ug m^{-3})														
Site Name	**Local Authority**	**Loc.**	**Status**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Min**	**Max**	**Mean**
WATFORD 5N	Watford	R	A	51	60	47	46	42	34	32	41	49	48	46	57	**32**	**60**	**46**
SAFFRON WALDEN 1N	Uttlesford	R	C	41	41	37	34	34	32	34	40	28	36	40	40	**28**	**41**	**36**
GRAYS 1N	Thurrock	R	A	53	56	43	58	43	30	46	46	50	49	65	57	**30**	**65**	**50**
GRAYS 5N	Thurrock	R	A	68	33	72	79	65	51	62	51	54	72	85	78	**33**	**85**	**64**
RICKMANSWORTH 1N	Three Rivers	R	A	40	43	34	40	39	26	7		24	38		41	**7**	**43**	**33**
RICKMANSWORTH 5N	Three Rivers	R	A	52	50	39	43	41	43	34	33	39	41		57	**33**	**57**	**43**
FELIXSTOWE 1N	Suffolk Coastal	R	C	49												**49**	**49**	
FELIXSTOWE 8N	Suffolk Coastal	R	A	44	48	39	40	25	33	31	30	41	39	44	52	**25**	**52**	**39**
STEVENAGE 1N	Stevenage	R	A	11	45	39	39	38	31	27	32	30	36	37	40	**11**	**45**	**34**
BURY ST EDMUNDS 8N	St. Edmundsbury	R	A	52	47	46	44	37					46	48	53	**37**	**53**	**47**
BURY ST EDMUNDS 9N	St. Edmundsbury	R	A	51	54	43	54	39	33	25	39	32	37	61	52	**25**	**61**	**43**
ST ALBANS 1N	St. Albans	R	A	44			40	36	24		27	31	26		41	**24**	**44**	**34**
HISTON 5N	South Cambridgeshire	R	C	51	37	40	53	41	39	41	40	37	47	53	49	**37**	**53**	**44**
SAWSTON 1N	South Cambridgeshire	R	C		51		49	41	25	31	36	38	44	48		**25**	**51**	**40**
DUNSTABLE 5N	South Bedfordshire	R	A	45	66	55	52	60	37	43	38	37	48	45	44	**37**	**66**	**47**
DUNSTABLE 6N	South Bedfordshire	R	A	33	57	49	58	50	32	42	51	33	45	57	44	**32**	**58**	**46**
PETERBOROUGH 1N	Peterborough	R	A	37	64	51			41		33	41	57		51	**33**	**64**	**47**
PETERBOROUGH 5N	Peterborough	R	A	31	43	36			14	22	26	30	37		42	**14**	**43**	**31**
CROMER 1N	North Norfolk	R	A	39		36	37	32	33	38	42	32	33	41	36	**32**	**42**	**36**
NORTH WALSHAM 8N	North Norfolk	R	A	42	31	40	37	35	12	29	23	25	29	39	30	**12**	**42**	**31**
HITCHIN 8N	North Hertfordshire	R	A	48	45	49	51	41	36	34	53	48	52	62	52	**34**	**62**	**47**
LETCHWORTH 1N	North Hertfordshire	R	A	40	41	39	33	33	25	10	31	33	42	49	42	**10**	**49**	**35**
BIGGLESWADE 1N	Mid Bedfordshire	R	A	44	54	54	47	52	34	36	39	35	43	60	55	**34**	**60**	**46**
IPSWICH 1N	Ipswich	R	A	49	54	47	32	59	43	50	48		48	53	41	**32**	**59**	**48**
IPSWICH 5N	Ipswich	R	A	33		29	39	34		26	29		33	36	31	**26**	**39**	**32**
IPSWICH 6N	Ipswich	R	A	50		35	48	48	46	49	56		41	44		**35**	**56**	**46**
BOREHAMWOOD 1N	Hertsmere	R	A	67	66	77	65	55		55	37	38	103	67	69	**37**	**103**	**64**
POTTERS BAR 1N	Hertsmere	R	A	66	53	70	82	37		31	11	46	57	58	54	**11**	**82**	**51**
EPPING 1N	Epping Forest	R	A	47	27	39	42		34		22			40	50	**22**	**50**	**38**
EPPING 5N	Epping Forest	R	A	53	45	38	45	45	39	35	45	49	52	47	50	**35**	**53**	**45**
ELY CAMBS 1N	East Cambridgeshire	R	A	8	36	37	33	26	21	21	20	26	35	40	39	**8**	**40**	**29**
ELY CAMBS 5N	East Cambridgeshire	R	A	48	46	44	40	26	23	18	32	26	44	52	45	**18**	**52**	**37**
CAMBRIDGE 1N	Cambridge	R	A	60	64	72	41	60	35	56	48	60	58	68	62	**35**	**72**	**57**
CAMBRIDGE 5N	Cambridge	R	A	52	54	45	42	37	29	38	32	38	38	58	51	**29**	**58**	**43**
HEMEL HEMPSTEAD 10N	Dacorum	R	A						54	71	58	70	73	88	72	**54**	**88**	**69**
HEMEL HEMPSTEAD 9N	Dacorum	R	A						53	59	68	69	70	79	74	**53**	**79**	**68**
BROADLAND 5N	Broadland	R	C			31		29	37	32	29	24	31	43	43	**24**	**43**	**33**
THORPE 1N	Broadland	R	C	34	28	26	25	22	23	21	20	18	17	35	28	**17**	**35**	**25**
BRAINTREE 1N	Braintree	R	A	46	44	24	34	36	33	21	33	33	35	47	46	**21**	**47**	**36**
BRAINTREE 5N	Braintree	R	A	23	26	30	29	15	22	19	23	28	24	29	39	**15**	**39**	**26**
BEDFORD 5N	Bedford	R	A	35	31	34	50	42	39	48	53	32	35	37	42	**31**	**53**	**40**
SUDBURY 1N	Babergh	R	A	36	35	37	33	28	17	26	24	25	34	42	41	**17**	**42**	**32**
SUDBURY 5N	Babergh	R	A		38	43	43	44	18	30	40	38	48	45	44	**18**	**48**	**39**

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

Nitrogen Dioxide Concentrations 2004 (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, Eastern R			**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean		44	46	43	45	40	32	35	37	37	44	51	48			
	Regional Monthly Min		8	26	24	25	15	12	7	11	18	17	29	28			
	Regional Monthly Max		68	66	77	82	65	54	71	68	70	103	88	78			
	Regional Annual Mean		42														
	Regional Annual Min		25														
	Regional Annual Max		69														
	Number of Sites		43														
	% With Valid Annual Mean		98														

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 2004 (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	31	27	34	31	15	10	21	20	21	30	35	43	**10**	**43**	**26**
SUDBURY 3N	Babergh	B	A	31	28	29	26		11	15	18	18	23	31	33	**11**	**33**	**24**
BEDFORD 8N	Bedford	B	A	33	30	29	22	15	14	12	17	14	20	28	27	**12**	**33**	**22**
BEDFORD 9N	Bedford	B	A	33			31	20	17	22	30	23	30	32	37	**17**	**37**	**27**
BRAINTREE 4N	Braintree	B	A	31	35	24	22	22	18	17	21	21	25	28	34	**17**	**35**	**25**
BRAINTREE 6N	Braintree	B	A	28	32	28	22	17	15	16	21	23	24	35	39	**15**	**39**	**25**
BROADLAND 4N	Broadland	B	C					12	10	11	13	14	19	24	28	**10**	**28**	**16**
BROADLAND 6N	Broadland	B	C			17	16	8	11		13	11	15	22	25	**8**	**25**	**15**
HODDESDON 2N	Broxbourne	B	A	29	19	10	11	7	12	14		13	19	23	29	**7**	**29**	**17**
HODDESDON 3N	Broxbourne	B	A	30	14	10	12	7	10	17	18	15	22	29	31	**7**	**31**	**18**
HEMEL HEMPSTEAD 11N	Dacorum	B	A						16	21	13	27	36	38	39	**13**	**39**	**27**
CAMBRIDGE 3N	Cambridge	B	A	48	43	37	23	22	16	22	24	26	37	43	43	**16**	**48**	**32**
CAMBRIDGE 4N	Cambridge	B	A	48	48	44	24	21	15	19	21	28	32	48	46	**15**	**48**	**33**
ELY CAMBS 3N	East Cambridgeshire	B	A	29	29	25	18	14	13	12	10	16	25	38		**10**	**38**	**21**
ELY CAMBS 4N	East Cambridgeshire	B	A	31	26	28	18	14	13	11	13	19	27	35	29	**11**	**35**	**22**
EPPING 3N	Epping Forest	B	A	40	34	23	20	16	14	14	23	21	34	33	38	**14**	**40**	**26**
EPPING 4N	Epping Forest	B	A	33	27	26	24	31	18	17	22	21	33	34	36	**17**	**36**	**27**
BOREHAMWOOD 3N	Hertsmere	B	A	21	29	47	36	32		21		24	39	34	5	**5**	**47**	**29**
BOREHAMWOOD 4N	Hertsmere	B	A	34	40	35	27	58		18	22	18	29	35	48	**18**	**58**	**33**
IPSWICH 3N	Ipswich	B	A	31	35	28	40	28	21	24	27		27	32	31	**21**	**40**	**29**
IPSWICH 4N	Ipswich	B	A	24	31	18			15	16	18			24	28	**15**	**31**	**22**
HITCHIN 5N	North Hertfordshire	B	A	36	32	28	18		11	10	15	15	29	35	29	**10**	**36**	**23**
LETCHWORTH 6N	North Hertfordshire	B	C	36	33	32	26	17	14	15	16	21	37		37	**14**	**37**	**26**
CROMER 6N	North Norfolk	B	A	24	15	20	18	7	10	12	14	12	17	21	26	**7**	**26**	**16**
NORTH WALSHAM 7N	North Norfolk	B	A	29	18	20	16	11	5	13	12	13	12	22	25	**5**	**29**	**16**
PETERBOROUGH 3N	Peterborough	B	A	42	26	24			12	15	17	21	36		33	**12**	**42**	**25**
PETERBOROUGH 4N	Peterborough	B	A		31	23			10	16	14	20	31		26	**10**	**31**	**21**
TRING 12N	Dacorum	B	A						10	12	14	15	25	35	31	**10**	**35**	**20**
DUNSTABLE 3N	South Bedfordshire	B	A	18	29	24	20	16	11	11		11	20	30		**11**	**30**	**19**
DUNSTABLE 4N	South Bedfordshire	B	A	25	35	30	23	21	12	15	16	14	25	32		**12**	**35**	**23**
HISTON 3N	South Cambridgeshire	B	C	38	31	31	26	17	14	15	16	21	30	34	42	**14**	**42**	**26**
SAWSTON 2N	South Cambridgeshire	B	C	34	28	26	24	16	11	11	9	15	25	33	32	**9**	**34**	**22**
ST ALBANS 5N	St. Albans	B	A	30	28	35	30	22	19		24	23	23		32	**19**	**35**	**27**
ST ALBANS 6N	St. Albans	B	A	28	23	24	26	16	13		14	18	27		30	**13**	**30**	**22**
BURY ST EDMUNDS 7N	St. Edmundsbury	B	A	35		25	23	15	11	12	16		26	35	36	**11**	**36**	**23**
HAVERHILL 7N	St. Edmundsbury	B	A	31			16		21		12		25	35	37	**12**	**37**	**25**
STEVENAGE 3N	Stevenage	B	A	28	18	18	20	13	9	15	16	12	23	21	28	**9**	**28**	**18**
STEVENAGE 4N	Stevenage	B	A	28	24	23	22	18	16	16	20	17	26	34	32	**16**	**34**	**23**
FELIXSTOWE 5N	Suffolk Coastal	B	A			31	28	17	18		19	25	34	33	54	**17**	**54**	**29**
RICKMANSWORTH 3N	Three Rivers	B	A	35	36	29	31	27	18	9	12	19	31		44	**9**	**44**	**26**
RICKMANSWORTH 6N	Three Rivers	B	A	37	36	28	34	27	19	14	15	13	32		44	**13**	**44**	**27**
GRAYS 3N	Thurrock	B	A	39	65	35	35	27	24	20	27	29	35	54	45	**20**	**65**	**36**
GRAYS 4N	Thurrock	B	A	34	37	30	29	18	16	19	21	26	25	45	37	**16**	**45**	**28**
SAFFRON WALDEN 3N	Uttlesford	B	A	27	17	20	18	12	11	11	13	11	18	22	27	**11**	**27**	**17**
STANSTED 4N	Uttlesford	B	A		23	20	14	15	15	9	16	12	20	23	26	**9**	**26**	**18**
WATFORD 4N	Watford	B	A	28	30	20	20	19	12	11	13	18	21	28	24	**11**	**30**	**20**
WATFORD 7N	Watford	B	A	27	36	24	29	26	15	17	23	25	30	37	39	**15**	**39**	**27**

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

Nitrogen Dioxide Concentrations 2004 (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, Eastern B			**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean		32	30	26	24	19	14	15	17	18	27	32	34			
	Regional Monthly Min		18	14	10	11	7	5	9	9	11	12	21	5			
	Regional Monthly Max		48	65	47	40	58	24	24	30	29	39	54	54			
	Regional Annual Mean		24														
	Regional Annual Min		15														
	Regional Annual Max		36														
	Number of Sites		47														
	% 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 2004 (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 & Dagenham	R	A	63	54			60	59	53	64			79		**53**	**79**	**62**
BARKING 6N	Barking & Dagenham	R	A	40	54			52	52	54	67			57		**40**	**67**	**54**
BARNET 5N	Barnet	R	A	45		44	43	39	18	25	27	35	40	53	47	**18**	**53**	**38**
BARNET 8N	Barnet	R	A	60	55	77	71	76		27	26	59	58	67	68	**26**	**77**	**59**
BRENT 55N	Brent	R	A		87	67	67	90	86	86	81	50	68			**50**	**90**	**76**
BRENT 56N	Brent	R	A		67	74	60	45	57	56	61	51	54			**45**	**74**	**58**
CHESHUNT 1N	Broxbourne	R	A							34	39	27	39	39	41	**27**	**41**	
CHESHUNT 5N	Broxbourne	R	A	31	54	15	33	29	37	51	58	28	57	63	56	**15**	**63**	**43**
WALTHAM CROSS 1N	Broxbourne	R	A	83	45	33	43	28	47	74	69	65	80	45	83	**28**	**83**	**58**
WALTHAM CROSS 4N	Broxbourne	R	A	37	41	17	27	21	42	47	47	34	53	40	55	**17**	**55**	**38**
WORMLEY 1N	Broxbourne	R	C	45												**45**	**45**	
WORMLEY 2N	Broxbourne	R	A			32	27		41	31		34	47	45	47	**27**	**47**	**38**
LONDON 38N	Corporation of London	R	A	45	70	58		65	60	59	49	61	54	64	60	**45**	**70**	**59**
LONDON 39N	Corporation of London	R	A	96	99	101	83	115	102	89	99	102	87	99	92	**83**	**115**	**97**
EALING 1N	Ealing	R	A	44	53	59	63	62	43	48	56	51	58	66	58	**43**	**66**	**55**
EALING 5N	Ealing	R	A	51	57	56	66	52	45	53	53	56	54	69	67	**45**	**69**	**57**
ENFIELD 1N	Enfield	R	A	42	53	56	50	32	31	39	22	44	49	59	52	**22**	**59**	**44**
ENFIELD 5N	Enfield	R	A	44	40	49	44	28	33	34	37	55	47	43	54	**28**	**55**	**42**
GREENWICH 34N	Greenwich	R	A	59	61	50	33	50	51	59	48	46	46	54	58	**33**	**61**	**51**
GREENWICH 35N	Greenwich	R	A	84	85	91	73	92	87	79	76	85	72	80	75	**72**	**92**	**82**
HAVERING 1N	Havering	R	A	74	85			45	46	13	25	45	57	61	83	**13**	**85**	**53**
HAVERING 5N	Havering	R	A	62	73	49	34	15	16	4	15	16	23	31	42	**4**	**73**	**32**
HILLINGDON 1N	Hillingdon	R	A	24	37	43	40	40	29	35		30		40		**24**	**43**	**35**
HILLINGDON 6N	Hillingdon	R	A		30			46	20			26	38	47		**20**	**47**	
KENSINGTON 1N	Kensington and Chelsea	R	A	59	50	59	37	72	50	63	54	51	56	58	51	**37**	**72**	**55**
KENSINGTON 5N	Kensington and Chelsea	R	A	67	71	69	60	81	66	61	63	62	60	75	58	**58**	**81**	**66**
NEWHAM 1N	Newham	R	A	52	48	47	52	43	37	37	39	40	43	49	51	**37**	**52**	**45**
NEWHAM 5N	Newham	R	A	63	51	50	63	50	39	45	52	45		50	46	**39**	**63**	**50**
ILFORD 1N	Redbridge	R	A	54	63	66	41	58	50	50	45	63	57	75	70	**41**	**75**	**58**
ILFORD 5N	Redbridge	R	A	40	45	50	29	40	38	38	25	42	44	39	53	**25**	**53**	**40**
RICHMOND U. THAMES 1N	Richmond Upon Thames	R	A	42	54	58	46	52	49	44	55	44	52	61	58	**42**	**61**	**51**
RICHMOND U. THAMES 5N	Richmond Upon Thames	R	A	85	94	152	118	155	60	110	136	87	107	130	91	**60**	**155**	**110**
SOUTHWARK 8N	Southwark	R	A	90	84	83	64	133	88	102	84	87	79	103	69	**64**	**133**	**89**
SOUTHWARK 9N	Southwark	R	A	59	84	47	86	86	76	74	79	61	64	82	70	**47**	**86**	**72**
SUTTON 1N	Sutton	R	A	45	48	57	46	47	16	33	39	35	43		41	**16**	**57**	**41**
SUTTON 8N	Sutton	R	A	43	52	33	50	56	12	44	45	43	52		54	**12**	**56**	**44**
TOWER HAMLETS 1N	Tower Hamlets	R	A		54			56								**54**	**56**	
WALTHAM FOREST 4N	Waltham Forest	R	A	57	68	64	83	70	66	58	81	75	74	90	55	**55**	**90**	**70**
WESTMINSTER 1N	City of Westminster	R	A	91	83	66	21	84	69	78	80			73		**21**	**91**	**72**

REGIONAL SUMMARY, London R	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	57	61	59	53	60	49	52	56	51	57	63	60
Regional Monthly Min	24	30	15	21	15	12	4	15	16	23	31	41
Regional Monthly Max	96	99	152	118	155	102	110	136	102	107	130	92

Regional Annual Mean	57
Regional Annual Min	32
Regional Annual Max	110
Number of Sites	39
% With Valid Annual Mean	90

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 2004 (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 & Dagenham	B	A		37			22	22	21	25			43		**21**	**43**	
BARNET 4N	Barnet	B	A	34	34	31	28		10	34	35	20	26	34	36	**10**	**36**	**29**
BARNET 7N	Barnet	B	A		37	35	31		11	35	36	21	29	37		**11**	**37**	**30**
BRENT 41N	Brent	B	A		36	34	32	29	24	25	32		48			**24**	**48**	**32**
BRENT 57N	Brent	B	A		54	62	45	70		59	52	53	60			**45**	**70**	**57**
WALTHAM CROSS 3N	Broxbourne	B	A	50	35	13		16	42	32	42	36	43	42	52	**13**	**52**	**37**
LONDON CITY 3N	Corporation of London	B	A	48	53	50	46	39	53	37	43	38	43	49	52	**37**	**53**	**46**
LONDON CITY 5N	Corporation of London	B	A	52	49	37	45	38	36	39	41	40	42	48	53	**36**	**53**	**43**
EALING 3N	Ealing	B	A	39	37	38		33	18	24	29	31	38	47	48	**18**	**48**	**35**
EALING 4N	Ealing	B	A	32	32	34	27	28	34	23	25	22	31	42	42	**22**	**42**	**31**
ENFIELD 3N	Enfield	B	A	38	37	38	33	28	15	19	21	32	39	43	47	**15**	**47**	**32**
ENFIELD 4N	Enfield	B	A	32	37	37	34	25	18	22	27	29	39	48	43	**18**	**48**	**33**
GREENWICH 37N	Greenwich	B	A	42	23	26	27	28	21	23		28	26	36	31	**21**	**42**	**28**
GREENWICH 40N	Greenwich	B	A	29	33	21	18	22	18	19		20	22	35	29	**18**	**35**	**24**
HAVERING 3N	Havering	B	A	48	50	35	28	21	29	11		28	36	36	70	**11**	**70**	**36**
HAVERING 4N	Havering	B	A	40	41	31	20	18	20	4	13	16	26	34	59	**4**	**59**	**27**
HILLINGDON 3N	Hillingdon	B	A	24	32	31	28					24				**24**	**32**	
HILLINGDON 7N	Hillingdon	B	A		32	36	29	27	26	25		21	31	30	37	**21**	**37**	**29**
KENSINGTON 3N	Kensington and Chelsea	B	A	52	47		57	48	38	39	45	39	42	50	50	**38**	**57**	**46**
KENSINGTON 4N	Kensington and Chelsea	B	A	40	33	37	36	31	25	25	32	22	32	39	42	**22**	**42**	**33**
NEWHAM 3N	Newham	B	A	32	32	31	32	26	22	24	27	25	27	35	37	**22**	**37**	**29**
NEWHAM 4N	Newham	B	A	35	41	39	35	32	28	35	34	30	29	40	40	**28**	**41**	**35**
ILFORD 3N	Redbridge	B	A	47	43	29	24	26	23	23	39	26	30	44	42	**23**	**47**	**33**
ILFORD 4N	Redbridge	B	A	36	32	27	29	25	25	25	26	25	28	44	44	**25**	**44**	**31**
RICHMOND U. THAMES 3N	Richmond Upon Thames	B	A	41	38	35	27	33	27	24		24	29	44	41	**24**	**44**	**33**
RICHMOND U. THAMES 4N	Richmond Upon Thames	B	A	39	31	34	27	29	41	24	31	24	31	38	30	**24**	**41**	**32**
SOUTHWARK 6N	Southwark	B	A	51	45	35	45	38	31	31	32	29	33	50	44	**29**	**51**	**38**
SOUTHWARK 7N	Southwark	B	A	47	43	35	38	38	28	31	32	33	35	45	52	**28**	**52**	**38**
SUTTON 4N	Sutton	B	A	20	35	26	17	19	14	15	15	12	20		29	**12**	**35**	**20**
SUTTON 7N	Sutton	B	A	24	29	27	16	20	39	16	16	16	21		27	**16**	**39**	**23**
TOWER HAMLETS 3N	Tower Hamlets	B	A		31		40									**31**	**40**	
WALTHAM FOREST 1N	Waltham Forest	B	A	38	34	33	32	23	26	25	32	30	33	34	22	**22**	**38**	**30**
WALTHAM FOREST 6N	Waltham Forest	B	A	47	46	36	38	30	17	26	33	36	38	52	50	**17**	**52**	**37**
WESTMINSTER 3N	City of Westminster	B	A	50	56	49	47	39		30	31			50	47	**30**	**56**	**44**

REGIONAL SUMMARY, London B	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	40	38	34	33	30	26	26	31	28	33	42	43
Regional Monthly Min	20	23	13	16	16	10	4	13	12	20	30	22
Regional Monthly Max	52	56	62	57	70	53	59	52	53	60	52	70

Regional Annual Mean	34
Regional Annual Min	20
Regional Annual Max	57
Number of Sites	34
% With Valid Annual Mean	91

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 2004 (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	C	33	43	39	46	38	31	33	33		31	43	34	**31**	**46**	**37**
BOGNOR REGIS 5N	Arun	R	C	28	38	38	43	33	23	31	23		28	38	36	**23**	**43**	**33**
ASHFORD 7N	Ashford	R	A	38	43	30	37	25	22	14				36	44	**14**	**44**	**32**
AYLESBURY 5N	Aylesbury Vale	R	C					55	33	44		35				**33**	**55**	
BASINGSTOKE 1N	Basingstoke and Deane	R	A	32	42	35	38	36	28	34	33	35	39	47	36	**28**	**47**	**36**
BASINGSTOKE 6N	Basingstoke and Deane	R	A	22	43	42	50	57	26	31	40	40	46	48		**22**	**57**	**40**
BRACKNELL 1N	Bracknell Forest	R	A		63	59	36	63	9	29	29	44	52	53	61	**9**	**63**	**45**
BRACKNELL 5N	Bracknell Forest	R	A		91	74	88	75	82	70	70	84	79	55	94	**55**	**94**	**78**
BRIGHTON 11N	Brighton & Hove	R	A	69	65	68	54	63	30	54	64	58	55	68	80	**30**	**80**	**61**
BRIGHTON 1N	Brighton & Hove	R	A	54	59	44	37	54	35	44	44	45	46	55	63	**35**	**63**	**48**
HOVE 1N	Brighton & Hove	R	A	55	80	56	53	43	32	35		45	40	68	75	**32**	**80**	**53**
HOVE 5N	Brighton & Hove	R	A	44	51	46	41	45	37	43	44	47	43	47	48	**37**	**51**	**45**
CANTERBURY 1N	Canterbury	R	A	65	53	61	69	18	31	36	30	36	39	48	60	**18**	**69**	**46**
CANTERBURY 7N	Canterbury	R	A		51	40	41	31	22		24	26	19	35	47	**19**	**51**	**34**
BANBURY 1N	Cherwell	R	A	44				43	32	39	46	40	50	38	50	**32**	**50**	**42**
CHICHESTER 5N	Chichester	R	A	38	43	44	47	39	30	33	40	42	46	50	70	**30**	**70**	**44**
CRAWLEY 1N	Crawley	R	A	38	47	41	44	31	26	30	33	35	36	42	45	**26**	**47**	**37**
DARTFORD 1N	Dartford	R	A	53	66	54	56	67	41	43	47	27	42	69		**27**	**69**	**51**
DOVER 6N	Dover	R	A	46	41		50	27	15	34	19	19	22	31	40	**15**	**50**	**31**
DOVER 9N	Dover	R	A	68	49	70	21	36	29		39	36	32	41	62	**21**	**70**	**44**
ALTON 5N	East Hampshire	R	A	29	34	35	25	29								**25**	**35**	
PETERSFIELD 6N	East Hampshire	R	A		32	32	20	27	21	20	25	18	24	29	37	**18**	**37**	**26**
PETERSFIELD 7N	East Hampshire	R	A						27	28	28	22	30	35	39	**22**	**39**	**30**
EASTBOURNE 1N	Eastbourne	R	A	29	36	32	34	27			26	26	22	35	34	**22**	**36**	**30**
EASTBOURNE 6N	Eastbourne	R	A	32	20	32	33	29	21	29	26	30	25	37	22	**20**	**37**	**28**
EASTLEIGH 1N	Eastleigh	R	C	39	45	47	29	33	33	19	27	26	32	32	46	**19**	**47**	**34**
EASTLEIGH 5N	Eastleigh	R	A	55	50	47	35	30	31	22	24	17	29	34	51	**17**	**55**	**35**
FAREHAM 11N	Fareham	R	A	42	30		42	28	28	39	40	35	42	60	60	**28**	**60**	**40**
FAREHAM 1N	Fareham	R	A	47	34			42	45	36	24	29	37	53	53	**24**	**53**	**40**
GRAVESEND 1N	Gravesham	R	A	40												**40**	**40**	
GRAVESEND 7N	Gravesham	R	A	59	65	48	54		36	45	39	53	50	68	67	**36**	**68**	**53**
HASTINGS 4N	Hastings	R	A	35	41	37	18	25	10	14	17	19	24	18		**10**	**41**	**23**
HASTINGS 5N	Hastings	R	A	24	72	48	31	47	28	9	33	42	16	34		**9**	**72**	**35**
HAVANT 1N	Havant	R	A	36	33	33	33			25	26	24	26	38	38	**24**	**38**	**31**
HORSHAM 1N	Horsham	R	A	44	42	38	46	45	37		40	36	41	53	52	**36**	**53**	**43**
STEYNING 3N	Horsham	R	A		25	23	25	28	25	25	21	15	28	37	35	**15**	**37**	**26**
LEWES 1N	Lewes	R	A	41	57	41	51	53	48	51	46	36	58	58	52	**36**	**58**	**49**
LEWES 5N	Lewes	R	A	32	37	32	44	31	29	32	39	33	30	42	32	**29**	**44**	**34**
MILTON KEYNES 1N	Milton Keynes	R	A	32	37	38	35	36	33	35	38	32	39	40		**32**	**40**	**36**
MILTON KEYNES 5N	Milton Keynes	R	A	48	51		47		40	50	44	48	48	52		**40**	**52**	**48**
PORTSMOUTH 1N	Portsmouth	R	A				47				61					**47**	**61**	
GILLINGHAM KENT 1N	Medway	R	A	51	64	45	33	26	26	16	22	29	4	39	49	**4**	**64**	**34**
ROCHESTER 1N	Medway	R	A	78	65	52	60	53	33	40	30	39	25	56	88	**25**	**88**	**52**
BEXHILL 5N	Rother	R	A	47	51	51	32	32	11	11	21	19	21	30		**11**	**51**	**30**
BEXHILL 8N	Rother	R	A		56	56	18	23	6	32	12	20	21	33		**6**	**56**	**28**
SLOUGH 1N	Slough	R	C	39	40		39	41	31	33	42	35	39	39	44	**31**	**44**	**38**
SLOUGH 7N	Slough	R	C	48	58	49	48	61	47	44	52	40	44	50	55	**40**	**61**	**50**
HENLEY 1N	South Oxfordshire	R	A		56	52	44		56	54		52		61	37	**37**	**61**	**51**
HENLEY 9N	South Oxfordshire	R	A		41		44			49						**41**	**49**	
SOUTHAMPTON 5N	Southampton	R	A	57	57	63	48	52	41	39			31	44	43	**31**	**63**	**47**
SHEERNESS 1N	Swale	R	A	37	30	29	33	19	17	17	16	19	19	29		**16**	**37**	**24**
SHEERNESS 5N	Swale	R	A		36	37	41	23	20	14	13			28	26	**13**	**41**	**26**
MARGATE 1N	Thanet	R	A	38	29	33	24	25	13	15	27	14		28	45	**13**	**45**	**27**

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

Nitrogen Dioxide Concentrations 2004 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
RAMSGATE 5N	Thanet	R	A	45	43	51	33	23	26	24	30	18	22	29	43	**18**	**51**	**32**
LARKFIELD 1N	Tonbridge and Malling	R	C	43	61	48	46	37	10	19		22				**10**	**61**	**36**
TONBRIDGE 1N	Tonbridge and Malling	R	A	37	45	41	40	26	12	16	27	17	28	28	41	**12**	**45**	**30**
TUNBRIDGE WELLS 1N	Tunbridge Wells	R	A	57	55	55	45	34	46			25	37	49	62	**25**	**62**	**46**
TUNBRIDGE WELLS 7N	Tunbridge Wells	R	A	47	40	40	29	22	25			8	25	29	38	**8**	**47**	**30**
ABINGDON 1N	Vale of White Horse	R	A	75	87	66	79	56	66	60	69	64	61	80	66	**56**	**87**	**69**
ABINGDON 5N	Vale of White Horse	R	A	31	40	36	37	49	23	27	23	30	37	42	42	**23**	**49**	**35**
CROWBOROUGH 1N	Wealden	R	A										17		28	**17**	**28**	
UCKFIELD 5N	Wealden	R	A					22							25	**22**	**25**	
WITNEY 6N	West Oxfordshire	R	A	61	68	53	48	44	28		45		69	67	63	**28**	**69**	**55**
WITNEY 8N	West Oxfordshire	R	A	45	47	76	67	29	4	51	33	40	33	55	26	**4**	**76**	**42**
MAIDENHEAD 1N	Windsor and Maidenhead	R	A			66						58	54	62	49	**49**	**66**	
WOKINGHAM 1N	Wokingham	R	A												51	**51**	**51**	
WORTHING 1N	Worthing	R	A	26	35	28	35	37	29	31	26	29	27	35	34	**26**	**37**	**31**
WORTHING 6N	Worthing	R	A	47	33	46	42	44	32	40	34	43	42	30	46	**30**	**47**	**40**

REGIONAL SUMMARY, South East R	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	44	48	46	42	38	29	33	34	34	36	44	48
Regional Monthly Min	22	20	23	18	18	4	9	12	8	4	18	22
Regional Monthly Max	78	91	76	88	75	82	70	70	84	79	80	94

Regional Annual Mean	39
Regional Annual Min	23
Regional Annual Max	78
Number of Sites	68
% 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 2004 (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	29	37		26	21	10	16	12	16	23	37	39	**10**	**39**	**24**
SHOREHAM-BY-SEA 3N	Adur	B	A	28	34		26	22	15	17	17	20	19	31	34	**15**	**34**	**24**
ASHFORD 5N	Ashford	B	A	35	34	25	30	16	17	9	5	18	13	25		**5**	**35**	**21**
ASHFORD 6N	Ashford	B	A		34	24	28	17	11	12	8	13	16	23	34	**8**	**34**	**20**
AYLESBURY 7N	Aylesbury Vale	B	C	31	26			20	20	22		22	26			**20**	**31**	**24**
AYLESBURY 8N	Aylesbury Vale	B	C	18	25			17	12	15		13	24	17	25	**12**	**25**	**18**
BASINGSTOKE 3N	Basingstoke and Deane	B	A	37	30		28	16	10	12	14	20	29	32	42	**10**	**42**	**25**
BASINGSTOKE 4N	Basingstoke and Deane	B	A	30	31	37	23	20	11	16	13	19	26	32	35	**11**	**37**	**24**
BRACKNELL 3N	Bracknell Forest	B	A					19	18			24	29	38	37	**18**	**38**	
BRACKNELL 6N	Bracknell Forest	B	A		33	27	19	19	17	16	16	31	25	40	36	**16**	**40**	**25**
BRIGHTON 4N	Brighton & Hove	B	A	31	32	32	21	25	15	20	21	19	25	32	25	**15**	**32**	**25**
BRIGHTON 9N	Brighton & Hove	B	A	40	40	32	29	28	20	27	29	29	32	40	41	**20**	**41**	**32**
HOVE 3N	Brighton & Hove	B	A	29	34	31	22	24	17	22	17	23	18	32	37	**17**	**37**	**26**
HOVE 4N	Brighton & Hove	B	A	23	29	28	22	19	15	13	15	16	19	29	31	**13**	**31**	**22**
CANTERBURY 5N	Canterbury	B	A	33	27	12	19	8				6	13	15		**6**	**33**	**16**
CANTERBURY 6N	Canterbury	B	A	28	41	21	17	6	5			7	5	20	34	**5**	**41**	**18**
BANBURY 6N	Cherwell	B	C	18		25	22	21	13	13	16	17	22	22	24	**13**	**25**	**19**
BANBURY 8N	Cherwell	B	A	17		22	16	12	8	9	11	10	18	19	21	**8**	**22**	**15**
CHICHESTER 3N	Chichester	B	A	17	29	23	26	21	17	16	16	40	24	41	42	**16**	**42**	**26**
CHICHESTER 4N	Chichester	B	A	24	12	22	22	19	15	17	14	22	28	38	43	**12**	**43**	**23**
CRAWLEY 3N	Crawley	B	A	28	32	30	24	22	16	17	19	21	23	27	29	**16**	**32**	**24**
CRAWLEY 4N	Crawley	B	A	25	32	28	23	28	18	15		22	24	28	36	**15**	**36**	**25**
CRAWLEY 5N	Crawley	B	A	24	31	27	24	20	14	10	16	16	19	28	28	**10**	**31**	**21**
DARTFORD 5N	Dartford	B	A	25	51	42	38	35	20	24	20	15		40		**15**	**51**	**31**
DARTFORD 7N	Dartford	B	A	41	54	43	30	35	25	25	26	18	28	50		**18**	**54**	**34**
DOVER 3N	Dover	B	A	19	25	22	6	18	4	18	9	5	13	15	22	**4**	**25**	**15**
DOVER 8N	Dover	B	A	20	19	15	26	11	9	11	10	13	20	19	32	**9**	**32**	**17**
ALTON 3N	East Hampshire	B	A	18	25	20	10	10	9	9	12	12	14	21	29	**9**	**29**	**16**
PETERSFIELD 3N	East Hampshire	B	A	17	24	16	21	18	11	12	11	14	14	24	28	**11**	**28**	**17**
EASTBOURNE 4N	Eastbourne	B	A	12	37	18	15	16	11	14	9	11	11	18	32	**9**	**37**	**17**
EASTBOURNE 5N	Eastbourne	B	A	16	21	18	18	13		14	15	13	14	21	20	**13**	**21**	**17**
EASTLEIGH 3N	Eastleigh	B	A	19	20	20	11	5	6	4	4		8	25		**4**	**25**	**12**
EASTLEIGH 4N	Eastleigh	B	A	24		31	16	8	11	6	8	15	20	25	38	**6**	**38**	**18**
FAREHAM 10N	Fareham	B	A	32		23	18	27	27	21	20	19		35	35	**18**	**35**	**26**
FAREHAM 7N	Fareham	B	A	25	18	24	16	22	22	16	14	14	19	34	34	**14**	**34**	**21**
GRAVESEND 5N	Gravesham	B	A	40	42	36	34		19	17	21	26	17	45	44	**17**	**45**	**31**
GRAVESEND 6N	Gravesham	B	A	11	42	40	34		31	25	32	37	42	58	56	**11**	**58**	**37**
HASTINGS 1N	Hastings	B	A	26	34	29	18	17	8	23	8	11	8	14	33	**8**	**34**	**19**
HASTINGS 3N	Hastings	B	A	22	30	19	10	15	4	8	6	7	12		27	**4**	**30**	**15**
HAVANT 3N	Havant	B	A	31	36	28	28	19		17	21	13	23	34	34	**13**	**36**	**26**
HAVANT 4N	Havant	B	A	33	36	30	30	39		19	24	20	23	34	34	**19**	**39**	**29**
HORSHAM 3N	Horsham	B	A	28	25	19	18	15	8	10	12	14	19	27	31	**8**	**31**	**19**
HORSHAM 4N	Horsham	B	A	20	27	16	16	16	8	9	11	12	16	22	27	**8**	**27**	**17**
LEWES 3N	Lewes	B	A	19	26	18	17	15	13	16	20	16	19	26	26	**13**	**26**	**19**
LEWES 4N	Lewes	B	A	21	23	21	16	18	14	13	12	13	18	23	27	**12**	**27**	**18**
MILTON KEYNES 3N	Milton Keynes	B	A	29	31	29	28	29	31	31	34	25	29	29		**25**	**34**	**30**
MILTON KEYNES 4N	Milton Keynes	B	A	18	24	21	19	16	18	23	18	18	17	24	27	**16**	**27**	**20**
PORTSMOUTH 3N	Portsmouth	B	A			33	23				18					**18**	**33**	
PORTSMOUTH 4N	Portsmouth	B	A			29	34				14					**14**	**34**	
GILLINGHAM KENT 4N	Medway	B	A	37	37	13	15	11	13	9	11	10	13	30	43	**9**	**43**	**20**
ROCHESTER 3N	Medway	B	A	41	39	27	21	8	13	10	6	13	9	26		**6**	**41**	**19**
BEXHILL 6N	Rother	B	A	28	28	28	8	21		14	8	6	9	19	32	**6**	**32**	**18**
BEXHILL 7N	Rother	B	A	29	31	31	13	14	7		4	8		18	33	**4**	**33**	**19**

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

Nitrogen Dioxide Concentrations 2004 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
SLOUGH 5N	Slough	B	A	30	30	24	27	23	19	20	20	17	30	28	38	**17**	**38**	**25**
SLOUGH 6N	Slough	B	A	31	40	28	29	26	24	22	26	27	32		39	**22**	**40**	**30**
HENLEY 3N	South Oxfordshire	B	A		22	22	15		9	12	14	17		23	18	**9**	**23**	**17**
HENLEY 7N	South Oxfordshire	B	A		24	18	15		11	13		15		21	18	**11**	**24**	**17**
SOUTHAMPTON 11N	Southampton	B	A						27	21	30	26	31	40	30	**21**	**40**	**29**
SOUTHAMPTON 12N	Southampton	B	A						13		10	25	27	36	38	**10**	**38**	
SHEERNESS 3N	Swale	B	A	29	33		22	10	7	7	10	13		24	31	**7**	**33**	**19**
SHEERNESS 4N	Swale	B	A	37	36	26	28	11	8	7	10	15	15	28	36	**7**	**37**	**21**
RAMSGATE 4N	Thanet	B	A	30	30	27		10		11	7	8	19	22		**7**	**30**	**18**
RAMSGATE 6N	Thanet	B	A	25	26	20	15	14	7		11		20	20	32	**7**	**32**	**19**
TONBRIDGE 3N	Tonbridge and Malling	B	A	26	32	26	9	7	7	5	6		10	18	15	**5**	**32**	**15**
WEST MALLING 3N	Tonbridge and Malling	B	A		36	29	18		7	9	5	8	10	15		**5**	**36**	**15**
TUNBRIDGE WELLS 4N	Tunbridge Wells	B	A	23	26	21	12	8	7			6	11	21	52	**6**	**52**	**19**
TUNBRIDGE WELLS 6N	Tunbridge Wells	B	A	19	30	21	13	6	9			5	10	17	21	**5**	**30**	**15**
ABINGDON 3N	Vale of White Horse	B	A	28	36	31	24	15	12	15	17	10	27		33	**10**	**36**	**22**
ABINGDON 4N	Vale of White Horse	B	A	23	34	25	19	19	10	11	11	17	10		28	**10**	**34**	**19**
CROWBOROUGH 6N	Wealden	B	A					7				8	8		20	**7**	**20**	
UCKFIELD 4N	Wealden	B	A									8	10		20	**8**	**20**	
WITNEY 4N	West Oxfordshire	B	A	24	27	25		18	14	19	11	19	25	31	33	**11**	**33**	**22**
WITNEY 7N	West Oxfordshire	B	A	28	23	21	15	13	6	12	11		26	33	19	**6**	**33**	**19**
MAIDENHEAD 5N	Windsor and Maidenhead	B	A										27			**27**	**27**	
MAIDENHEAD 6N	Windsor and Maidenhead	B	A			26						18	22	27	25	**18**	**27**	
WOKINGHAM 3N	Wokingham	B	A												39	**39**	**39**	
WOKINGHAM 4N	Wokingham	B	A												37	**37**	**37**	
WORTHING 4N	Worthing	B	A	22	23	23	18	17	10	12	10	13	15	21	28	**10**	**28**	**18**
WORTHING 5N	Worthing	B	A	19	24	18	22	17	11	10	12	14	16	26	26	**10**	**26**	**18**

REGIONAL SUMMARY, South East B	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	26	31	25	21	17	13	15	14	16	19	28	32
Regional Monthly Min	11	12	12	6	5	4	4	4	5	5	14	15
Regional Monthly Max	41	54	43	38	39	31	31	34	40	42	58	56
Regional Annual Mean	21											
Regional Annual Min	12											
Regional Annual Max	37											
Number of Sites	79											
% With Valid Annual Mean	87											

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 2004 (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 and NE Somerset	R	A	44	50	57	52	52	59	46	40	50	51	57	60	**40**	**60**	**51**
MIDSOMER NORTON 5N	Bath and NE Somerset	R	A	21	36	24	17	26	21		17	19	17	31	29	**17**	**36**	**23**
BRISTOL 1N	Bristol	R	A	51	73	60	62	36	57		48	61	52	52	52	**36**	**73**	**55**
BRISTOL 5N	Bristol	R	A	40	48	28	39	41	42		41	42	45	50	43	**28**	**50**	**42**
DOBWALLS 1N	Caradon	R	A	30	16	33	37	45	28	35	31	40	32	50	42	**16**	**50**	**35**
SALTASH 7N	Caradon	R	A	39	47	39	37	38	21	27	26	37	33	43	42	**21**	**47**	**36**
CHRISTCHURCH 4N	Christchurch	R	A	28	22	15	37	32	23	29	26	27	27	26	26	**15**	**37**	**26**
EXMOUTH 1N	East Devon	R	A	19	37	35	29	30	22	27	29	32	24	29	28	**19**	**37**	**28**
EXMOUTH 5N	East Devon	R	A	20	32	19	21	22	14	9	19	21	20	26	25	**9**	**32**	**21**
EXETER 1N	Exeter	R	A	41	50	45	56	62	43	34	40	46	48	50	50	**34**	**62**	**47**
EXETER 5N	Exeter	R	A	43	49	47	39	24	24	37	30	38	46	43	43	**24**	**49**	**38**
GLOUCESTER 5N	Gloucester	R	A	37	47	18	33	29	26	34	31	30	37	44	45	**18**	**47**	**34**
GLOUCESTER 6N	Gloucester	R	A	53	49	24	42	30	24	35	33	36	50	45	49	**24**	**53**	**39**
FROME 1N	Mendip	R	A	38	37	47	36	38	25	35	45	30	45	29	47	**25**	**47**	**38**
WALTON 1N	Mendip	R	A	29	26	28	21	21		21		23	30	28	36	**21**	**36**	**26**
WESTON-SUPER-MARE 1N	North Somerset	R	C	41	28	36	26	33	28	26		28	24	30	37	**24**	**41**	**31**
WESTON-SUPER-MARE 5N	North Somerset	R	A	37	27	32	29	35	26	27	24	29	26	35	34	**24**	**37**	**30**
CHIPPENHAM 5N	North Wiltshire	R	A			41		40	24		32	32	29	39	37	**24**	**41**	**34**
CHIPPENHAM 8N	North Wiltshire	R	A			29		18	28			30	30	31	35	**18**	**35**	**29**
POOLE 3N	Borough of Poole	R	A	42	39	46	38	38	47	47	52	39	40	41	48	**38**	**52**	**43**
POOLE 6N	Borough of Poole	R	A	34	36	35	39	25	40	37	43	19	34	36	43	**19**	**43**	**35**
SALISBURY 6N	Salisbury	R	A	34	52	37	45	39	25	32	27	38	39	51	33	**25**	**52**	**38**
SALISBURY 7N	Salisbury	R	A	37	45	39	31	35	31	36	40	37	38	41	27	**27**	**45**	**36**
BRIDGWATER 1N	Sedgemoor	R	A	31	29	27	26	25	20	19		21	26	27	29	**19**	**31**	**26**
BRIDGWATER 6N	Sedgemoor	R	A	45	55	43	47	50	21	35	35	34	44	45	40	**21**	**55**	**41**
KINGSWOOD 1N	South Gloucestershire	R	A	35	34	33	36	32	33	32	35	31	33	38	30	**30**	**38**	**33**
SOUTH GLOUCESTERSHIRE 1N	South Gloucestershire	R	A	40	52	43	39	26	29	36	30	39	44	56	27	**26**	**56**	**38**
SOUTH GLOUCESTERSHIRE 2N	South Gloucestershire	R	A	30	30	34	27	25	22	26	24	28	28	44	31	**22**	**44**	**29**
YATE 1N	South Gloucestershire	R	A	35	38	38	24	26	35	31	33	30	29	46	21	**21**	**46**	**32**
TOTNES 6N	South Hams	R	A	14	38	44		44	32	37		39	41	56	45	**14**	**56**	**39**
TOTNES 9N	South Hams	R	A	29	43	52	40	49	44	39		43	40	47	48	**29**	**52**	**43**
SOUTHAMPTON 10N	Southampton	R	A	43	46	63	49	53	50	41	51	62	63	73	64	**41**	**73**	**55**
SWINDON 1N	Swindon	R	A	26	38	29	33	30	26	30	29	23	34	40	35	**23**	**40**	**31**
SWINDON 6N	Swindon	R	A	30	45	32	35	35	21	25	31	29		36	38	**21**	**45**	**32**
NEWTON ABBOT 1N	Teignbridge	R	A	39	51	42			28		38	34		47	43	**28**	**51**	**40**
NEWTON ABBOT 6N	Teignbridge	R	A	47	61	54	37	50	36	45	31	39	38	53	44	**31**	**61**	**45**
TEWKESBURY 5N	Tewkesbury	R	A	30	42	33	32	37	23	30	24	26	27	33	31	**23**	**42**	**31**
TEWKESBURY 6N	Tewkesbury	R	A	35	43	43	38	40	33	37	35	30	32	39	39	**30**	**43**	**37**
BIDEFORD 6N	Torridge	R	A	22	28	26	23	18	12	17	20	20	19	22		**12**	**28**	**21**
BIDEFORD 8N	Torridge	R	A	34	39	38	33	34	27	23	24			37		**23**	**39**	**32**
WESTBURY 1N	West Wiltshire	R	A	35	48	55	52	61	40	43	42	44	35	49	28	**28**	**61**	**44**
WESTBURY 6N	West Wiltshire	R	A	38	49	40	54	48	44	49	59	43	50	49	51	**38**	**59**	**48**
WEYMOUTH 10N	Weymouth and Portlan	R	A	30	37	50	39	42	33	30	18	39	21	37	37	**18**	**50**	**34**
WEYMOUTH 8N	Weymouth and Portlan	R	A	26	32	43	30	42	29	33	19	45	16	40	35	**16**	**45**	**32**
JERSEY 6N	States of Jersey	R	A	36	41	44	40	45	21	37	32	39	43	54	42	**21**	**54**	**39**
JERSEY 9N	States of Jersey	R	A	35	33	41	34	33	31	26	31	35	33	44	33	**26**	**44**	**34**

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

			Nitrogen Dioxide Concentrations 2004 (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, South West R			**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean		35	41	38	36	36	30	32	33	35	35	42	39			
	Regional Monthly Min		14	16	15	17	18	12	9	17	19	16	22	21			
	Regional Monthly Max		53	73	63	62	62	59	49	59	62	63	73	64			
	Regional Annual Mean		36														
	Regional Annual Min		21														
	Regional Annual Max		55														
	Number of Sites		46														
	% 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 2004 (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 and NE Somerset	B	A	15	26	19	11	12	11	10	10	11	15	23	21	**10**	**26**	**15**
MIDSOMER NORTON 4N	Bath and NE Somerset	B	A	14	22	19	13	16	10	12	10	12	14	19	19	**10**	**22**	**15**
BRISTOL 3N	Bristol	B	A	24	22	54	19	17	14		14	15	16	21	24	**14**	**54**	**22**
BRISTOL 4N	Bristol	B	A	24	27	23	21	24	40		18	18	20	27	21	**18**	**40**	**24**
CALLINGTON 4N	Caradon	B	C	11	11	14	11	8	4	6	8	7	11	12	17	**4**	**17**	**10**
SALTASH 3N	Caradon	B	C	16												**16**	**16**	
SALTASH 8N	Caradon	B	A						4		7	8	11	16	19	**4**	**19**	
CHRISTCHURCH 3N	Christchurch	B	A	10	10	4	10	8	5	4		6	6	11	11	**4**	**11**	**8**
CHRISTCHURCH 5N	Christchurch	B	A	7	10	4	6		4	5		4	7	10	10	**4**	**10**	**7**
EXMOUTH 3N	East Devon	B	A	12	16	11	11	8	9	22	11	9	10	15	16	**8**	**22**	**12**
EXMOUTH 4N	East Devon	B	A	9	15	11	11	9	6	10	9	8	11	15	15	**6**	**15**	**11**
EXETER 3N	Exeter	B	A	25	15	24	19			16	17	17	24	26	26	**15**	**26**	**21**
EXETER 4N	Exeter	B	A	21	27		19	14	12		18	13	20	29	29	**12**	**29**	**20**
GLOUCESTER 3N	Gloucester	B	A		24	11	16	13	11	16	18	18	23	26	32	**11**	**32**	**19**
GLOUCESTER 4N	Gloucester	B	A		24	12	17	15	14	17	19	19	23	24	25	**12**	**25**	**19**
FROME 3N	Mendip	B	A	21	22	27	16	15	4			15	23	24	29	**4**	**29**	**20**
STREET 4N	Mendip	B	A	14	21	19	13	8	4	8		11	19	19	27	**4**	**27**	**15**
WESTON-SUPER-MARE 30N	North Somerset	B	C	25	20	21	15	15	14	11	10	16	14	18	19	**10**	**25**	**17**
WESTON-SUPER-MARE 29N	North Somerset	B	C	27	21	22	17	17	17	13	12	15	17	21	23	**12**	**27**	**19**
CHIPPENHAM 6N	North Wiltshire	B	A			23		18	9		14	17	16	22	24	**9**	**24**	**18**
CHIPPENHAM 7N	North Wiltshire	B	A			21		26	11		14	18	20	27	25	**11**	**27**	**20**
POOLE 4N	Borough of Poole	B	A	19	26	12	17	9	10		15	12	18	20	23	**9**	**26**	**17**
POOLE 5N	Borough of Poole	B	A	15	18	15	12	5	8	9	12	8	12	13	19	**5**	**19**	**12**
SALISBURY 3N	Salisbury	B	A	21	27	23	25	26	16	29	20	21	26	27	24	**16**	**29**	**24**
SALISBURY 4N	Salisbury	B	A	18	26	25	21	18	11	13	17	17	22	24	24	**11**	**26**	**20**
BRIDGWATER 3N	Sedgemoor	B	A		19	17	16	13	6	11	12	10	17	15	17	**6**	**19**	**14**
BRIDGWATER 5N	Sedgemoor	B	A	22	24	22	18	10	8	8	16	12	19	20	26	**8**	**26**	**17**
FRAMPTON COTTERELL 1N	South Gloucestershire	B	A	30	25	19	17	14	16	16	21	18	20	13	19	**13**	**30**	**19**
KINGSWOOD 3N	South Gloucestershire	B	A	27	31	22	18	19	14	16	16	18	12	24	29	**12**	**31**	**20**
KINGSWOOD 4N	South Gloucestershire	B	A	29	30	27	25	18	14	17	16	20	21	29	20	**14**	**30**	**22**
YATE 3N	South Gloucestershire	B	A	23	23	25	16	17	13	17	15	17	19	22	20	**13**	**25**	**19**
TOTNES 4N	South Hams	B	A	14	22	17	15		8	9		11	17	18	23	**8**	**23**	**15**
TOTNES 5N	South Hams	B	A	15	23	19	13	14	10	12					20	**10**	**23**	**16**
SWINDON 4N	Swindon	B	A	28	29	23	20	14	14	16	19	20		31	33	**14**	**33**	**22**
SWINDON 5N	Swindon	B	A	27	28	21	26	20	14	18	20	20	26	37	24	**14**	**37**	**23**
NEWTON ABBOT 5N	Teignbridge	B	A	22	24		12		11	10	13	13	18	23	23	**10**	**24**	**17**
NEWTON ABBOT 7N	Teignbridge	B	A	13	20	16	13	12	8	8	7	6	11	16	17	**6**	**20**	**12**
TEWKESBURY 3N	Tewkesbury	B	A	16	23	16	15	7	9	10	11	9	13	19	21	**7**	**23**	**14**
TEWKESBURY 4N	Tewkesbury	B	A	16	22	16	16	13	9	9	10	9	13	16	23	**9**	**23**	**14**
TOTNES 10N	South Hams	B	A												20	**20**	**20**	
BIDEFORD 4N	Torridge	B	A		15	12	9		5	8	6	7	11	9	14	**5**	**15**	**10**
BIDEFORD 5N	Torridge	B	A	9	14		9	7	5	5	5	6	10	8	11	**5**	**14**	**8**
WESTBURY 3N	West Wiltshire	B	A	15	26	15	17	15	6	12	11	14	13	21	19	**6**	**26**	**15**
WESTBURY 5N	West Wiltshire	B	A		25	19	15	16	12	13	9	14	18	19	25	**9**	**25**	**17**
WEYMOUTH 4N	Weymouth and Portland	B	A	10	17	11	9	10	6	8	7	7	6	14	15	**6**	**17**	**10**
WEYMOUTH 9N	Weymouth and Portland	B	A	17	19	20	14	18	12	13	14	15		18	20	**12**	**20**	**16**
JERSEY 7N	States of Jersey	B	A	19	19	19	13	15	9	13	9	13	16	22	21	**9**	**22**	**16**
JERSEY 8N	States of Jersey	B	A	9	13	10	9	11	8	7	5	7	9	13	12	**5**	**13**	**9**

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

Nitrogen Dioxide Concentrations 2004 (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, South West B			**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**			
	Regional Monthly Mean		18	21	19	15	14	10	12	13	13	16	20	21			
	Regional Monthly Min		7	10	4	6	5	4	4	5	4	6	8	10			
	Regional Monthly Max		30	31	54	26	26	40	29	21	21	26	37	33			
	Regional Annual Mean		16														
	Regional Annual Min		7														
	Regional Annual Max		24														
	Number of Sites		48														
	% With Valid Annual Mean		94														

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 2004 (ug m^{-3})														
Site Name	**Local Authority**	**Loc.**	**Status**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Min**	**Max**	**Mean**
ARMAGH 1N	Armagh	R	A	45	40	37	33	30	21	18	21	28	37	40	40	**18**	**45**	**32**
ARMAGH 5N	Armagh	R	A	25	27	32	18	18	10	14	15	14	24	23	20	**10**	**32**	**20**
LONDONDERRY 8N	Derry	R	A	38	52	54							17	39	49	**17**	**54**	
LONDONDERRY 9N	Derry	R	A		52								10	19	27	**10**	**52**	

REGIONAL SUMMARY, Northern Ireland R	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Regional Monthly Mean	36	42	41	25	24	15	16	18	21	22	30	34
Regional Monthly Min	25	27	32	18	18	10	14	15	14	10	19	20
Regional Monthly Max	45	52	54	33	30	21	18	21	28	37	40	49
Regional Annual Mean	26											
Regional Annual Min	20											
Regional Annual Max	32											
Number of Sites	4											
% With Valid Annual Mean	50											

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 2004 (ug m^{-3})

Site Name	Local Authority	Loc.	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Mean
ARMAGH 3N	Armagh	B	A	35	44	41	42	41	28	29	35	34	44	43	39	**28**	**44**	**38**
ARMAGH 4N	Armagh	B	A	17	19	15	12	13	9	7	11	10	18	14	15	**7**	**19**	**13**
LONDONDERRY 10N	Derry	B	A	12	13	19							6	15	17	**6**	**19**	
LONDONDERRY 11N	Derry	B	A	12	23	38										**12**	**38**	

REGIONAL SUMMARY, Northern Ireland B	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional Monthly Mean	19	25	28	27	27	19	18	23	22	23	24	24
Regional Monthly Min	12	13	15	12	13	9	7	11	10	6	14	15
Regional Monthly Max	35	44	41	42	41	28	29	35	34	44	43	39

Regional Annual Mean	26
Regional Annual Min	13
Regional Annual Max	38
Number of Sites	4
% With Valid Annual Mean	50

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