2015 Updating and Screening Assessment for Basingstoke and Deane Borough Council

In fulfillment of Part IV of the
Environment Act 1995
Local Air Quality Management

April 2015

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Executive Summary

Under the Environment Act 1995, Local Authorities are required to undertake regular review and assessment of air quality. Local Authorities are currently starting the 6th round of review and assessment by undertaking an Updating and Screening Assessment. Basingstoke and Deane Borough Council last conducted a Progress Report in 2014.

Basingstoke and Deane Borough Council undertake monitoring of NO_2 using diffusion tubes at 26 sites within the Borough. The monitoring carried out in 2014 highlight excceedences of the AQS annual mean objective at 4 locations. These locations were sites 20 at 45 Winchester Rd; and at the triplicate diffusion tube site 31 to 33 located at 45 Winton Square. However a Detailed Assessment is currently being undertaken for this area.

The assessment of sources did not identify any new sources that require further action.

Basingstoke and Deane Borough Council are currently undertaking detailed assessments for the Winton Square area in Basingstoke and the Armstrong Road Biomass facility. The conclusions of these detailed assessments will determine if declaration of an air quality management area is required. The conclusions of the detailed assessments will be summarised in the 2016 Progress Report

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1 Introduction

1.1 Description of Local Authority Area

The borough of Basingstoke and Deane covers over 630 km^2 of Hampshire, in South-East England, around 90% of which is rural. The borough has a residential population of over 160,000, around half of whom live in the town of Basingstoke. Over the last 70 years Basingstoke has grown from a small market town with a population of around 14,000, to be the borough's principle settlement, with a population of nearly 83,000.

The strategic location of Basingstoke on national road and rail transport networks has contributed a great deal to its success as a centre of employment in the area. In addition to which, the relative proximity of major transport hubs in London, Southampton and Portsmouth has aided the town's commercial success. Strategic transport routes in the borough include the M3, and nearby rail line, linking Basingstoke to London and Southampton, and the A303, A339 and A33 linking Basingstoke to Andover, Newbury and Reading respectively.

Other notable conurbations in the borough include Bramley, Tadley, Kingsclere, Overton, Oakley, and Whitchurch. However, the borough is otherwise characterised by its numerous small hamlets and villages, such as the hamlet of Deane. These lie mostly to the west of Basingstoke, particularly on the periphery of the North Wessex Downs Area of Outstanding Natural Beauty, a large part of which lies in the western part of the borough.

1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM in England are set out in the Air Quality (England) Regulations 2000 (SI 928), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre $\mu g/m^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in England

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m^3	Running annual mean	31.12.2003
	5.00 µg/m^3	Running annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 µg/m^3	Annual mean	31.12.2004
	0.25 µg/m^3	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m^3	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m^3	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

1.4.1 First Round of Review and Assessment

Basingstoke and Deane Borough Council completed all stages of the first round of Review and Assessment by 2000, concluding that the Air Quality Strategy objectives were likely to be met for all pollutants by the required dates.

1.4.2 Second Round of Review and Assessment

Air Quality Updating and Screening Assessment (USA), 2003

The assessment carried out by Basingstoke and Deane Borough Council in 2003 concluded that, since no exceedences of the Air Quality Strategy objectives were predicted at locations of relevant exposure in the borough, a Detailed Assessment was not required.

Progress Report, 2004

By considering diffusion tube monitoring data from sites in the borough, a potential exceedence of the annual mean objective for nitrogen dioxide was identified at the Winchester Street junction with Winton Square. A Detailed Assessment was therefore deemed to be required, considering concentrations of NO_2 at locations of relevant exposure in the vicinity of the junction. As a precursor to this assessment, additional diffusion tube monitoring was undertaken at four locations from May 2004.

Detailed Assessment, 2005

The assessment of concentrations of NO_2 around the Winchester Street junction with Winton Square concluded that there was no relevant exposure, therefore an AQMA was not required. It was however recommended that additional monitoring of nitrogen dioxide be implemented in the area. Monitoring by use of diffusion tubes was subsequently implemented at seven additional sites close to Winton Square.

1.4.3 Third Round of Review and Assessment

Air Quality Updating and Screening Assessment (USA), 2006

The third round Updating and Screening Assessment, completed in June 2006, identified likely exceedences of the Air Quality Strategy annual mean objective for NO_2 from the additional monitoring implemented in December 2005. However it was concluded that there was no requirement to proceed to a Detailed Assessment for any pollutant.

Progress Report, 2007

In July 2007 Basingstoke and Deane Borough Council produced a Progress Report considering NO_2 monitoring data which concluded that there were no likely exceedences at locations of relevant exposure in the borough.

Progress Report, 2008

The final Stage 3 Progress Report, published in April 2008, concluded from NO_2 monitoring data that there were no likely exceedences of the Air Quality Strategy objective at locations with relevant exposure. It was noted that several new housing developments were underway in the borough, but Basingstoke and Deane Borough Council were not required to conduct a Detail Assessment for any of the pollutants covered by the Air Quality Strategy.

1.4.4 Fourth Round of Review and Assessment

Air Quality Updating and Screening Assessment (USA), 2008

Monitoring data from eight diffusion tube sites in the district recorded annual mean NO_2 concentrations exceeding the Air Quality Strategy objective. Seven of these sites are located in the vicinity of Winton Square, and had therefore been considered in the 2005 Detailed Assessment, however data from site 15 indicated possible exceedences at locations of relevant exposure at The Old Plough on Newbury Road near Headley. Concentrations of NO_2 at the roadside façade of the building were estimated to be 45 $\mu g/m^3$.

Detailed Assessment of Air Quality, 2010

Basingstoke and Deane Borough Council undertook a Detailed Assessment of Air Quality in the locale of The Old Plough, located alongside the A339 near the junction with Ashford Hill Road, in accordance with the requirements of the Environment Act 1995.

Data from new monitoring locations at Beech House and The Old Plough indicated concentrations of NO_2 significantly below the AQS annual mean objective limit at locations of relevant exposure. Although kerbside monitoring at The Old Plough indicated NO_2 concentrations above the objective limit, the sites were found to have no relevant exposure and it was therefore concluded that there was no need to declare an AQMA for NO_2 in the area. It was however recommended that Basingstoke and Deane Borough Council should continue, and possibly expand, monitoring of NO_2 at locations of relevant exposure in the area.

1.4.5 Fifth Round of Review and Assessment

Updating and Screening Assessment (USA), 2012

The 2012 Updating and Screening Assessment began the fifth round of Review and Assessment carried out by the Borough. Previous rounds had not identified the need for any Air Quality Management Areas in the Borough of Basingstoke and Deane.

Indicative monitoring of NO_2 was carried out using diffusion tubes at 20 locations. After application of the appropriate bias adjustment factor, no diffusion tube sites recorded annual mean concentrations in excess of the Air Quality Strategy objective of 40µg/m^3 in 2011. No Detailed Assessment was required on the basis of the 2011 diffusion tube monitoring dataset.

A new biomass-fuelled power generation plant was identified as being constructed in Basingstoke. This was originally intended to operate as a Part A process, burning waste wood and meeting the provisions of the Waste Incineration Directive. However, it was unable to meet the conditions of this Directive and therefore burns virgin wood rather than waste, operating without an Environmental Permit, as an exempt process. It was briefly started up in January 2012 and closed down (temporarily) a month later due to problems in meeting its conditions of operation regarding noise.

Emissions tests were carried out in April: total NO_x emission rates were found to be higher than those originally predicted before the plant's construction. On the basis of calculations carried out using the Biomass Combustion calculation tool, the plant's emissions may contribute to an exceedence of the hourly mean and annual mean NO_2 objectives. Therefore it has been recommended that a Detailed Assessment be carried out with respect to NO_2. The Council began monitoring at the closest points of relevant exposure in 2012 and results of this survey will be reported in a Detailed Assessment.

Progress Report, 2013

In April 2013 Basingstoke and Deane Borough Council undertook a Progress Report containing monitoring data from non-automatic sites measuring NO_2. Concentrations exceeded the AQS annual mean objective in the Winton Square area in 2012. The data suggested that exceedences had occurred at sites 9, 10 and 20 however the exceedences were not representative of relevant exposure, therefore a detailed assessment was not required.

The progress report included the previously mentioned Biomass Facility, which has been subject to diffusion tube monitoring at sites 27, 28 and 29.

Progress Report 2014

The 2013 diffusion tubes measurements indicated an exceedance of the NO_2 annual mean objective at site 20, Winchester Road. The report concluded that Basingstoke and Deane Borough Council were required to proceed to a Detailed Assessment at the Winchester Street and Winton Square area where site 20 is located.

The report also noted that the biomass boiler at Armstrong Road commenced operation again and would therefore require a Detailed Assessment following 6 months of monitoring data being available.

1.4.6 Other Reports Currently in Preparation

Detailed Assessment, Armstrong Road Biomass 2015

A detailed assessment is currently being undertaken to assess the emissions from a biomass boiler located on Armstrong Road in the Daneshill area of Basingstoke. The dispersion modelling assessment is investigating if exceedances of the Nitrogen Dioxide Air Quality Objectives are occurring at locations where relevant exposure is present within the study area.

Detailed Assessment, Winton Square 2015

A detailed assessment of air quality in the Winton Square area in Basingstoke is currently being undertaken following annual mean NO_2 concentrations in excess of the 40 µg/m^3 objective being measured during 2013. A dispersion modelling study is being undertaken using the most recent traffic, monitoring and meteorological data for the area. The study will assess if there are exceedances of the NO_2 annual mean objective at locations where there is relevant human exposure.

2 New Monitoring Data

The Updating and Screening Assessment utilises non-automatic data collected throughout 2014. The Non-automatic monitoring data have been supplied by Basingstoke and Deane Borough Council.

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Basingstoke and Deane Borough Council do not undertake any automatic monitoring within the borough. The nearest site undertaking automatic monitoring is situated in Harwell, at the Harwell Business Park.

2.1.2 Non-Automatic Monitoring Sites

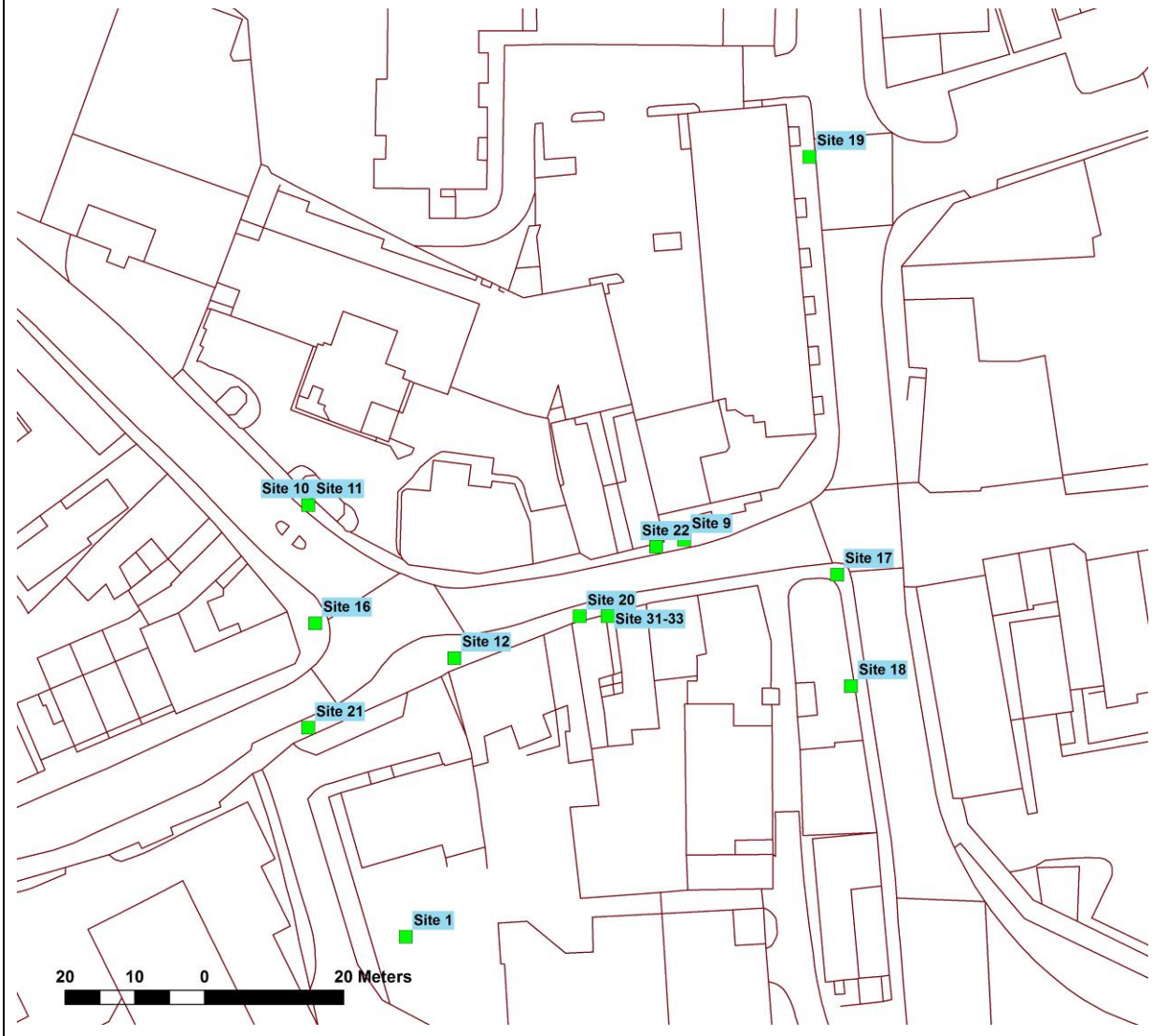
NO_2 concentrations are measured by Basingstoke and Deane Borough Council using diffusion tube monitoring at 26 locations throughout the Borough. In 2014 monitoring commenced at sites 27, 28, 29 and 30 to assess the impact of the biomass facility at Armstrong Road. The measurements at sites 27, 28 and 29 originally commenced in May 2012 and were suspended in August 2013 when the Biomass facility temporarily ceased operation. When monitoring recommenced in June 2014 an additional diffusion tube was deployed at Armstrong Road opposite the location of the Biomass boiler (Site 27). The original site locations 27,28 and 29 were renamed sites 28, 29 and 30.

In addition to the new diffusion tube sites near the Biomass facility there were additional tubes deployed at 45 Winton Square in September 2014. Sites 31, 32 and 33 were deployed as a triplicate tube site. Details of the diffusion tube monitoring locations are outlined in Table 2.1.

Basingstoke and Deane Borough Council do not currently operate any automatic monitoring sites with co-located diffusion tubes. The diffusion tube results have therefore been adjusted using the national bias correction factor in line with LAQM

guidance. The diffusion tube monitoring undertaken are subject QC/QC procedures, further details of the QC/QC procedures are outlined in Appendix A.

Figure 2.1 Map of Non-Automatic Monitoring Sites



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Diffusion tube location

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Table 2.1 Details of Non-Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant **Exposure?** (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (m)	Does this location represent worst-case exposure?
Site 1	Roadside	463600	151800	NO_2	N	N	N - 1 (shop)	1.7	Y
Site 2	Roadside	462300	150700	NO_2	N	N	Y - on façade of residential building	2.3	Y
Site 4	Urban Background	463500	150700	NO_2	N	N	N - 11	1.6	N
Site 7	Urban Background	451783	16234	NO_2	N	N	N - 5	1.2	N
Site 9	Roadside	463640	151857	NO_2	N	N	N - 4 (office building)	1.4	Y
Site 10	Roadside	463586	151862	NO_2	N	N	N - 5 (office building)	1.1	Y

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant **Exposure?** (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (m)	Does this location represent worst-case exposure?
Site 11	Roadside	463586	151862	NO_2	N	N	N - 12 (office building)	1.6	Y
Site 12	Kerbside	463607	151840	NO_2	N	N	N - 6 (office building)	0.9	Y
Site13	Roadside	463982	152014	NO_2	N	N	Y - On façade	4.8	Y
Site 16	Roadside	463587	151845	NO_2	N	N	N-5 (takeaway)	1.1	Y
Site 17	Kerbside	463662	151852	NO_2	N	N	N - 1 (office building)	0.4	Y
Site 18	Roadside	463664	151836	NO_2	N	N	N - 1 (office building)	1.7	Y
Site 20	Kerbside	463625	151846	NO_2	N	N	N - 1 (office building)	0.5	Y

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant **Exposure?** (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (m)	Does this location represent worst-case exposure?
Site 21	Kerbside	463586	151830	NO_2	N	N	N - 10 (office building)	0.6	Y
Site 22	Roadside	463636	151856	NO_2	N	N	N - On façade of restaurant	1.3	Y
Site 24	Roadside	451367	162731	NO_2	N	N	Y - on façade of residential building	5.5	Y
Site 25	Roadside	451367	162731	NO_2	N	N	Y - on façade of residential building	5.5	Y
Site 26	Roadside	451367	162731	NO_2	N	N	Y - on façade of residential building	5.5	Y
Site 27	Special *	465358	153015	NO_2	N	N	Y –	59	Y

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant **Exposure?** (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (m)	Does this location represent worst-case exposure?
Site 28	Special*	465568	153183	NO_2	N	N	Y – 14	29	Y
Site 29	Special*	465646	153223	NO_2	N	N	Y – 13	13	Y
Site 30	Special*	465486	153287	NO_2	N	N	Y- 20	100	Y
Site 31	Roadside	463629	151846	NO_2	N	N	Y - On façade	2.5	Y
Site 32	Roadside	463629	151846	NO_2	N	N	Y - On façade	2.5	Y
Site 33	Roadside	463629	151846	NO_2	N	N	Y - On façade	2.5	Y
*Special sites to assess NO_2 concentrations downwind from biomass facility									

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

NO_2 concentrations are measured by Basingstoke and Deane Borough Council using diffusion tube monitoring at 26 sites throughout the Borough. Basingstoke and Deane primarily undertake NO_2 monitoring to assess the emissions from transport due to traffic within Basingstoke and the surrounding trunk roads within the Borough.

Most monitoring sites had a data capture of greater than 75%. Monitoring at sites 27, 28, 29 and 30 was carried out between July and December 2014 to assess the impact of a nearby Biomass facility. In 2014 there were 3 new monitoring locations, sites 31, 32 and 33, these sites commenced monitoring in September 2014 in Winton Square. As the data capture for the sites mentioned above was less than 75% the data was annualised in accordance with LAQM.TG (09). Further details of how the data was annualised is provided in Appendix A.

The Winton Square and Winchester Road area of Basingstoke is subjected to extensive diffusion tube sampling. Figure 2.1 shows the diffusion tube locations around the Winton Square and Winchester Road area.

The monitoring results for 2014 are detailed in Table 2.2. The results have undergone Bias adjustment, using the national bias adjustment factor for 2014 of 0.91.
Details of the bias adjustment factor applied and QA/QC for the diffusion tube measurements are presented in Appendix A.

Table 2.2 Results of Nitrogen Dioxide Diffusion Tubes in 2014

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.91)
								2014 (μg/m^3)
1	Winton Sq, Basingstoke	Roadside	N	N	100%	N	N	28.1
2	Front façade, 279 Winchester Rd, Basingstoke	Roadside	N	N	100%	N	N	29.9
4	Stocker Close, Basingstoke	Roadside	N	N	100%	N	N	15.6
7	Bus stop by “The Guru” Newbury Rd	Urban Background	N	N	100%	N	N	35.8
9	Traffic lights at Winton Sq.	Urban Background	N	N	100%	N	N	36.9

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.91)
								2014 ($\mu g/m^3$)
10	Corner of New St./Winton Square jnctn.	Roadside	N	N	100%	N	N	37.4
11	Corner of Winton Square/Sarum Hill jnctn	Roadside	N	N	92%	N	N	26.3
12	4 Winton Square	Kerbside	N	N	100%	N	N	36.9
13	Adjacent 52 New Road, B'Stoke	Roadside	N	N	100%	N	N	32.9
16	Junct. Winton Square/Winchester R'd.	Roadside	N	N	100%	N	N	32.8
17	37 Winchester St.	Kerbside	N	N	92%	N	N	35.7

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.91)
								2014 ($\mu g/m^3$)
18	Adjacent 37 Winchester St.	Roadside	N	N	100%	N	N	35
19	Adjacent Copenhagen Hse, New St.	Kerbside	N	N	75%	N	N	34
20	45 Winchester Rd.	Kerbside	N	N	100%	N	N	41.5
21	Winchester R'd/Winton Square junct.	Kerbside	N	N	100%	N	N	31.3
22	Façade of Agra Balti, 34 Winchester Rd	Roadside	N	N	100%	N	N	38.4
24	IT services, front façade, the Old Plough, Newbury Rd	Roadside	N	N	100%	N	N	33.2

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.91)
								2014 ($\mu g/m^3$)
25	IT services, front façade, the Old Plough, Newbury	Roadside	N	N	100%	N	N	32.1
26	IT services, front façade, the Old Plough, Newbury Road	Roadside	N	N	100%	N	N	32
27	Armstrong Road opposite from Biomass Plant	Special*	N	N	42%	Y	N	25.3*
28	Footpath between Swing Swang Road & Lambs Row	Special*	N	N	50%	Y	N	18.4*

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.91)
								2014 ($\mu g/m^3$)
29	Footpath between Swing Swang Road & Lambs Row	Special*	N	N	50%	Y	N	17.2*
30	Public space at end of Blackberry Walk	Special*	N	N	50%	Y	N	18.7*
31	Façade of 45 Winton Square	Roadside	N	N	33%	Y	N	39.7*
32	Façade of 45 Winton Square	Roadside	N	N	25%	Y	N	**40.9***
33	Façade of 45 Winton Square	Roadside	N	N	33%	Y	N	**40***

* Estimated annual mean using short term to long term adjustment in accordance with TG(09)

Nitrogen Dioxide Monitoring Results in Accordance with Objective

An annual mean NO_2 concentration in excess of the 40 $\mu g.m^{-3}$ objective was measured at three diffusion tube sites during 2014. The exceedances were measured at:

- Site 20 located at 43 Winchester Rd
- Triplicate tube site 31-33 located at 45 Winton Square. This result is however based on an estimated annual mean calculated from 4 months of monitoring data.

The monitoring data concluded that there were 2 sites with an annual mean >38 $\mu g/m^3$, these were sites 22 at 34 Winchester Rd and site 31 at 45 Winton Square.

Table 2.3 Results of Nitrogen Dioxide Diffusion Tubes (2010 to 2014)

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) μg/m^3				
			2010 (Bias Adjustment Factor = 0.84)	2011 (Bias Adjustment Factor = 0.89)	2012 (Bias Adjustment Factor = 0.97)	2013 (Bias Adjustment Factor = 0.95)	2014 (Bias Adjustment Factor = 0.91)
1	Roadside	N	29.9	26.3	30.1	28.8	28.1
2	Roadside	N	37.4	29.2	28.8	32.5	29.9
3	Roadside	N	-	21.9	24.6	-	15.6
4	Urban Background	N	20.1	14.1	18.0	19.2	35.8
7	Urban Background	N	37.0	33.3	37.1	35.8	36.9
9	Roadside	N	41.7	35.0	40.7*	39.9	37.4
10	Roadside	N	41.6	34.7	40.7*	38.6	26.3
11	Roadside	N	30.2	24.1	22.2	30.0	36.9
12	Kerbside	N	40.6	35.1	39.8	40.7*	28.1
13	Roadside	N	36.4	31.1	35.7	36.6	32.9
16	Roadside	N	36.2	31.8	33.9	34.7	32.8
17	Kerbside	N	39.0	34.4	39.5	37.1	35.7
18	Roadside	N	42.1	33.1	36.4	37.7	35
19	Kerbside	N	36.2	32.1	36.4	33.7	34
20	Kerbside	N	46.5	38.6	42.6*	46.7*	41.5

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) μg/m^3				
			2010 (Bias Adjustment Factor = 0.84)	2011 (Bias Adjustment Factor = 0.89)	2012 (Bias Adjustment Factor = 0.97)	2013 (Bias Adjustment Factor = 0.95)	2014 (Bias Adjustment Factor = 0.91)
21	Kerbside	N	40.1	30.1	33.5	35.1	31.3
22	Roadside	N	42.6	35.7	37.9	38.7	38.4
24	Roadside	N	34.2	33.0	34.5	32.5	33.2
25	Roadside	N	34.1	34.1	34.1	33.1	32.1
26	Roadside	N	-	36.4	35.8	31.7	32
27	Next to footpath	N	-	-	-	**	25.3*
28	Next to footpath	N	-	-	-	**	18.4*
29	Next to footpath	N	-	-	-	**	17.2*
30	Next to footpath	N	-	-	-	-	18.7*
31	Kerbside	N	-	-	-	-	39.7*
32	Kerbside	N	-	-	-	-	**40.9***
33	Kerbside	N	-	-	-	-	**40***

In bold, exceedence of the NO_2 annual mean AQS objective of 40μg/m^3

Underlined, annual mean > 60μg/m^3, indicating a potential exceedence of the NO_2 hourly mean AQS objective

[a] Means should be "annualised" as in Box 3.2 of TG(09) (http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if full calendar year data capture is less than 75%

* Sites Annualised in accordance with TG (09)

** Sites previously monitored in 2013 but monitoring locations have changed in 2014.

Figure 2.2 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Roadside Diffusion Tube Monitoring Stations

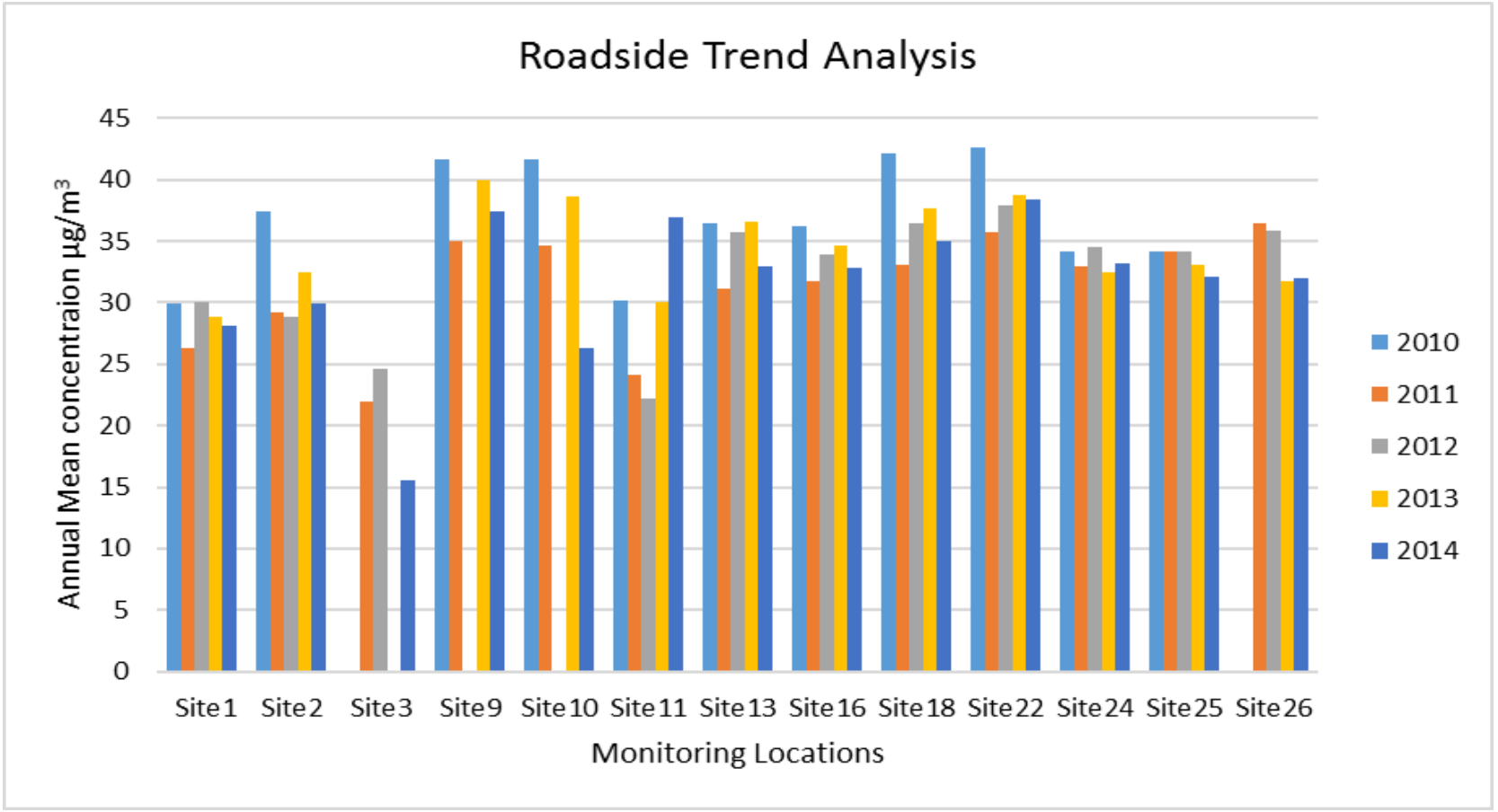
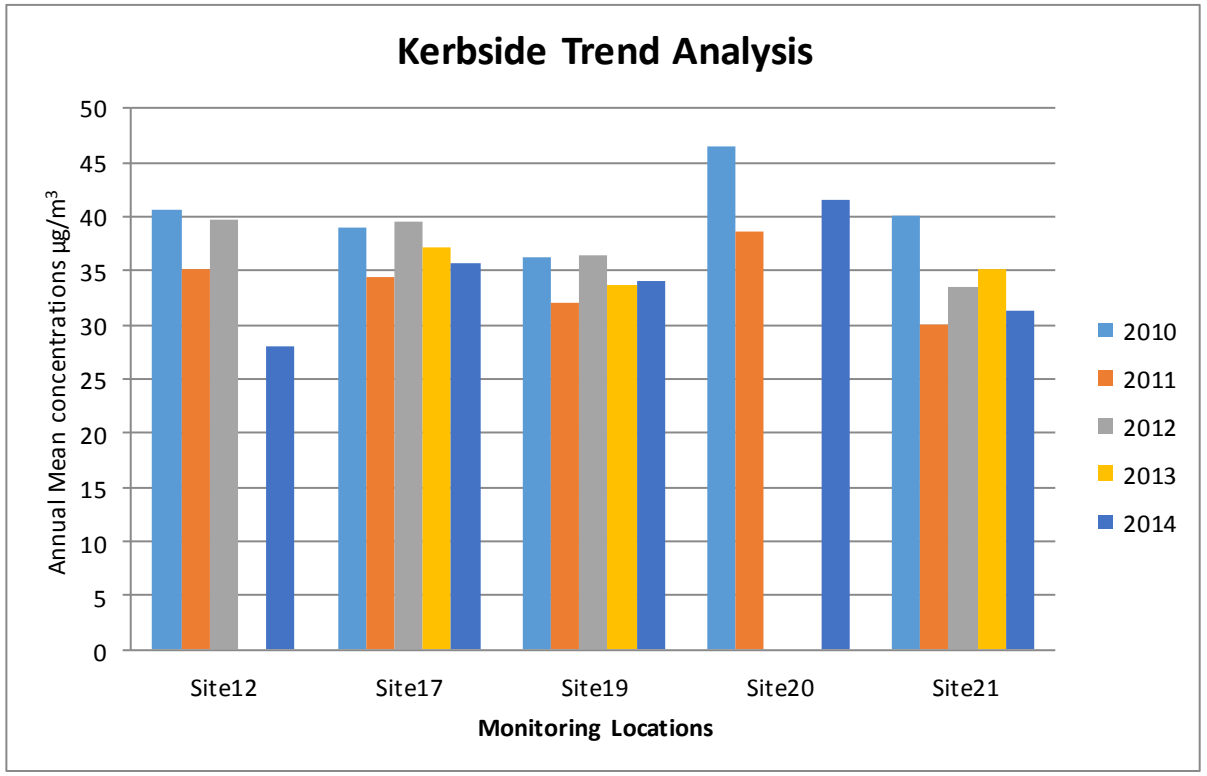


Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Kerbside Diffusion Tube Monitoring Sites



2.2.2 Annual Mean Trend Analysis

The trend in measured annual mean NO_2 concentrations between 2010 and 2014 is presented in Table 2.3. Overall concentrations within the Borough have in general decreased at both roadside and kerbside sites as shown in Figure 2.2 and Figure 2.3 respectively.

Concentrations at Urban Background sites 4 and 7 have remained relatively unchanged since 2010.

Sites 31–33 have not been included in the analysis as these sites commenced monitoring in September 2014.

Sites 27, 28, 29 and 30 have not been included in analysis as these site originally commenced monitoring in 2012 to specifically assess the concentrations downwind from a biomass facility. The monitoring recommenced in 2014 and tube locations were moved from the previous monitoring undertaken with a new additional site monitoring on Armstrong Road (site 27).

2.2.3 Other pollutants monitored

Basingstoke and Deane Borough Council do not undertake any other monitoring of pollutants. Basingstoke and Deane only operate passive diffusion tube monitoring for NO_2.

2.2.4 Summary of Compliance with AQS Objectives

Basingstoke and Deane Borough Council has measured concentrations of NO_2 above the annual mean objective. Basingstoke and Deane Borough Council are currently undertaking a Detailed Assessment for the Winchester Road and Winton Square area, to assess if there are exceedances of the annual mean objective for NO_2 at areas of relevant exposure.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Basingstoke and Deane Borough Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb; that have not been adequately considered in previous rounds of Review and Assessment.

3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

Basingstoke and Deane Borough Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

3.3 Roads with a High Flow of Buses and/or HGVs.

Basingstoke and Deane Borough Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

Basingstoke and Deane Borough Council confirms that there are no new/newly identified busy junctions/busy roads.

3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

Basingstoke and Deane Borough Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

Basingstoke and Deane Borough Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

Basingstoke and Deane Borough Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

Basingstoke and Deane Borough Council confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

Basingstoke and Deane Borough Council confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

4.2.2 Moving Trains

Basingstoke and Deane Borough Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

4.3 Ports (Shipping)

Basingstoke and Deane Borough Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

5.1.1 New or Proposed Installations for which an Air Quality Assessment has been Carried Out

Basingstoke and Deane Borough Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been introduced

Basingstoke and Deane Borough Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

Basingstoke and Deane Borough Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.2 Major Fuel (Petrol) Storage Depots

There are no major fuel (petrol) storage depots within the Local Authority area.

5.3 Petrol Stations

Basingstoke and Deane Borough Council confirms that there are no petrol stations meeting the specified criteria**.**

5.4 Poultry Farms

Basingstoke and Deane Borough Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

In April 2013 the biomass plant at Armstrong Road, previously mentioned in the 2012 Updating and Screening Assessment, temporarily ceased operation. Monitoring which was undertaken at sites 27, 28 and 29 near to the facility ceased monitoring in July 2013.

In February 2014 the biomass facility recommenced operation under new management. Monitoring re-commenced, with an additional monitoring location (site 27). The previous monitoring locations recommenced monitoring and were renamed as sites 28, 29 and 30. Monitoring was undertaken to assess the impact of the biomass facility on NO_2 concentrations in the area near to the facility. The 2014 Progress report concluded that a Detailed Assessment would be undertaken for the facility after 6 months of data had been obtained.

The Detailed Assessment for the Biomass facility is currently in progress. Initial findings indicate that there is no further action required as there are no exceedences of the AQS Annual mean objective for NO_2.

Basingstoke and Deane Borough Council has assessed Armstrong Road biomass combustion plant and concluded that it will be necessary to proceed to a Detailed Assessment for NO_2.

Basingstoke and Deane are currently undertaking a detailed assessment for the Biomass facility, assessing if there is likely to be any exceedence of the air quality objectives for NO_2.

6.2 Biomass Combustion – Combined Impacts

Basingstoke and Deane Borough Council has assessed the biomass combustion plant within the local area; and concluded that it will not be necessary to proceed to a Detailed Assessment considering the combined impact of biomass combustion.

6.3 Domestic Solid-Fuel Burning

Basingstoke and Deane Borough Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

Basingstoke and Deane Borough Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

The NO_2 annual mean concentrations measured in 2014 were below the 40 µg/m^3 AQS objective at most locations with the exception of 2 diffusion tube sites.

- Site 20 located at 43 Winchester Rd
- Triplicate tube site 31-33 located at 45 Winton Square. This result is however based on an estimated annual mean calculated from 4 months of monitoring data.

Both of these sites are within the Winton Square and Winchester Road area;

Site 20 was identified as an exceedance in the 2014 Progress Report, concluding that the Local authority should proceed to a Detailed Assessment for this area. Sites 31, 32 and 33 commenced monitoring in September 2014, although site 31 was below the AQS annual mean objective of 40µg/m^3 it was borderline with a concentration of 39.7µg/m^3.

8.2 Conclusions from Assessment of Sources

Basingstoke and Deane Borough Council confirmed that there were no new local developments that would impact on air quality and no further assessment is required.

Basingstoke and Deane Borough Council are currently undertaking a detailed assessment for the Armstrong Road Biomass facility to assess if there are any likely exceedences of NO_2 air quality objectives.

8.3 Proposed Actions

Basingstoke and Deane Borough Council are currently undertaking detailed assessments for the Winton Square area in Basingstoke and the Armstrong Road Biomass facility. The conclusions of these detailed assessments will determine if declaration of an air quality management area is required. The conclusions of the detailed assessments will be summarised in the 2016 Progress Report.

References

LAQM.TG(09)
https://www.gov.uk/government/publications/local-air-quality-management-technical-guidance-laqm-tg-09

All Council reports can be found here:

http://www.basingstoke.gov.uk/browse/environment-and-planning/pollution/air-quality/Air+Quality+Reports.htm

Appendices

Appendix A: QA/QC Data

Appendix A: QA/QC Data

Diffusion Tube Bias Adjustment Factors

Diffusion tubes may systematically under or over-read NO_2 concentrations when compared to the reference chemiluminescence analyser. This is described as bias and can be corrected for to improve the accuracy of the diffusion tube results, using a suitable bias adjustment factor.

Basingstoke and Deane Borough Council's diffusion tubes are prepared and analysed by Gradko using the 20% TEA in water method. This laboratory takes part in the QA/QC Field Intercomparison, operated on behalf of DEFRA

No automatic monitoring is carried out within the borough therefore the bias adjustment factor used within the Updating and Screening Assessment is derived from the national database. The diffusion tube national adjustment factor spreadsheet is shown in figure A1. The national adjustment factor derived from the spreadsheet was 0.91. The adjustment of 0.91 has been used to adjust all diffusion tubes results in 2014.

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/15

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadhseet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2015
LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List — If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List — If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List — If a year is not shown, we have no data[2]

Step 4: Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[5] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in water	2014	R	Borough Council of King's Lynn & West Norfolk	12	29	21	37.7%	G	0.73
Gradko	20% TEA in water	2014	R	Brighton & Hove City Council	12	55	48	15.2%	G	0.87
Gradko	20% TEA in water	2014	R	Brighton & Hove City Council	11	60	57	6.2%	G	0.94
Gradko	20% TEA in water	2014	R	Cheshire West and Chester	11	40	40	-1.0%	G	1.01
Gradko	20% TEA in water	2014	R	Dudley MBC	12	36	31	18.1%	G	0.85
Gradko	20% TEA in water	2014	UB	Dudley MBC	12	26	23	11.2%	G	0.90
Gradko	20% TEA in water	2014	R	Dudley MBC	12	41	35	15.2%	G	0.87
Gradko	20% TEA in water	2014	R	Dudley MBC	12	52	60	-12.6%	G	1.14
Gradko	20% TEA in water	2014	R	Gateshead Council	10	35	32	10.8%	G	0.90
Gradko	20% TEA in water	2014	R	Gateshead Council	12	36	36	-0.1%	G	1.00
Gradko	20% TEA in water	2014	R	Gateshead Council	12	34	32	6.4%	G	0.94
Gradko	20% TEA in water	2014	UB	Luton Borough Council	9	36	37	-4.0%	G	1.04
Gradko	20% TEA in water	2014	KS	Marylebone Road Intercomparison	12	115	80	42.8%	G	0.70
Gradko	20% TEA in water	2014	R	Monmouthshire County Council	10	42	38	10.1%	G	0.91
Gradko	20% TEA in water	2014	R	NOTTINGHAM CITY COUNCIL	12	44	39	14.9%	G	0.87
Gradko	20% TEA in water	2014		Overall Factor[3] (16 studies)				Use		0.91

Short-term to Long-term Data Adjustment

Short term to long term adjustments were required for 7 sites in total. Sites 27, 28, 29 and 30 only monitored between July and December 2014. Sites 31 and 33 commenced monitoring in September and monitored between September and December. Site 32 commenced monitoring in September and monitored between September and November. The sites mentioned above were annualised using the automatic data from the nearest sites, in accordance with Box 3.2 TG (09). The adjustment process is detailed below:

Annualisation July to December				
Site	Site Type	Annual Mean	Period Mean	Ratio
Reading New Town	Urban background	26.51	26.7	0.99
Southampton Centre	Urban background	31.63	31.1	1.02
Harwell	Harwell	7.99	8.3	0.96
			Average	0.99

Annualisation September to December				
Site	Site Type	Annual Mean	Period Mean	Ratio
Reading New Town	Urban background	26.51	29.7	0.89
Southampton Centre	Urban background	31.63	34.71	0.91
Harwell	Harwell	7.99	10.23	0.78
			Average	0.86

Annualisation September to November				
Site	Site Type	Annual Mean	Period Mean	Ratio
Reading New Town	Urban background	26.51	29.53	0.9
Southampton Centre	Urban background	31.63	33.83	0.94
Harwell	Harwell	7.99	11.8	0.68
			Average	0.84

QA/QC of Diffusion Tube Monitoring

The Workplace Analysis Scheme for Proficiency (WASP) is an independent analytical proficiency-testing (PT) scheme, operated by the Health and Safety Laboratory (HSL).

AIR PT is a new scheme, started in April 2014, which combines two long running PT schemes, LGC Standards STACKS PT scheme and HSL WASP PT scheme.

WASP offers a number of test samples designed to test the proficiency of laboratories undertaking analysis of chemical pollutants in workplace and ambient air. WASP NO2 PT forms an integral part of the UK NO_2 Network's QA/QC, and is a useful tool in assessing the analytical performance of laboratories supplying diffusion tubes to Local Authorities for use in the context of Local Air Quality Management (LAQM).

HSL assign a performance score to each laboratory's result, based on their deviation from the known mass of nitrite. The WASP – Annual Performance Criteria, for NO_2 Diffusion Tubes used in Local Air Quality Management (LAQM), indicate that Gradko demonstrated 100% of results submitted were deemed at satisfactory in WASP Rounds 121-124[1] and AIR PT AR001- AR006.

[1] http://laqm.defra.gov.uk/documents/LAQM-WASP-Rounds-121--124-and-AIR-PT-Rounds-1-3-4-6-(April-2013--February-2015)-NO2-report.pdf