



2012 Air Quality Updating and Screening
Assessment for
Huntingdonshire District Council

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

April 2012

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Executive Summary

Huntingdonshire District Council has examined their monitoring data from 2011 and studied the various developments and development proposals which may have a bearing on Air Quality.

No significant changes have been found to suggest that there will be new air quality issues.

A detailed assessment of nitrogen dioxide (NO₂) concentrations in an area of Buckden close to a roundabout on the A1 is being undertaken currently and its completion is anticipated in the summer 2012.

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1 Introduction

1.1 Description of Local Authority Area

Huntingdonshire District Council is located in the south west of the county of Cambridgeshire. It comprises four market towns; Huntingdon, St Neots, St Ives and Ramsey as well as many villages.

Whilst the district is predominantly rural it does have major transport links. The A1 and A1(M) run north south through the middle of the district and the A14 runs east west. Both these roads are heavily trafficked and the A14 has a particularly high proportion of Heavy Duty Vehicles (HDVs).

The main East Coast Railway line runs north south through the district.

There are industrial areas in each of the four market towns and the emissions from these processes have been screened in previous Air Quality Review and Assessment (AQR&A) stages. Some of the processes were subjected to detailed dispersion modelling (ADMS Urban). No industrial processes in Huntingdonshire have resulted in Air Quality Management Areas (AQMAs) being declared although some of them make contributions to concentrations of NO₂ in AQMAs.

The most significant source of problem LAQM pollutants in the district (NO₂ and PM₁₀) is road traffic.

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 $\mu\text{g}/\text{m}^3$ (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 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	5.00 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005
Particles (PM ₁₀) (gravimetric)	50 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

The first round of review and assessment consisted of three initial stages of increasing complexity. If at the end of Stage 3 it was determined that an Air Quality Objective would not be met, then a fourth stage would be undertaken with an AQMA declared.

In Cambridgeshire the District Councils and the County Council produced a joint Stage 1 document, pooling resources and expertise. The first stage consisted of a general 'look' at the district for potential pollution sources and at air quality and traffic data that were available, and any other relevant information. If it was likely that there were areas where pollution levels would exceed the air quality objectives then a second stage review and assessment was required.

Huntingdonshire District Council undertook a Stage 2 Review and Assessment, which involved looking more closely at those areas identified in Stage 1 as likely pollution problem areas. This work was carried out in conjunction with the District Councils partners as for Stage 1 and was reported in the same document, published in **1998**. Stage 2 involved the use of simple air quality forecasting models and more detailed air quality monitoring data. The results from this assessment provided a better indication of pollution exceedences occurring, or not. Those 'hotspots' (areas likely to exceed the objectives) were progressed to the third stage Review and Assessment. Huntingdonshire District Council required a Stage 3 Review and Assessment.

Huntingdonshire District Council undertook the Stage 3 Review and Assessment. This required the use of more advanced modelling techniques and additional air quality monitoring data and traffic data. Again, Huntingdonshire District Council conducted this work with its partner organisations and produced a joint report in **April 2000** concluding that a Stage 4 Review and Assessment would not be necessary.

Following the first round of review and assessments, Defra issued new guidance that slightly altered the review and assessment structure. There are now two initial stages instead of three.

Huntingdonshire District Council completed a USA Report in conjunction with its partners in **April 2003**. This involved assessing any new changes within the district that affected the air quality since the previous round of AQR&A. These included air quality monitoring data, traffic flows, industrial processes, planning developments etc. Simple air quality forecasting screening models were used. Where the USA indicated that there were areas within the district which may exceed objectives then the next stage would be a Detailed Assessment. Where no such evidence was found the next stage would be a Progress Report. In Huntingdonshire no evidence of likely exceedences was found at that time.

The Progress Report, produced in **April 2004** unexpectedly concluded that there were likely to be exceedences of the annual mean objectives for NO₂. This view was reached following unusual meteorology in 2003 resulting in poor dispersion of traffic pollutants and correspondingly high measured concentrations of NO₂ during that year. These findings triggered the requirement for a Detailed Assessment in the following year.

A Detailed Assessment was carried out on those areas that had been found to be likely to exceed the annual objective for NO₂ and the report was published in **April 2005**. Based on monitoring results from NO₂ diffusion tubes and continuous analysers it was determined that exceedences were still likely in parts of Huntingdon and St Neots. This study also revealed that further modelling work should be undertaken around some of the district's trunk roads to investigate other potential areas of exceedence.

The result of the Detailed Assessment meant that Huntingdonshire District Council was required to designate two AQMAs. The largest encompassed much of Huntingdon, specifically areas close to the A14 and the inner ring road. The other AQMA, much smaller, covered part of St Neot's High Street.

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Huntingdonshire District Council completed its second USA in conjunction with its partners in **April 2006**. This study did not find any pollutants, which had not already been identified, were likely to exceed the objectives. Appended to the USA, however, was a further Detailed Assessment which reported on the investigation of the district's trunk roads, which had been identified as potential problems in the 2005 Detailed Assessment. This appendix identified two additional areas where exceedences were likely and this resulted in the declaration of additional AQMAs in Brampton and in areas close to the A14, between Hemingford Abbots and Fenstanton.

In conjunction with the designation of the AQMAs, a Further Assessment of the air quality within the AQMAs was undertaken and this was published in **2007**. This resulted in amending three of the four AQMAs, enlarging them slightly. The Progress Report submitted in **April 2007** found no new information that was not already covered by the Further Assessment.

The Progress Report, submitted in **April 2008** concluded that objectives were likely to continue to be met in areas that are not in existing AQMAs.

Huntingdonshire District Council completed its third USA in **June 2009**, the first report submitted using Defra's new reporting format. The 2009 USA did not find any exceedences of the objectives outside areas already declared as AQMAs.

In **May 2010** Huntingdonshire District Council completed its Joint Air Quality Action Plan in conjunction with its local authority neighbours; South Cambridgeshire District Council and Cambridge City Council. Cambridgeshire County Council is acknowledged for its assistance in the development of this Action Plan. The Joint Air Quality Action Plan was accepted by Defra and the respective Councils were commended for their work.

Huntingdonshire District Council also submitted a Progress Report in **May 2010** which identified no new issues except for high concentrations of NO₂ measured at a new diffusion tube monitoring site in the village of Buckden close to a roundabout on

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the A1. As a result Huntingdonshire District Council has proceeded to conduct a Detailed Assessment of this issue.

Huntingdonshire District Council submitted a Progress Report in **April 2011** which identified no new issues. It was originally intended to submit the Buckden Detailed Assessment alongside the 2011 Progress Report but, due to difficulties verifying the dispersion model of the area, with the agreement of Defra, the Buckden Detailed Assessment has been deferred until 2012.

All of the previous AQR&A reports are available at:

<http://www.huntingdonshire.gov.uk/Environment%20and%20Planning/Air%20Quality/Pages/default.aspx>

Figure 1.1. Air Quality Management Area No. 1: Huntingdon

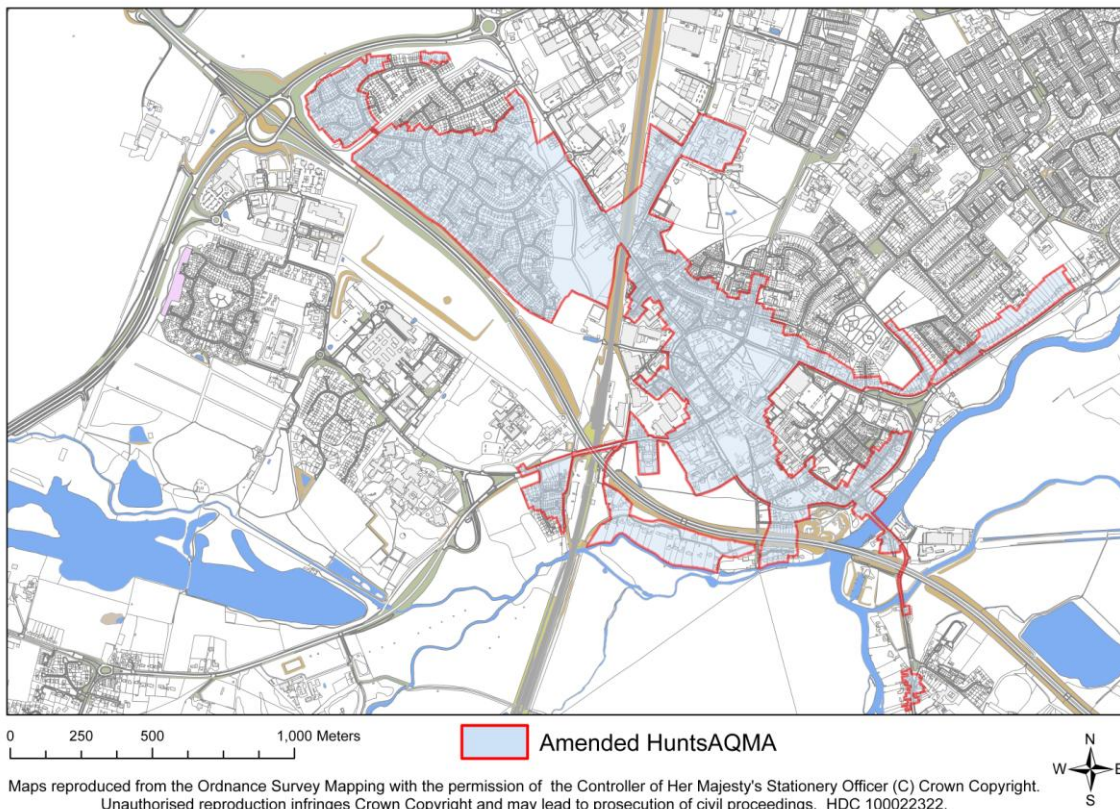


Figure 1.2. Air Quality Management Area No. 2: St Neots

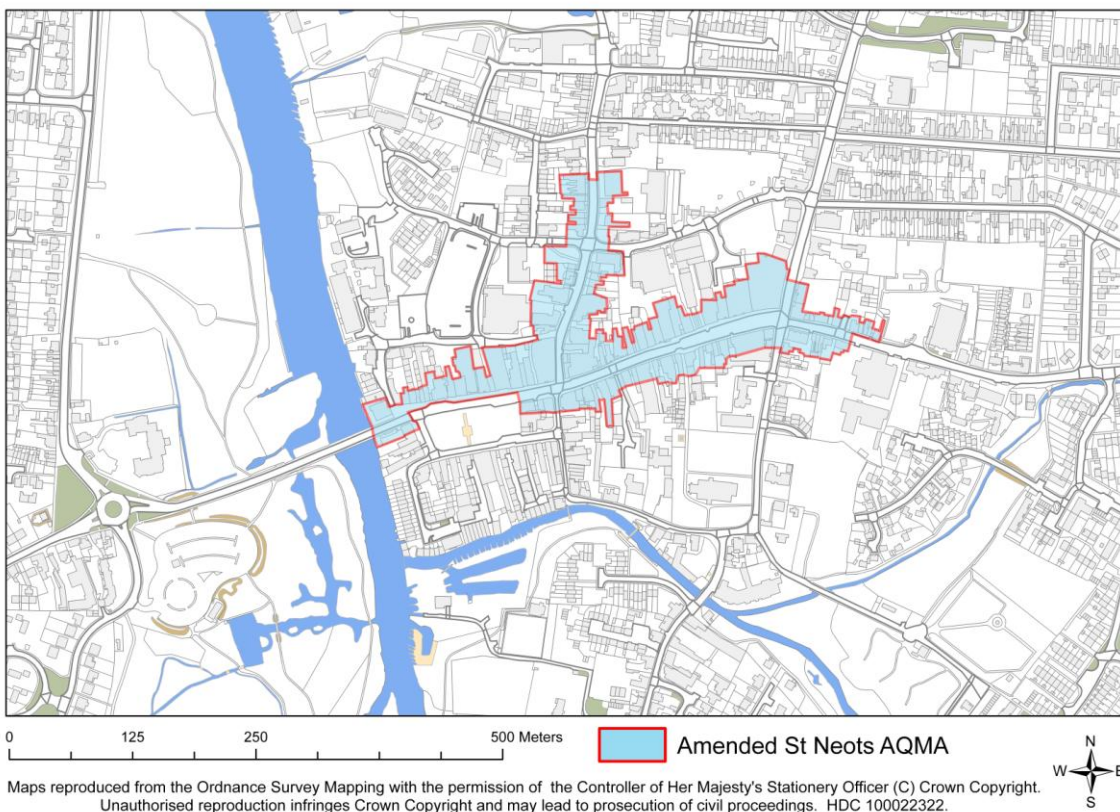


Figure 1.3. Air Quality Management Area No. 3: Brampton

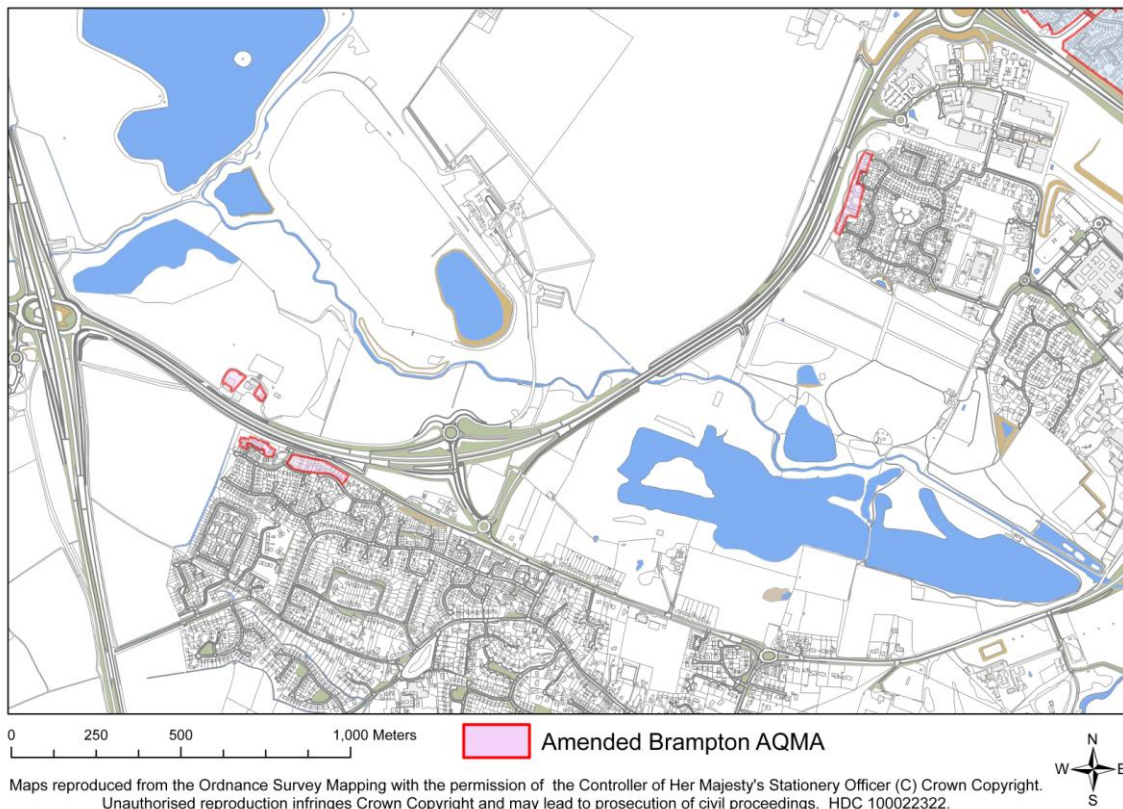
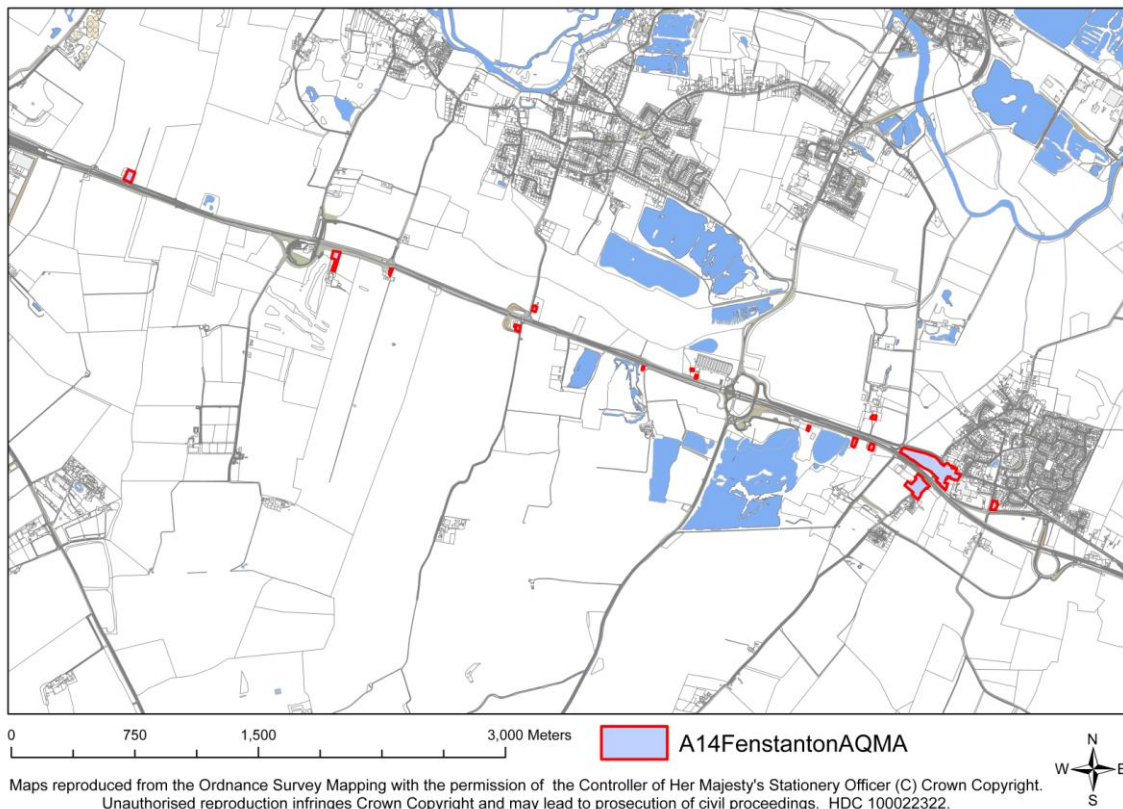


Figure 1.4. Air Quality Management Area No. 4: A14 Hemingford to Fenstanton



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Huntingdonshire District Council has historically operated real time monitoring stations in Huntingdon, Godmanchester, West Perry and St Neots. Recently, however, real time monitoring has been reduced to a single site in Huntingdon. This site was commissioned in January 2011 and monitors oxides of nitrogen (NO_x), fine particles (PM₁₀ and PM_{2.5}) and ozone (O₃).

All analysers are subject to monthly checks and calibrations where appropriate. These checks and calibrations are conducted by Council Officers. Data management is conducted in house and validation is undertaken on an annual basis.

Six-monthly maintenance visits are conducted by the equipment suppliers, Air Monitors.

External QA/QC procedures are in place for the site by virtue of an ongoing contract with the NETCEN Calibration Club and their 2011 reports are appended to this document at Appendix A.

Figure 2.1 Map of Automatic Monitoring Site

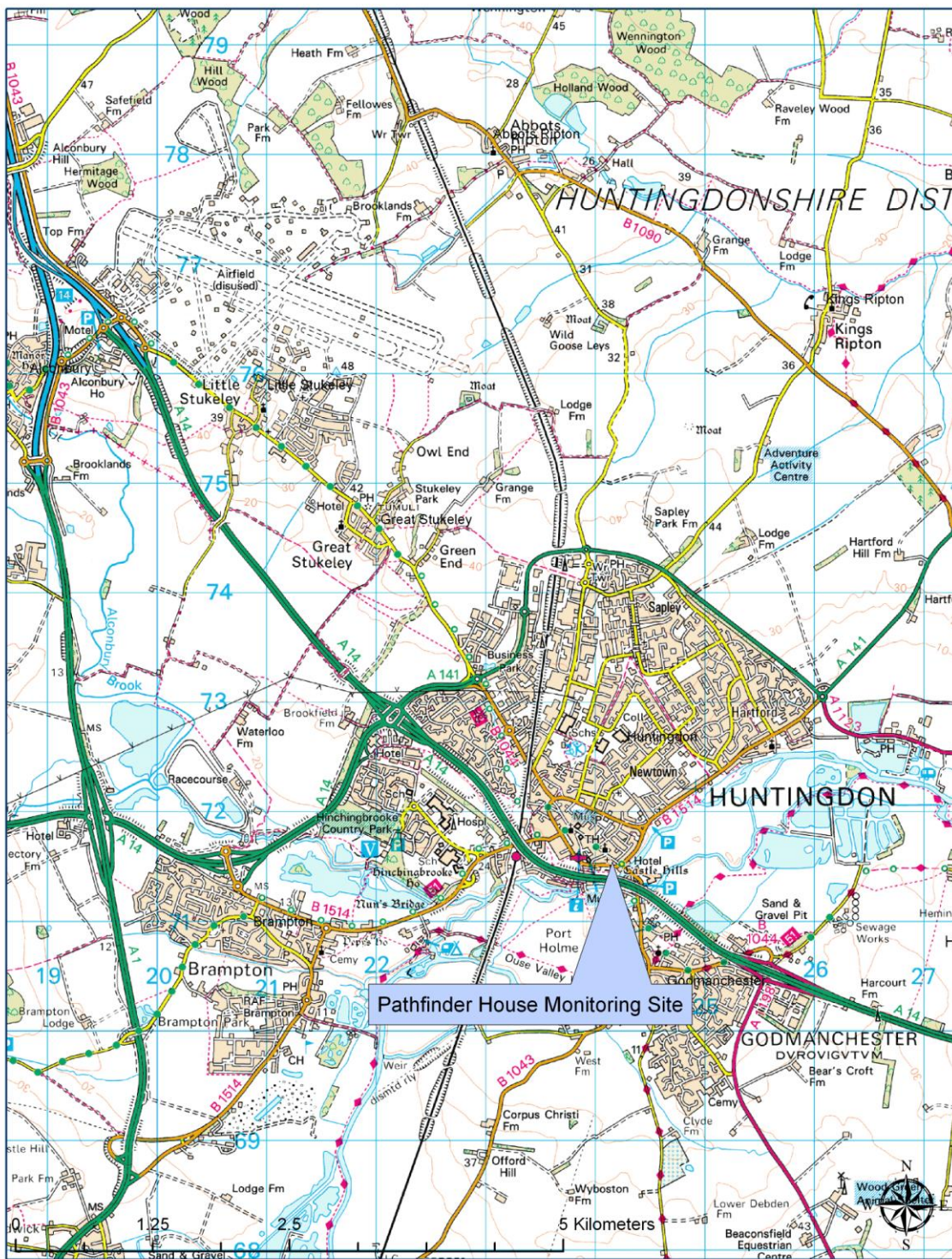


Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	X OS GridRef	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
Huntingdon	Roadside	X 524060	Y 271532	NO ₂ , PM ₁₀ , PM _{2.5} O ₃	Y	Chemiluminescence Beta Attenuation Beta Attenuation UV Photometric	Y 3m	7m	Y

2.1.2 Non-Automatic Monitoring Sites

Huntingdonshire District Council deploys thirty-four NO₂ diffusion tubes around the district.

The diffusion tubes are supplied and analysed by the Environmental Scientifics Group (formerly Harwell Scientifics).

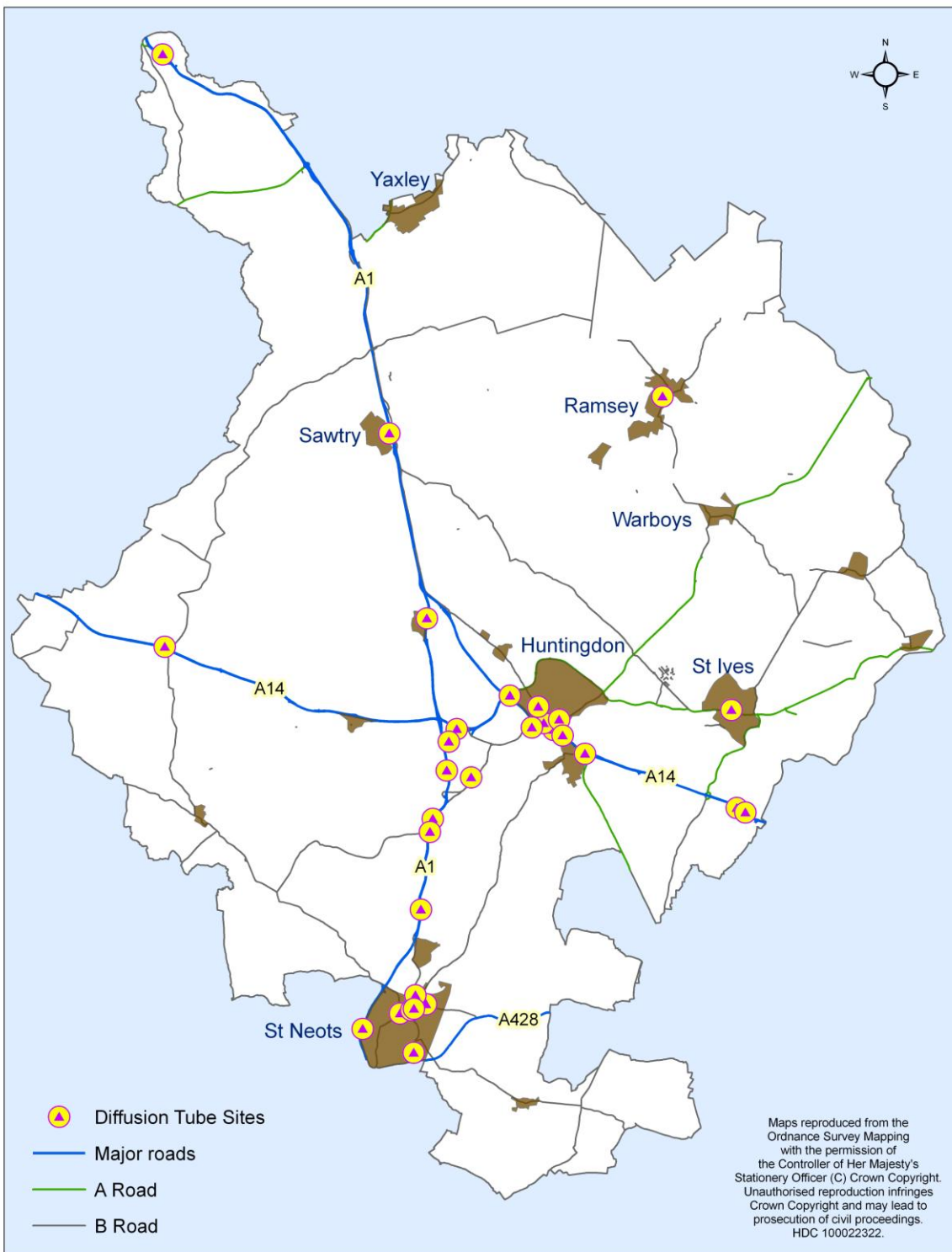
The preparation method is 50% TEA in acetone.

The laboratory procedures follow the procedures set out in the Harmonisation Practical Guidance.

The bias adjustment factor used was 0.84 as found on the co location study on the Review and Assessment Helpdesk website in April 2012.

Details about the Environmental Scientifics diffusion tubes are included in Appendix A.

Figure 2.2 Map of Non-Automatic Monitoring Sites



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Table 2.2 Details of Non-Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA ?	Collocated Y/N	Relevant Exposure ?	Distance to kerb of nearest road	Worst-case Location?
Alconbury: Manor Lane	Roadside	518954, 276010	NO ₂	N	N	Y	2	N
Brampton: Thrapston Road	Roadside	521433, 270910	NO ₂	Y	N	Y	2	N
Brampton: Hansell Road	Suburban	519839, 271061	NO ₂	N	N	Y	0.5	N
Brampton: Grafham Road Cottages	Suburban	519771, 269903	NO ₂	N	N	Y	0.5 (40m to trunk road)	Y
Brampton: RAF Brampton	Suburban	520734, 269623	NO ₂	N	N	Y	0.5	N
Buckden: Taylors Lane	Roadside	519196, 267953	NO ₂	N	N	Y	1	N
Buckden: 4 High Street	Roadside	519082, 267433	NO ₂	N	N	Y	1 (35m to trunk road)	Y
Buckden: 34 High Street	Roadside	519140, 267566	NO ₂	N	N	Y	1	Y
Buckden: 6 Perry Road	Roadside	518981, 267393	NO ₂	N	N	Y	12	N
Catworth: Thrapston Road	Rural	508409, 274876	NO ₂	N	N	Y	1 (42 To trunk road)	N
Eaton Socon: Duchess Close	Suburban	516370, 259514	NO ₂	N	N	Y	24 (To trunk road)	N
Fenstanton 1: Connington Road	Roadside	531770, 268215	NO ₂	Y	N	Y	2 (23m to trunk road)	Y
Fenstanton 2: Hilton Road	Roadside	531427, 268397	NO ₂	Y	N	Y	2 (94 To trunk road)	N
Godmanchester: Cambridge Villas	Roadside	525319, 270571	NO ₂	N	N	Y	12 (34m to trunk road)	N
Huntingdon 1: Blethan Drive	Roadside	522293, 272909	NO ₂	Y	N	Y	2	N
Huntingdon 2: George Street	Kerbside	523661, 271802	NO ₂	Y	N	N	1	Y
Huntingdon 3: Lodge Close	Suburban	523177, 271627	NO ₂	N	N	Y	2	N
Huntingdon 4: Nursey Road	Kerbside	524056, 271533	NO ₂	Y	N	Y	1	Y
Huntingdon 5: St Peters Road	Kerbside	523435, 272464	NO ₂	Y	N	Y	1	N
Huntingdon 6: Tennis Court Av	Roadside	524274, 271939	NO ₂	Y	N	Y	2	N
Huntingdon: Pathfinder House 1	Roadside	524097, 271540	NO ₂	Y	Y	N	6	N
Huntingdon: Pathfinder House 2	Roadside	524097, 271540	NO ₂	Y	Y	N	6	N
Huntingdon: Pathfinder House 3	Roadside	524097, 271540	NO ₂	Y	Y	N	6	N
Ramsey: Blenheim Road	Urban Background	528433, 284936	NO ₂	N	N	Y	2	N
Stibbington: Great North Road	Roadside	508326, 298684	NO ₂	N	N	Y	2 (8m to trunk road)	Y
Sawtry: Fen Lane	Suburban	517438, 283443	NO ₂	N	N	Y	2	N

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Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA ?	Collocated Y/N	Relevant Exposure ?	Distance to kerb of nearest road	Worst-case Location?
Southoe: Lees Lane	Roadside	518714, 264308	NO ₂	N	N	Y	2 (14m to trunk road)	Y
St Ives: Ramsey Road	Urban Background	531206, 272334	NO ₂	N	N	Y	1	N
St Neots 1: Avenue Road	Urban Background	518925, 260503	NO ₂	N	N	Y	1	N
St Neots 2: Harland Road	Urban Background	518489, 260871	NO ₂	N	N	Y	1	N
St Neots 3: High Street	Kerbside	518323, 260263	NO ₂	Y	N	Y	1	Y
St Neots 4: High Street	Kerbside	518433, 260321	NO ₂	Y	N	Y	1	Y
St Neots 5: The Paddocks	Kerbside	517869, 260132	NO ₂	N	N	Y	1	N
Eynesbury	Suburban	518424, 258566	NO ₂	N	N	Y	17	Y

2.2 Comparison of Monitoring Results with AQ Objectives

2.2.1 Nitrogen Dioxide

Monitoring of NO₂ during 2011 revealed no exceedences of the objectives at locations not already included in declared AQMAs except for a diffusion tube site located in the High Street, Buckden close to the roundabout on the A1. This area is currently being modelled to underpin the Detailed Assessment. Exceedences were measured at diffusion tube sites in within the Huntingdon AQMA. Concentrations were measured at tube sites in Fenstanton and St Neots which were very close to the objectives but both of these sites are within AQMAs.

Automatic Monitoring Data

Huntingdonshire only now runs a single real time monitoring site which is located adjacent to the Councils HQ in Huntingdon. This site was set up in late 2010 and utilised some new instruments and some relocated and reconditioned instruments. Due to teething problems the data capture for NO₂ in 2011 is rather poor and has to be corrected to an annual mean using data from nearby background monitoring sites in accordance with Box 3.2 of LAQM.TG09.

Table 2.3. Estimation of Annual Mean

	Wicken Fen	St Osyth	Market Harborough
Period Mean 23 Feb 16:00 to 29 March 09:00	12.5301	16.430731	7.4760054
Period Mean 18 Oct 14:00 to 13 Dec 07:00	16.9087	19.398498	13.936568
Total period mean	14.7194	17.914615	10.706287
Annual Mean	11.5007	15.164072	9.2671171
AM/PM Ratio	0.78133	0.8464637	0.8655772
Average AM/PM Ratio	0.83112		
PFH AM	45.3		
PFH AM X 0.83112	37.6499		

Table 2.4 Results of Automatic Monitoring of Nitrogen Dioxide: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring % ^a	Valid Data Capture 2011 % ^b	Annual Mean Concentration $\mu\text{g}/\text{m}^3$				
					2007* ^c	2008* ^c	2009* ^c	2010* ^c	2011 ^c
Huntingdon	Roadside	Y	25%	25%	-	-	-	-	37.6

^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

^c Means should be “annualised” as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.

*Annual mean concentrations for previous years are optional.

Table 2.5 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring % ^a	Valid Data Capture 2011 % ^b	Number of Exceedences of Hourly Mean (200 µg/m ³)				
					2007* ^c	2008* ^c	2009* ^c	2010* ^c	2011 ^c
Huntingdon	Roadside	Y	25%	25%	-	-	-	-	0

^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

^c If the period of valid data is less than 90%, include the 99.8th percentile of hourly means in brackets

*Number of exceedences for previous years are optional.

Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes in 2011

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2011 (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 = XX)
								2011 ($\mu\text{g}/\text{m}^3$)
Alconbury	Manor Lane	Roadside	N	N	100%	NA	N	22.0
Brampton 1	Laws Crescent	Roadside	Y	N	75%	NA	N	27.4
Brampton 2	Hansell Road	Suburban	N	N	92%	NA	N	16.8
Brampton 3	Grafham Road Cottages	Suburban	N	N	100%	NA	N	17.9
Brampton 4	RAF Brampton	Suburban	N	N	100%	NA	N	16.2
Buckden 1	Taylors Lane	Roadside	N	N	100%	NA	N	21.4
Buckden 2	4 High Street	Roadside	N	N	9 months	Y	N	29.0
Buckden 3	34 High Street	Roadside	N	N	9 months	Y	N	29.9
Buckden 4	6 Perry Road	Roadside	N	N	9 months	Y	N	25.9
Catworth	Thrapston Road	Rural	N	N	100%	NA	N	26.6
Eaton Socon	Duchess Close	Suburban	N	N	100%	NA	N	29.3
Fenstanton 1	Connington Road	Roadside	Y	N	100%	NA	N	37.0
Fenstanton 2	Hilton Road	Roadside	Y	N	83%	NA	N	28.6
Godmanchester	Cambridge Villas	Roadside	N	N	100%	NA	N	23.9
Huntingdon 1	Blethan Drive	Roadside	Y	N	100%	NA	N	32.8
Huntingdon 2	George Street	Kerbside	Y	N	100%	NA	N	48.8
Huntingdon 3	Lodge Close	Suburban	N	N	100%	NA	N	19.9
Huntingdon 4	Nursery Road	Kerbside	Y	N	100%	NA	N	26.1
Huntingdon 5	St Peters Road	Kerbside	Y	N	100%	NA	N	28.1
Huntingdon 6	Tennis Court Av	Roadside	Y	N	100%	NA	N	32.0
Pathfinder House 1	Pathfinder Hse, Huntingdon	Roadside	Y	Y	100%	NA	N	51.6

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Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2011 (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 = XX)
								2011 ($\mu\text{g}/\text{m}^3$)
Pathfinder House 2	Pathfinder Hse, Huntingdon	Roadside	Y	Y	100%	NA	N	49.0
Pathfinder House 3	Pathfinder Hse, Huntingdon	Roadside	Y	Y	92%	NA	N	52.4
Ramsey	Blenheim Road	Urban Background	N	N	100%	NA	N	17.3
Southoe	Lees Lane	Roadside	N	N	100%	NA	N	19.5
Stibbington	Great North Road	Roadside	N	N	83%	NA	N	32.3
Sawtry	Fen Lane	Suburban	N	N	100%	NA	N	19.6
St Ives	Ramsey Road	Urban Background	N	N	100%	NA	N	20.0
St Neots 1	Avenue Road	Urban Background	N	N	100%	NA	N	18.2
St Neots 2	Harland Road	Urban Background	N	N	100%	NA	N	16.7
St Neots 3	High Street	Kerbside	Y	N	100%	NA	N	39.5
St Neots 4	High Street	Kerbside	Y	N	100%	NA	N	44.6
St Neots 5	The Paddocks	Kerbside	N	N	100%	NA	N	23.5
Eynesbury	Arundel Crescent	Suburban	N	N	100%	NA	N	23.4

^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

^c Means should be “annualised” as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.

*Annual mean concentrations for previous years are optional.

Table 2.7 Results of Nitrogen Dioxide Diffusion Tubes (2007 to 2011)

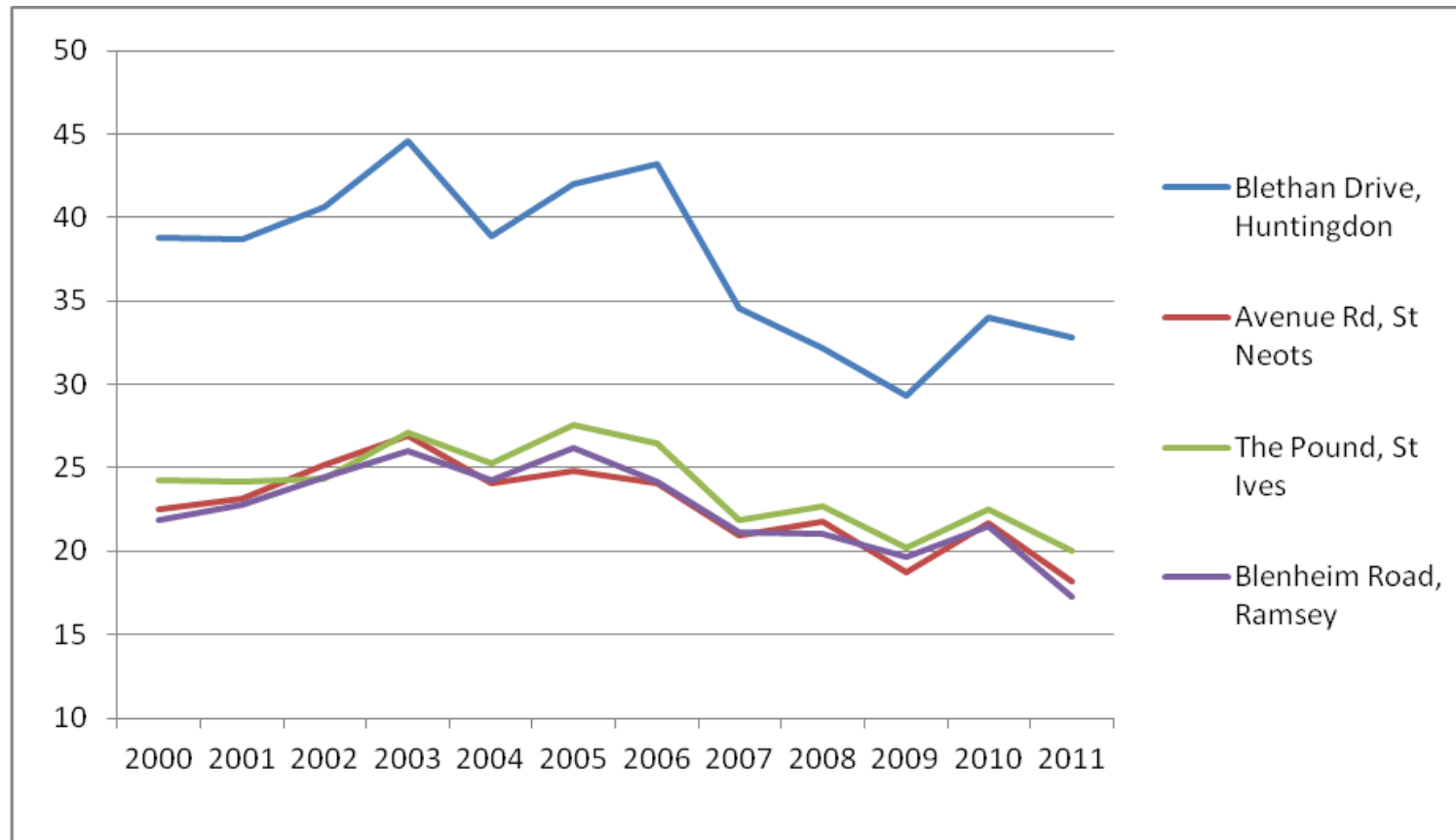
Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) $\mu\text{g}/\text{m}^3$				
			2007* (Bias Adjustment Factor = XX)	2008* (Bias Adjustment Factor = XX)	2009* (Bias Adjustment Factor = XX)	2010* (Bias Adjustment Factor = XX)	2011 (Bias Adjustment Factor = XX)
Alconbury	Roadside	N	24.1	24	24.6	26.5	22.0
Brampton 1	Roadside	Y	35.4	39	33.6	35.6	27.4
Brampton 2	Suburban	N	-	-	19.3	18.1	16.8
Brampton 3	Suburban	N	-	-	18.6	22.7	17.9
Brampton 4	Suburban	N	-	-	17.8	18.8	16.2
Buckden 1	Roadside	N	25.7	26	21.6	24.2	21.4
Buckden 2	Roadside	N	-	-	48.5	45.9	29.0
Buckden 3	Roadside	N	-	-	-	-	29.9
Buckden 4	Roadside	N	-	-	-	-	25.9
Catworth	Rural	N	25.2	28	25.4	25.1	26.6
Eaton Socon	Suburban	N	32.3	33	27.6	33.5	29.3
Fenstanton 1	Roadside	Y	39.3	31	28.3	38.2	37.0
Fenstanton 2	Roadside	Y	30.0	43	41.0	29.5	28.6
Godmanchester	Roadside	N	27.5	30	24.2	31.1	23.9
Huntingdon 1	Roadside	Blethan Drive	34.6	32.2	29.3	34	32.8
Huntingdon 2	Kerbside	George Street	43.7	49	45.9	44.2	48.8
Huntingdon 3	Suburban	Lodge Close	24.4	24.2	21.1	24.7	19.9
Huntingdon 4	Kerbside	Nursery Road					26.1
Huntingdon 5	Kerbside	St Peters Road	31.6	29.9	28.6	35.3	28.1
Huntingdon 6	Roadside	Tennis Court Av	30.8	33.3	26.0	30.6	32.0
Pathfinder House 1	Roadside	Y	-	-	-	-	51.6
Pathfinder House 2	Roadside	Y	-	-	-	-	49.0

Huntingdonshire District Council

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) $\mu\text{g}/\text{m}^3$				
			2007* (Bias Adjustment Factor = XX)	2008* (Bias Adjustment Factor = XX)	2009* (Bias Adjustment Factor = XX)	2010* (Bias Adjustment Factor = XX)	2011 (Bias Adjustment Factor = XX)
Pathfinder House 3	Roadside	Y	-	-	-	-	52.4
Ramsey	Urban Background	N	21.1	21	19.7	21.5	17.3
Southoe	Roadside	N	21.5	23	19.3	23.4	19.5
Stibbington	Roadside	N	29.6	34	33.8	32.1	32.3
Sawtry	Suburban	N	23.7	24	21.7	24.7	19.6
St Ives	Urban Background	N	21.9	23	20.2	22.5	20.0
St Neots 1	Urban Background	N	18.7	22	18.7	21.7	18.2
St Neots 2	Urban Background	N	20.9	20	19.2	19.9	16.7
St Neots 3	Kerbside	Y	37.4	40	37.6	40.0	39.3
St Neots 4	Kerbside	Y	37.6	39	37.4	39.9	37.4
St Neots 5	Kerbside	N	26.4	30	26.2	27.9	23.5
Eynesbury	Suburban	N	-	-	27.0	25.4	23.4

*Optional

Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentrations ($\mu\text{g}/\text{m}^3$) measured at Diffusion Tube Monitoring Sites



2.2.2 PM₁₀

During 2011 Huntingdonshire District Council only had one live PM₁₀ analyser and this was located at the Pathfinder House site in Huntingdon. This site is a roadside site 6m north of the Huntingdon Ring Road (Castle Moat Road) and 140m north of the elevated A14 trunk road.

The PM₁₀ analyser is a Thermo 5014i PM₁₀ Monitor which is a beta attenuation analyser. This model has not been subjected to the equivalence testing programme so there is no gravimetric adjustment factor available.

Table 2.8 Results of Automatic Monitoring of PM₁₀: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period % ^a	Valid Data Capture 2011 % ^b	Confirm Gravimetric Equivalent (Y or NA)	Annual Mean Concentration µg/m ³				
						2007* ^c	2008* ^c	2009* ^c	2010* ^c	2011 ^c
PFH	Roadside	Y (for NO ₂)	88	88	N	-	-	-	-	26.3

^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

^c Means should be “annualised” as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.

* Optional

Table 2.9 Results of Automatic Monitoring for PM₁₀: Comparison with 24-hour mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period % ^a	Valid Data Capture 2011 % ^b	Confirm Gravimetric Equivalent	Number of Exceedences of 24-Hour Mean (50 µg/m ³)				
						2007*	2008*	2009*	2010*	2011
PFH	Roadside	Y (for NO ₂)	88	88	N	-	-	-	-	0

^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

^c if data capture is less than 90%, include the 90th percentile of 24-hour means in brackets

* Optional

2.2.3 Sulphur Dioxide

Huntingdonshire District Council has no sulphur dioxide monitoring sites.

2.2.4 Benzene

Huntingdonshire District Council has no benzene monitoring sites.

2.2.5 Other pollutants monitored

Huntingdonshire District Council has no other monitoring sites.

2.2.6 Summary of Compliance with AQS Objectives

Huntingdonshire District Council has examined the results from monitoring in the district. Concentrations outside of the AQMAs are all below the objectives at relevant locations, except for areas of Buckden which is currently the subject of a detailed assessment; therefore there is no need to proceed to a Detailed Assessment.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Huntingdonshire District 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

Huntingdonshire District 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.

Huntingdonshire District Council confirms that there are no new/newly identified roads with high flows of buses/HGVs.

3.4 Junctions

Huntingdonshire District 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 R&A

Huntingdonshire District Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

Huntingdonshire District Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

Huntingdonshire District Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

Huntingdonshire District Council confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

Huntingdonshire District 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

Huntingdonshire District 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)

Huntingdonshire District 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 AQ Assessment has been carried out

Huntingdonshire District 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

Huntingdonshire District 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

Huntingdonshire District 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

Huntingdonshire District Council confirms that there are no petrol stations meeting the specified criteria.

5.4 Poultry Farms

Huntingdonshire District Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

There is one biomass combustion plant in Huntingdonshire and another proposed.

The existing plant is part of the Tesco store in Ramsey and the air quality implications for a residential development proposed adjacent to the store indicated that there would be no significant impact.

The proposed plant will form part of the new Sainsbury's store in Huntingdon. Emissions from this proposed plant were assessed and found to have no significant impact on air quality.

Huntingdonshire District Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.2 Biomass Combustion – Combined Impacts

There are no combined impacts from biomass plant in Huntingdonshire as there is only a single existing installation. Another is currently proposed but that is in a different town from the existing.

Huntingdonshire District Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.3 Domestic Solid-Fuel Burning

Huntingdonshire District Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

Huntingdonshire District 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 only measured exceedences in 2011 were for annual mean NO₂ and they were in the Huntingdon AQMA. Some other measured concentrations were close to the objective and they were in the St Neots AQMA and in the A14 Hemingford to Fenstanton AQMA.

8.2 Conclusions from Assessment of Sources

No assessments were required during 2011.

8.3 Proposed Actions

The Updating and Screening Assessment has not demonstrated a need for any Detailed Assessment or other investigatory work. The need for a Detailed Assessment at residential properties in Buckden, close to a roundabout on the A1, has been previously identified and this work is in progress with completion expected in the summer 2012.

The Joint Air Quality Action Plan developed by Cambridge City Council, Huntingdonshire District Council and South Cambridgeshire District Council in 2009 proposed a suite of five measures in pursuit of the NO₂ annual mean objective in the Huntingdonshire Air Quality Management Areas. These measures were:

1. The rerouting of the A14 away from settlements.

2. Implementation of Air Quality policies in the Local Plan – new development not permitted to have a significant adverse impact on air quality within Air Quality Management Areas.

3. Development of an effective freight transport partnership between operators using the A14.

4. Inclusion of Huntingdonshire in the Quality Bus Partnership - minimum emission criteria for all Public Service Vehicles as well as targets for ongoing improvements in emissions.

5. Completion and opening of the Cambridgeshire Guided Busway.

Unfortunately, since the publication of the AQAP, the A14 upgrade has been cancelled. Whilst attempts are being made to access European funding for this proposal, procurement is far from certain. As the A14 upgrade was seen as extremely positive for air quality management in Huntingdonshire; HDC will continue to lobby for this investment at every opportunity.

The Air Quality Policy which was to be included in the Development Plan is currently still unadopted. The policy is included in the Development Management DPD which has reached 'proposed submission' stage having undergone several phases of statutory consultation. The policy is currently being given weight by officers and inspectors and is used in conjunction with the statutory adopted Development plan including the Core Strategy (2009) and saved policies from the Local Plan as amended (2002).

Huntingdonshire District Council has joined the East of England Freight Quality Partnership which meets quarterly. It will use this forum to lobby for improvements to the efficiency of the use of the HGV fleet and to keep aware of developments.

Huntingdonshire District Council

The Bus Quality Partnership remains active in the Cambridge City Council area but Cambridgeshire County Council has consistently refused to allow the partnership to be enlarged to encompass the Huntingdonshire District Council area.

The Cambridgeshire guided busway opened in August 2011, two years later than planned. Since it opened it has been well used so it will be interesting to look at traffic flow rates on similar routes over the coming years to see if significant difference is evident.

9 References

Previous AQR&A Documents including the Joint Air Quality Action Plan:

<http://www.huntingdonshire.gov.uk/Environment/Environmental%20Health/Pollution/Pages/Air%20Quality.aspx>

Appendices

Appendix A: QA/QC Data

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

Diffusion tubes are supplied by Environmental Scientifics Group (Harwell Scientific Services) and are 50% TEA in acetone. The bias adjustment factor used to correct the raw diffusion tube data was 0.84 which was taken from the National Diffusion Tube Bias Adjustment Factor Spreadsheet version 03/12.

PM Monitoring Adjustment

The beta attenuation particulate analysers used at the Huntingdon site have not been subjected to gravimetric equivalence testing so there is no robust correction factor available. Reported data are raw.

Short-term to Long-term Data adjustment

As the NO₂ capture for 2011 was below 75% the data has been annualised in accordance with the procedure in Box 3.2 of TG(09) as follows. The three sites chosen for the exercise were rural background sites.

	Wicken Fen	St Osyth	Market Harborough
Period Mean 23 Feb 16:00 to 29 March 09:00	12.5301	16.430731	7.4760054
Period Mean 18 Oct 14:00 to 13 Dec 07:00	16.9087	19.398498	13.936568
Total period mean	14.7194	17.914615	10.706287
Annual Mean	11.5007	15.164072	9.2671171
AM/PM Ratio	0.78133	0.8464637	0.8655772
Average AM/PM Ratio	0.83112		
PFH AM	45.3		
PFH AM X 0.83112	37.6499		

QA/QC of automatic monitoring

Independent site audits are conducted twice a year by AEA. The audits were conducted in March 2011 and January 2012. The full reports and calibration certificates are included below.

Following the March 2011 audit the NO₂ analyser was turned off pending repair and a new NO cylinder was ordered. Data gathered prior to this date was subjected to scrutiny at the verification stage.



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Huntingdonshire District Council
Pathfinder House
St Mary's Street
Huntingdon
Cambridgeshire
PE29 3TN

Jo Green
AEA
Gemini Building
Harwell
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Oxfordshire
OX11 0QJ

30 March 2011
Reference 20645084/R10

Direct line 0870 190 8212
Direct facsimile 0870 190 4850
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AIR MONITORING CALIBRATION CLUB
Ambient air monitoring station:
Pathfinder House
Date of Audit: 29 March 2011

Dear Toby,

This report documents the results of quality control audits to Huntingdonshire District Council's Pathfinder House air monitoring station. The work is carried out under contract AEA/20645084 for the supply of audit services under AEA's Air Monitoring Calibration Club.

The Pathfinder House ambient air monitoring station was audited on 29 March 2011. The equipment audits utilise procedures that are applied within the Department for Environment, Food and Rural Affairs (Defra) national automatic air monitoring network's quality control programme.

AUDIT RESULTS

Oxides of nitrogen analyser

A major factor governing the performance of NO_x analysers is the ability of the analyser converter to reduce nitrogen dioxide to nitric oxide. The minimum requirement for instrumentation in the national automatic air monitoring network is an efficiency in the range of 95-105%. The test shows the converter in this analyser to be 100.6% efficient at an NO₂ concentration of 242 ppb. This is a good result.

To be sure that the analyser was sampling only ambient air, the instrument was leak checked. The NO_x analyser at the Pathfinder House station failed the leak test. It was recommended that the Equipment Support Unit rectify this issue. The analyser initially took a long time to become stable when the NO span gas was introduced but after this period exhibited good steady state responses to both zero and span (calibration) gases with acceptable levels of variation (noise). It was noted that the analyser zero response was higher than would normally be expected and this was flagged as requiring to be reset up by the Equipment Support Unit.

A business name of AEA Technology plc.
Registered office 329 Harwell, Didcot, Oxfordshire OX11 0QJ
Registered in England and Wales no 3095862



Based on the NO_x analyser response to the audit standard and audit zero, the concentration of the new site NO cylinder has been assessed. This provides an indication of the site standard stability. For the purpose of these stability checks the criteria adopted within the national network, and used here, is that the recalculated concentration should lie within 10% of the stated concentration. The recalculated concentration results are presented below:

Pathfinder House - NO cylinder 107292				
	NO _x (ppb)	% change from stated	NO (ppb)	% change from stated
Stated Concentration	449	---	448	---
Recalc. Concentration (29/03/11)	374	-16.7	368	-17.8

The results at the Pathfinder House Station indicate that the recalculated site NO cylinder concentrations are outlying the manufactures supplied concentrations by -17% NO_x and -18% NO. This is out by greater than the AEA 10% pass criteria. It is recommended that the cylinder be retained at the station for a further concentration assessment during the October 2011 audit. This result will then be reviewed and any appropriate data management action will be recommended.

Thermo 5014i PM₁₀ & PM_{2.5} analysers

To ensure that true PM₁₀ & PM_{2.5} measurements are made, the total flow through the sample inlets must be 16.7 litres per minute. A volumetric flow test was carried out on the instruments. The measured flows on the PM₁₀ and PM_{2.5} instruments showed good agreement with the system flow set points.

Certificate of Calibration

Calibration factors and zeros have been produced on the basis of the audit calibration conducted. The calibration was conducted with transfer standards traceable to national metrology standards. The enclosed Certificate of Calibration provides the calibration and zero response factors for the oxides of nitrogen analyser under test on the day of the audit as well as the measured total flow for the particulate analyser's.

Implications for Data Management

As a result of this audit the following recommendations can be made:

- Compare the Huntingdonshire District Council database scaling factors for the day of the audit with the factors and zeros on the Certificate of Calibration. If a deviation greater than the uncertainty associated with the respective factors exists, investigate the underlying reason and implement suitable data management actions.
- The site NO Cylinder was found to be outlying it's manufactures supplied concentrations by -17% NO_x and -18% NO. It is recommended that the cylinder be retained at the station for a further concentration assessment in the October 2011 audit. This result will then be reviewed and any appropriate data management action will be recommended.
- The NO_x analyser failed the leak test during the audit. The response to zero gas was also higher than expected and requires to be reset. It is recommended for an immediate equipment support unit call out to be carried out.

If you have any questions relating to our audit or wish to discuss any aspect of air pollution monitoring, please don't hesitate to contact me on 0870 190 8212 or at jo.green@aeat.co.uk

Yours sincerely



Jo Green
Air Pollution Monitoring



CERTIFICATE OF CALIBRATION

551.11 Harwell, Didcot, Oxfordshire OX11 0QJ. Telephone 0870 1906523 Fax 0870 1906377



0401

Approved Signatories:

B. Stacey
S. Eaton

J. Green ✓
D. Hector

Signed: *Mena*

Date: 31/3/11

Date of issue:
Cert No: 02415

31 March 2011
Page 1 of 2

Customer Name and Address: Huntingdonshire District Council
Pathfinder House
St Mary's Street
Huntingdon
Cambridgeshire
PE29 3TN

Description: Calibration factors for Huntingdonshire Pathfinder House
air monitoring station.

AEA Identification Number: 20645084/D1

Site / Date Test Carried Out	Species	Analyser Serial No.	Zero Response ¹	Uncertainty (ppb)	Calibration Factor ²	Uncertainty (%)	Converter eff. (%) ³
Pathfinder House 29 March 2011	NO _x	426608503	252	5	1.434	5	100.6
	NO	426608503	259	5	1.366	5	na

Site / Date Test Carried Out	Species	Analyser Serial No.	Parameter	Specified Value	Measured Value	Uncertainty (%)	Deviation %
Pathfinder House 29 March 2011	5014i PM ₁₀	CMO09510077	Total Flow ⁴	16.67	15.22	2	-8.7
	5014i PM _{2.5}	CMO09510083	Total Flow ⁴	16.67	16.51	2	-1.0

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.



Date of issue:
 Cert No: 02415
 AEA Identification Number: 20645084/D1

31 March 2011
 Page 2 of 2

The gaseous ambient analysers listed above have been tested for zero response, calibration factor, linearity and converter efficiency (NO_x analysers only) by documented methods. The factors have been calculated using certified gas standards. The particulate analysers listed above have been tested for sample flow rates and k₀ (where appropriate) by documented methods. Note that the test results are valid on the day of test only, as analyser drift over time cannot be quantified. All results for gaseous species are given in ppb (parts per billion) mole fractions or ppm (parts per million) mole fractions.

¹The zero response is the zero reading on the data logging system of the analyser when audit zero gas was introduced to the analysers under test.

²The calibration factor is the multiplying factor required to scale the reading on the data logging system of the analyser into reported concentration units (ppb for NO, NO_x, SO₂, O₃ and ppm for CO. Where 1 ppm = 1000 ppb). It should be used in conjunction with the zero response. A corrected concentration is calculated using the following equation:

$$\text{Concentration} = F (\text{Output} - \text{Zero Response})$$

Where F = Calibration Factor provided on this certificate
 Output = Reading on the data logging system of the analyser
 Zero Response = Zero Response provided on this certificate

³Converter eff. is the measured efficiency of the NO₂ to NO converter within the oxides of nitrogen analyser under test.

⁴The measured main flow rate (where applicable) is the flow rate through the particulate analyser under test. The measured aux flow rate (where applicable) is the flow rate through the bypass tubing of the particulate analyser under test. The measured total flow rate is the total flow rate through the particulate analyser under test. Units of flow are l.min⁻¹. Where flow rates are highlighted in bold, it indicates that measurements were not made at the analyser sample inlet. These measurements therefore may not accurately reflect analyser performance in normal operation.



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 Reference 20645084/R11

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AIR MONITORING CALIBRATION CLUB
 Ambient air monitoring station:
 Pathfinder House
 Date of Audit: 06 December 2011

Dear Toby,

This report documents the results of quality control audits to Huntingdonshire District Council's Pathfinder House air monitoring station. The work is carried out under contract AEA/20645084 for the supply of audit services under AEA's Air Monitoring Calibration Club.

The Pathfinder House ambient air monitoring station was audited on 06 December 2011. The equipment audits utilise procedures that are applied within the Department for Environment, Food and Rural Affairs (Defra) national automatic air monitoring network's quality control programme.

AUDIT RESULTS

Oxides of nitrogen analyser

A major factor governing the performance of NO_x analysers is the ability of the analyser converter to reduce nitrogen dioxide to nitric oxide. The minimum requirement for instrumentation in the national automatic air monitoring network is efficient in the range of 95-105%. The test shows the converter in this analyser to be 102.0% efficient at an NO₂ concentration of 233 ppb. This is a good result.

To ensure that the analyser was sampling only ambient air, the instrument was leak checked and found to be free of significant leaks. The analyser exhibited good steady state responses to both zero and span (calibration) gases with acceptable levels of variation (noise).

Based on the NO_x analyser response to the audit standard and audit zero, the concentration of the site NO cylinder has been assessed. This provides an indication of the site standard stability. For the purpose of these stability checks the criteria adopted within the national network, and used here, is that the recalculated concentration should lie within 10% of the stated concentration. The recalculated concentration results are presented below:

Pathfinder House - NO cylinder 9310089008				
	NO _x (ppb)	% change from stated	NO (ppb)	% change from stated
Stated Concentration	456	---	456	---
Recalc. Concentration (06/12/11)	426	-6.6	426	-6.6

The results at the Pathfinder House Station indicate that the station NO cylinder concentrations are stable, within the definition adopted above, and can therefore reliably be used to scale ambient data.

Ozone analyser

The ozone calibration was performed using a reference photometer deployed inter-calibrations of the Defra national automatic air monitoring network. The photometer is checked regularly against the national ozone standard held by the National Physical Laboratory (NPL). Any deviation between the AEA photometer and the national ozone standard is accounted for in our calculation of the analyser factor. This factor is quoted on the enclosed UKAS certificate of calibration. The Pathfinder House ozone analyser exhibited poor agreement with the AEA photometer, over reading the AEA reference by approximately 13%. This will have implications for the ambient ozone data set from this station. We recommend that this result be considered within the data management process for this pollutant, along with any results provided by your equipment support unit.

Thermo 5014i PM₁₀ & PM_{2.5} analysers

To ensure that true PM₁₀ & PM_{2.5} measurements are made, the total flow through the sample inlets must be 16.7 litres per minute. A volumetric flow test was carried out on the instruments. The measured flows on the PM₁₀ and PM_{2.5} instruments showed good agreement with the system flow set points.

Certificate of Calibration

Calibration factors and zeros have been produced on the basis of the audit calibration conducted. The calibration was conducted with transfer standards traceable to national metrology standards. The enclosed Certificate of Calibration provides the calibration and zero response factors for the oxides of nitrogen analyser under test on the day of the audit as well as the measured total flow for the particulate analyser's.

Implications for Data Management

As a result of this audit the following recommendations can be made:

- Compare the Huntingdonshire District Council database scaling factors for the day of the audit with the factors and zeros on the Certificate of Calibration. If a deviation greater than the uncertainty associated with the respective factors exists, investigate the underlying reason and implement suitable data management actions.
- The Pathfinder House ozone analyser exhibited poor agreement with the AEA photometer (over reading the AEA reference by approximately 13%). Data from the Pathfinder House analyser should be rescaled on the basis of this audit result, whilst also taking any equipment support unit results obtained over the period into consideration.

If you have any questions relating to our audit or wish to discuss any aspect of air pollution monitoring, please don't hesitate to contact me on 0870 190 6509 or at ian.roberts@aeat.co.uk

Yours sincerely



Ian Roberts
Air Pollution Monitoring



CERTIFICATE OF CALIBRATION

551.11 Harwell, Didcot, Oxfordshire OX11 0QJ. Telephone 0870 1906509 Fax 0870 1906318



0401

Approved Signatories:

B. Stacey

✓ I. Roberts

S. Eaton

D. Hector

Signed: *[Signature]*

Date: 24/05/2012

Cert No: 02559

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Customer Name and Address: Huntingdonshire District Council
 Pathfinder House
 St Mary's Street
 Huntingdon
 Cambridgeshire
 PE29 3TN

Description: Calibration factors for Huntingdonshire Pathfinder House air monitoring station.

AEA Identification Number: 20645084/January 2012

Site / Date Test Carried Out	Species	Analyser Serial No.	Zero Response ¹	Uncertainty (ppb)	Calibration Factor ²	Uncertainty (%)	Converter eff. (%) ³
Pathfinder House 06 December 2011	NO _x	426608503	1.2	2.8	1.166	3.7	102.0
	NO	426608503	0.3	2.9	1.166	3.9	na
	O ₃	606815007	0.3	3.0	0.886	3.3	

Site / Date Test Carried Out	Species	Analyser Serial No.	Parameter	Specified Value	Measured Value	Deviation %
Pathfinder House 06 December 2011	PM ₁₀	CM9510077	Main Flow ⁴	16.67	16.53	-0.8
	PM _{2.5}	CM9510083	Main Flow ⁴	16.69	16.60	-0.5

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.



Cert No: 02559

AEA Identification Number:

20645084/January 2012

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The gaseous ambient analysers listed above have been tested for zero response, calibration factor, linearity and converter efficiency (NO_x analysers only) by documented methods. The factors have been calculated using certified gas standards. The particulate analysers listed above have been tested for sample flow rates and k_0 (where appropriate) by documented methods. Note that the test results are valid on the day of test only, as analyser drift over time cannot be quantified. All results for gaseous species are given in ppb (parts per billion) mole fractions or ppm (parts per million) mole fractions.

¹The zero response is the zero reading on the data logging system of the analyser when audit zero gas was introduced to the analysers under test.

²The calibration factor is the multiplying factor required to scale the reading on the data logging system of the analyser into reported concentration units (ppb for NO , NO_x , SO_2 , O_3 and ppm for CO . Where 1 ppm = 1000 ppb). It should be used in conjunction with the zero response. A corrected concentration is calculated using the following equation:

Concentration = F (Output - Zero Response)

Where F = Calibration Factor provided on this certificate

Output = Reading on the data logging system of the analyser

Zero Response = Zero Response provided on this certificate

³Converter eff. is the measured efficiency of the NO_2 to NO converter within the oxides of nitrogen analyser under test.

⁴The measured main flow rate (where applicable) is the flow rate through the particulate analyser under test. The measured aux flow rate (where applicable) is the flow rate through the bypass tubing of the particulate analyser under test. The measured total flow rate is the total flow rate through the particulate analyser under test. Units of flow are $\text{l}\cdot\text{min}^{-1}$. Where flow rates are highlighted in bold, it indicates that measurements were not made at the analyser sample inlet. These measurements therefore may not accurately reflect analyser performance in normal operation.

QA/QC of diffusion tube monitoring

The diffusion tube supplier is Environmental Scientifics Group. Their WASP scores for 2011 were:

2011 - Q1 - 0.125
2011 - Q2 - 0.250
2011 - Q3 - 0.300
2011 - Q4 - 0.100
2011 Average 0.193

Environmental Scientifics Group also supplied the following information sheet about their diffusion tubes.

NO₂ Diffusion Tube Information – 2011/2

Supplier: Environmental Scientifics Group Ltd

Address: Unit 12
Moorbrook
Southmead Industrial Estate
Didcot
Oxfordshire
OX11 7HP

Diffusion Tube Performance:

Tube Type: 50% Acetone : 50% TEA

Uncertainty: Under European guidelines, diffusion tubes are considered an indicative method, and as such the uncertainty is defined as <20%. (In field intercomparisons ESG's diffusion tubes perform at <10% uncertainty.)

Quality Control: A quality control sample of known concentration is run every 10 samples. The data generated is compared to acceptable limits as determined statistically using a Shewhart Chart control system.

Analytical Repeatability: In 2011 several thousand QC samples were analysed, achieving a relative standard deviation of 1.09%

Confidence Intervals: Assuming a normal distribution, 95.45% of results should fall within 2σ ($\pm 2.18\%$) and 99.73% of results should fall within 3σ ($\pm 3.18\%$) of the expected value.

Limit Of Detection: 0.03 μg NO₂ on the tube.

Over a 4-week exposure this would equate to 0.6 $\mu\text{g}/\text{m}^3$, or 0.3ppb

Quality Assurance: The manufacture and analysis of NO₂ diffusion tubes is covered by our UKAS accreditation

The method meets the requirements laid out in DEFRA's "Diffusion Tubes For Ambient NO₂ Monitoring: A Practical Guidance."

The laboratory has taken part in the WASP proficiency scheme since its inception, and has maintained the highest ranking of 'Satisfactory'

Component part control – 20 tubes from each batch of newly manufactured tubes are measured to ensure the diffusion tube factor remains accurate. The internal diameter of both ends of the tube is measured to ensure the tube is square, as well as the tube length.

Analytical Information :

Analytical Technique: Colorimetric

Instrument: Continuous Flow Auto-analyser

Principle: Nitrite ions react with Sulphanilamide to form a diazonium compound. In acidic conditions, this couples with N-(1-naphthyl)-ethylenediamine dihydrochloride to form a purple azo dye. Utilising spectrophotometric analysis at 540nm, the NO₂ concentration is calculated by quantification of the colour change in comparison to that produced by known standards.

Calibration: Standards are made from brought in 1000ppm standard – These standards hold ISO Guide 34 and ISO/IEC 17025 certification

The instrument is calibrated every run

The instrument calibration must achieve a coefficient of linearity >0.999 to be considered acceptable.

System Suitability Checks: System suitability checks are used to ensure performance within expected criteria. These include baseline, peak height and gain.

Extraction: To ensure complete, homogeneous extraction, tubes are mixed on a vibrating tray for not less than 30 minutes.

Area 5F

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Horseferry Road
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Telephone 020 7238 1676

Website www.defra.gov.uk



Fax 020 7238 1656

Email tutu.aluko@defra.gsi.gov.uk

Toby Lewis
Huntingdonshire DC
Pathfinder House
St Marys Street
Huntingdon
PE29 3TN

08 August 2012

Dear Mr Lewis

LOCAL AIR QUALITY MANAGEMENT: 2012 UPDATING AND SCREENING ASSESSMENT

Thank you for consulting the Secretary of State for Environment, Food and Rural Affairs on Huntingdonshire DC's Air Quality Updating and Screening Assessment. Please find comments on the report attached.

The report provides update with respect to air quality management in the District since the last Air Quality Report was issued. The Council has considered all the major factors that may have an impact on local air quality including monitoring data, new and proposed developments and existing sources. Monitoring results have confirmed that exceedences continue to occur in the Council's AQMAs. A detailed assessment of nitrogen dioxide concentrations is being undertaken in Buckden with completion anticipated in 2012. No significant changes have been found to suggest that there will be air quality issues or a need for a Detailed Assessment at any other location.

The USA also provides a brief update on measures in the joint Cambridgeshire Action Plan. The report identifies measures where progress have not occurred e.g. the A14 upgrade has been cancelled, the air quality policy which was to be included in the Development Plan is not yet adopted and the Bus Quality Partnership has not yet been extended to encompass the Huntingdonshire area. The Council should consider the effect of not implementing some of the measures on the overall Plan. It would also be useful to see in the next Progress Report a summary of progress of measures over the past 12 months, in addition to overall progress. The Council is also encouraged to report in future reports anticipated timescales for completing measures, emissions reductions/air quality improvements and relevant indicators and to include a summary paragraph detailing whether the Action Plan is considered to be on track to lead to the required reduction in emissions.

On the basis of the evidence provided the conclusions of the USA are accepted. We look forward to receiving the Council's 2013 Progress Report by the due date which is the end of April 2013 and the Detailed Assessment Report for Brandon very soon. The Council should take into account the commentary points of the appraisal report in future report.

Yours sincerely



Tutu Aluko

ATMOSPHERE AND LOCAL ENVIRONMENT PROGRAMME

Local Authority:	Huntingdonshire District Council
Reference:	USA5-127
Date of issue	April 2012

Updating and Screening Assessment Appraisal Report

The Report sets out the Updating and Screening Assessment, which forms part of the Review & Assessment process required under the Environment Act 1995 and subsequent Regulations.

It covers all regulated pollutants and considers monitoring data, road traffic sources, other transport sources, industrial sources, commercial and domestic sources and fugitive or uncontrolled sources.

The report identifies ongoing exceedence of the annual mean NO₂ objective at diffusion tube sites located within existing AQMAs. The report concludes that there is no requirement to proceed to Detailed Assessment for any source or pollutant. A Detailed Assessment is currently being undertaken for a site in Buckden.

The report provides a brief update on measures included in the joint Action Plan. The A14 upgrade has been cancelled and the air quality policy which was to be included in the Development Plan is not yet adopted. In addition, the Bus Quality Partnership has not yet been extended to encompass the Huntingdonshire area. This shows that the Local Authority has identified measures where progress has not occurred. In the next LAQM Progress Report to be submitted, the Local Authority is advised to consider the effect on the overall plan of not implementing particular measures. The Local Authority should also present a summary of progress with the plan over the past 12 months in addition to overall progress and should report timescales (original and revised), emissions reductions/air quality improvements and relevant indicators. The Local Authority is also encouraged to include a summary paragraph detailing whether the plan is considered to be on track to lead to the required reduction in emissions.

On the basis of the evidence provided by the Local Authority, the conclusions reached are accepted for all sources and pollutants.

Following the completion of this report, Huntingdonshire District Council should submit the Detailed Assessment for Buckden and submit a Progress Report (including Action Plan progress) by April 2013.

Local Authority:	Huntingdonshire District Council
Reference:	USA5-127
Date of issue	April 2012

Commentary

The report is well structured and provides most of the information specified in the Guidance. The following specific items are drawn to the Local Authority's attention to help inform future work. It is strongly recommended that the Local Authority note these items for future reporting purposes:

1. In future LAQM reports, the Local Authority should state the distance to relevant exposure for diffusion tube sites where relevant exposure exists (this information has been provided for the automatic monitoring site).
2. Text on page 22 states that exceedence was also recorded at a site located outside of the existing AQMAs (High Street, Buckden). Results in Table 2.6, however, do not show exceedence in this area. The Local Authority should consider amending this text to avoid confusion. The Local Authority is carrying out a Detailed Assessment for the area and the report states that this will be submitted in 2012.

This commentary is not designed to deal with every aspect of the report. It highlights a number of issues that should help the local authority either in completing the Updating and Screening Assessment adequately (if required) or in carrying out future Review & Assessment work.

Issues specifically related to this appraisal can be followed up by returning the attached comment form to Defra, Welsh Assembly Government, Scottish Government or DOE, as appropriate – or by emailing the form to reportappraisal@ttr-ltd.com.

For any other queries please contact the Local Air Quality Management Helpdesk:
Telephone: 0800 0327 953
Email: LAQMHelpdesk@uk.bureauveritas.com

Local Authority:	Huntingdonshire District Council
Reference:	USA5-127
Date of issue	April 2012

Appraisal Response Comment Form

Contact Name:	
Contact Telephone number:	
Contact email address:	

Comments on appraisal/Further information: