Uttlesford District Council

2012 Air Quality Updating and Screening Assessment for Uttlesford District Council

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

AMEC Environment & Infrastructure UK Limited

June 2012

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Uttlesford District Council

Report for

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2012 Air Quality Updating and Screening Assessment for Uttlesford District Council

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

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Executive Summary

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess air quality in their areas, and to determine whether or not the Air Quality Objectives (AQOs) are likely to be achieved.

An Updating and Screening Assessment (USA) identifies any significant changes that may have occurred since the last round of Review and Assessment. The USA considers new monitoring data and emissions sources to determine whether there is a requirement for a Detailed Assessment for any of the pollutants applicable to Local Air Quality Management (LAQM).

The USA for Uttlesford District Council concludes that a Detailed Assessment or any additional monitoring is not required for any pollutant. Exceedences of the annual mean NO_2 AQO occurred at two non-automatic monitoring sites within the District but both of these sites are located within an existing AQMA. The monitoring undertaken within the District has shown that there were no other exceedences of the AQOs.

The next action for Uttlesford District Council will be to submit a 2013 Progress Report.

Contents

1. Introduction

1.1 Description of Local Authority Area

Uttlesford District Council (UDC) covers an area in the western part of Essex. It is a mainly rural district, with the population mainly spread between 50 hamlets and villages. The District's largest towns are Saffron Walden and Great Dunmow. Smaller towns in the District include Stansted Mountfitchet and Thaxted. The smaller settlements of Felsted, Takeley and Canfield are also growing.

The main source of air pollutants in the District is from transport. The M11 and A120 run through the District and the District is also home to Stansted Airport. Nitrogen dioxide (NO_2) and particulate matter (PM_{10}) are therefore the pollutants of main concern.

1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) 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 (AQOs) 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 (USA) is to identify any matters that have changed which may lead to risk of an AQO 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 AQOs applicable to LAQM **in England** are set out in the Air Quality (England) Regulations 2000 (SI 928) and The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), are shown in Table 1.1. This table shows the objectives in units of micrograms per cubic metre μg 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	AQO		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 (CO)	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 (NO_2)	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 (SO_2)	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

Table 1.2 summarises the results of the conclusions of previous rounds of Review and Assessment.

Table 1.2 Summary of Previous Review and Assessments

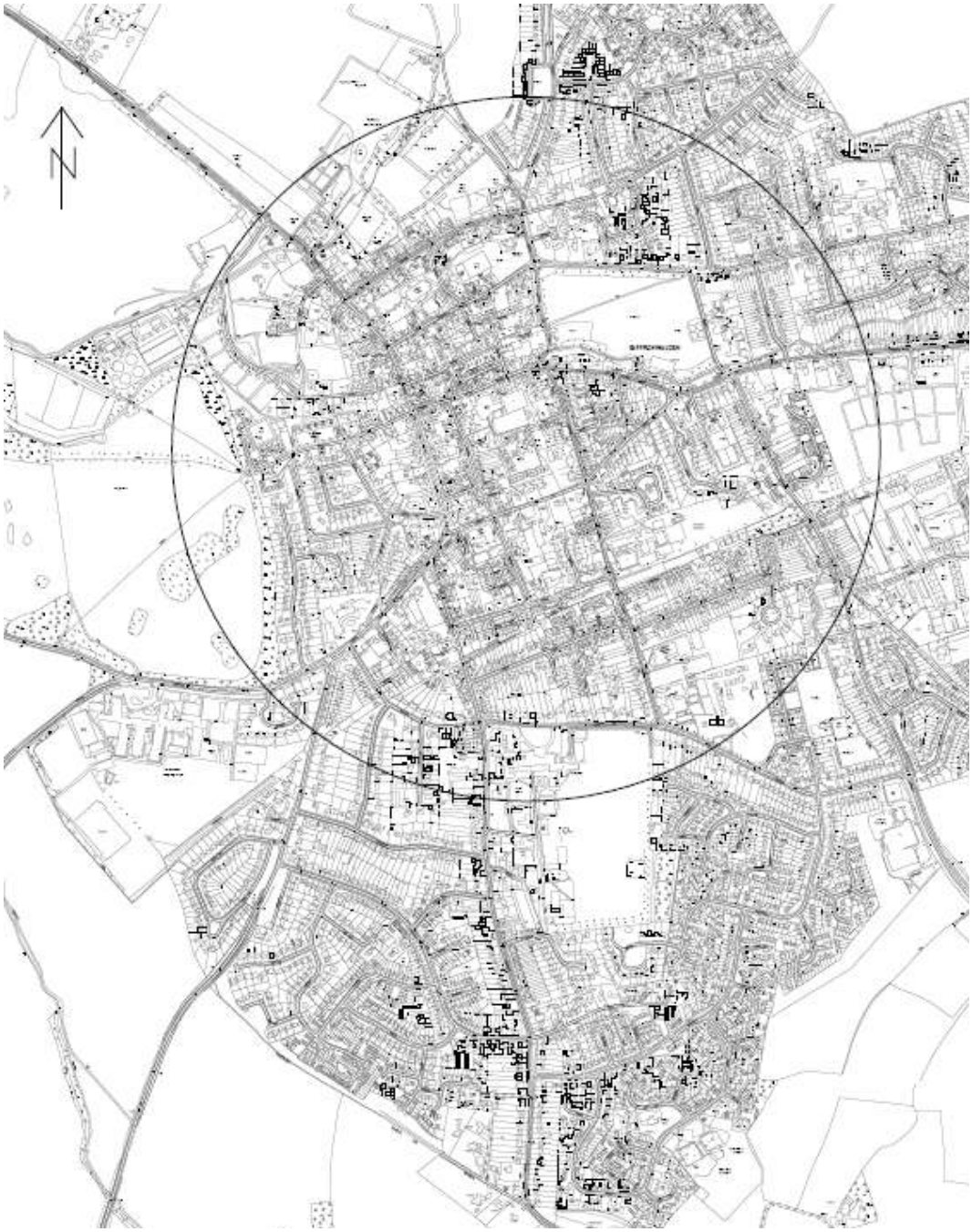
Round	Date(s)	Summary
1	1998-2002	Concluded that all AQOs would be met for all pollutants. No AQMAs declared. The main sources of emissions of NO_2 and PM_{10} in the District were found to be vehicles on the M11 and A120.
2	2003-2005	The USA concluded that AQOs would be met for all pollutants. No AQMAs declared. Progress Reports in 2004 and 2005 confirmed this conclusion.
3	2006	The USA concluded that the annual mean NO_2 AQO would be exceeded at three junctions in Saffron Walden and a Detailed Assessment would be required.
	2007	The Detailed Assessment confirmed the findings of the USA and three AQMAs were declared for the three junctions for annual mean NO_2 exceedences.
	2008	The Progress Report for 2008 concluded that the AQOs for all pollutants would be met outside of the newly declared AQMAs.
4	2009	The USA concluded that the AQOs for all pollutants would be met outside of the newly declared AQMAs.
	2010	The Progress Report concluded that exceedences of annual mean NO_2 AQO had occurred at five monitoring locations in 2009. Two locations (Debden Road and Burton End) were located outside of the AQMAs. Additional monitoring was undertaken to confirm the extent of the exceedences outside the AQMAs.
	2011	The Progress Report concluded that AQOs would be met for all pollutants outside of the AQMAs except at the location of the additional tubes on Debden Road and Burton End. The additional tubes had confirmed that there were exceedences of the annual mean NO_2 AQO and a Detailed Assessment was recommended to be undertaken for London Road / Burton End.

1.4.1 Recent Changes to AQMAs

Due to the exceedences of the NO_2 annual mean AQO recorded in 2010, an AQMA was approved at a UDC Cabinet Meeting[1] and subsequently declared in May 2012. The AQMA replaced the three existing AQMAs in the District and encompasses the areas where exceedences were recorded in 2010. A map showing the location of the AQMA is shown in Figure 1.1.

[1] http://ggpweb.uttlesford.gov.uk/CmiswebPublic/Meeting.aspx?meetingID=9258

Figure 1.1 Map of AQMA



Notes: Scale 1:10000

2. New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

There are currently three continuous monitors operating in the District of Uttlesford. These are located at Saffron Walden, Takeley and Stansted Hall. The Stansted Hall monitor is a mobile unit. The pollutants monitored at Saffron Walden and Stansted Hall are NO_2 and PM_{10}. At Takeley, concentrations of NO_2, $PM_{2.5}$ and ozone (O_3) are monitored.

Further details regarding the automatic monitoring sites are provided in Table 2.1 and their locations are given in Figures 2.1 and 2.2.

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	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?
Saffron Walden	Urban Centre	553823	238408	NO_2, PM_{10}	Y	Y (25)	5	N
Takeley	Urban Background	556234	221496	NO_2, $PM_{2.5}$, O_3	N	Y (15)	50	N
Stansted Hall	Rural	552346	224049	NO_2, PM_{10}	N	N	60	N

Figure 2.1 Locations of Automatic Monitoring Site (Saffron Walden)

Notes: Contains Ordnance Survey data © Crown copyright and database right [2012].

Figure 2.2 Locations of Automatic Monitoring Sites (Stansted Hall and Takeley)

Notes: Contains Ordnance Survey data © Crown copyright and database right [2012].

2.1.2 Non-Automatic Monitoring Sites

During 2011, UDC undertook monitoring for NO_2 at 21 diffusion tube monitoring sites within the District. The diffusion tubes are prepared by Bureau Veritas (part of Environmental Scientific Group) using the 50% triethanolamine (TEA) in acetone method.

Three of the tubes are co-located with the continuous monitor in Saffron Walden.

Further detail on each of the non-automatic monitoring sites is presented in Table 2.2 and diffusion tube locations are shown in Figures 2.3, 2.4, 2.5 and 2.6.

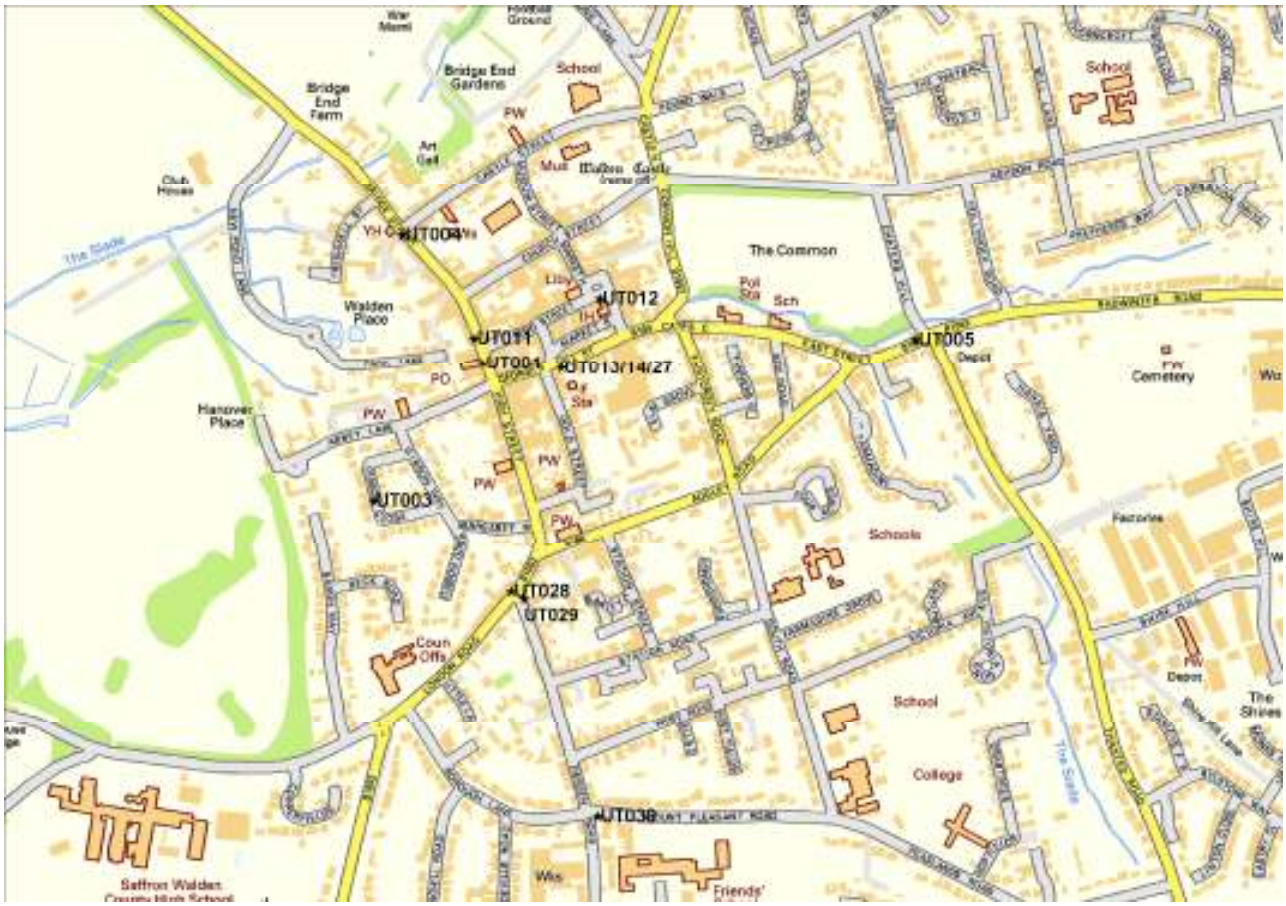
Table 2.2 Details of Non-Automatic Monitoring Sites

Site ID	Site Name	X	Y	Pollutants Monitored	In AQMA?	Relevant Exposure? (distance to relevant exposure (m))	Distance to kerb of nearest road (m)	Worst case?
UT001	Walden 1 PO High Street	553710	238415	NO_2	Y	N	1.5	Y
UT003	Walden 3 Gibson Gardens	553552	238219	NO_2	Y	Y (5.1)	1.5	Y
UT004	Walden 4 YHA	553594	238599	NO_2	Y	Y (0.8)	1.4	Y
UT005	Walden 5 Thaxted Road	554332	238450	NO_2	Y	Y (2.4)	0.5	Y
UT011	Walden 11 33 High Street	553697	238452	NO_2	Y	Y (0)	2.7	Y
UT012	Walden 12 Town Hall	553878	238509	NO_2	Y	N	0.2	Y
UT013/14/27*	Fire Station Co-located	553823	238408	NO_2	Y	N	4.1	Y
UT028	Walden 16 London Road	553751	238086	NO_2	Y	Y (0.8)	2	Y
UT029	Walden 17 Debden Road	553770	238076	NO_2	Y	Y (0.8)	2	Y
UT030	Walden 18 Friends School	553875	237763	NO_2	Y	Y (15)	3	Y
UT002	Airport 1 Thatched Cottage	552706	221403	NO_2	N	Y (1)	10	Y
UT007	Airport 2 Rose Cottage	556186	223724	NO_2	N	Y (0)	7.5	Y
UT006	Stansted	551358	225452	NO_2	N	Y (0)	3.9	Y
UT008	Hallingbury	551189	217438	NO_2	N	N	29.1	Y
UT009	Burton End	552403	223965	NO_2	N	N	9.3	Y

Site ID	Site Name	X	Y	Pollutants Monitored	In AQMA?	Relevant Exposure? (distance to relevant exposure (m))	Distance to kerb of nearest road (m)	Worst case?
UT010	Newport	551255	233649	NO_2	N	Y (34.2)	0	Y
UT024	Takeley Hill Hatfield Forest	554671	221010	NO_2	N	N	117.5	N
UT025	Elman's Green Hatfield Forest	553271	221072	NO_2	N	N	183.1	N
UT026	South Gate Hatfield Forest	553141	218694	NO_2	N	N	138	N

Notes: *Co-located Tubes

Figure 2.3 Locations of Non-Automatic Monitoring Sites (UT 001, 003, 004, 005, 011, 012, 013, 014, 027, 028, 029 and 030)



Notes: Contains Ordnance Survey data © Crown copyright and database right [2012].

Figure 2.4 Location of Non-Automatic Monitoring Site (UT 010)

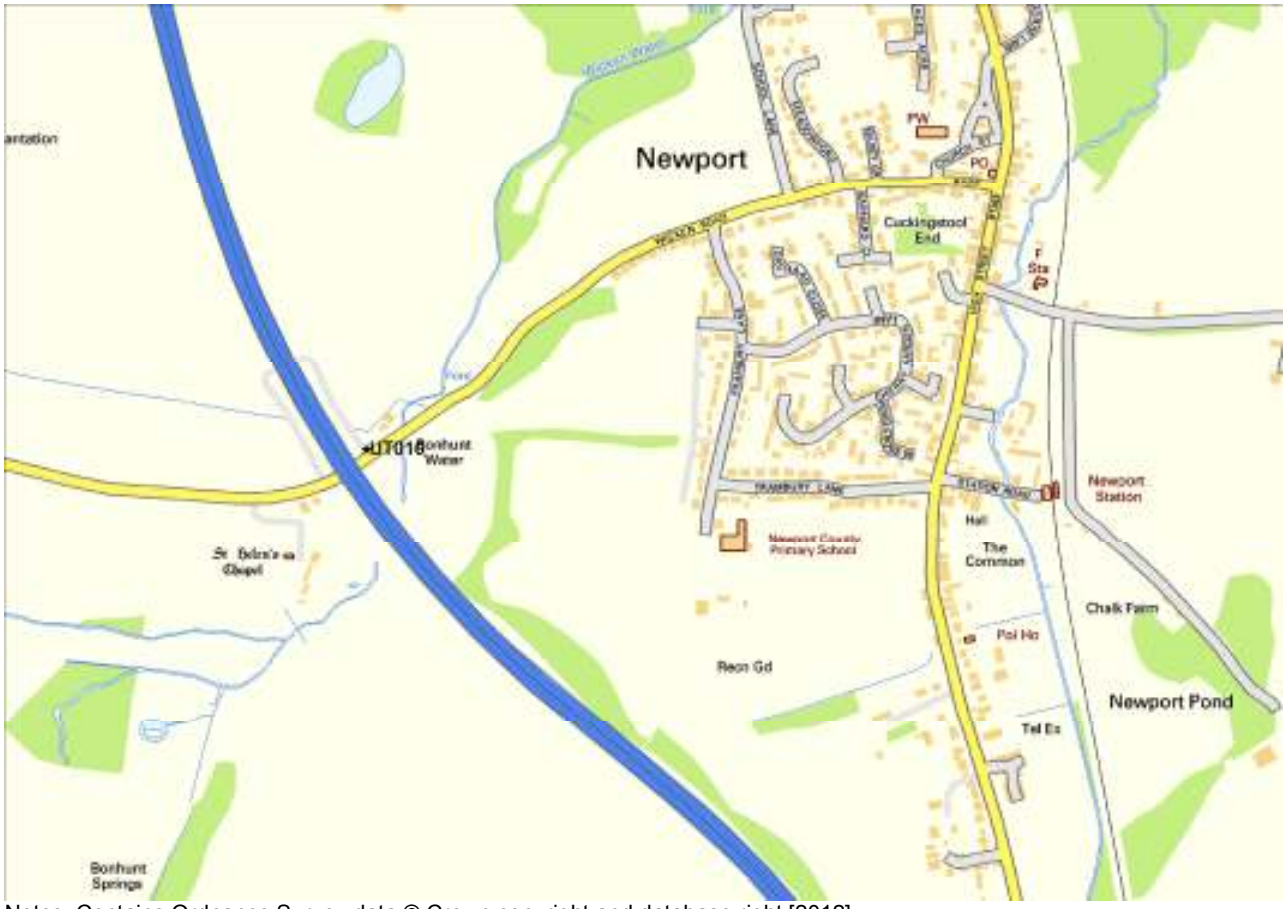


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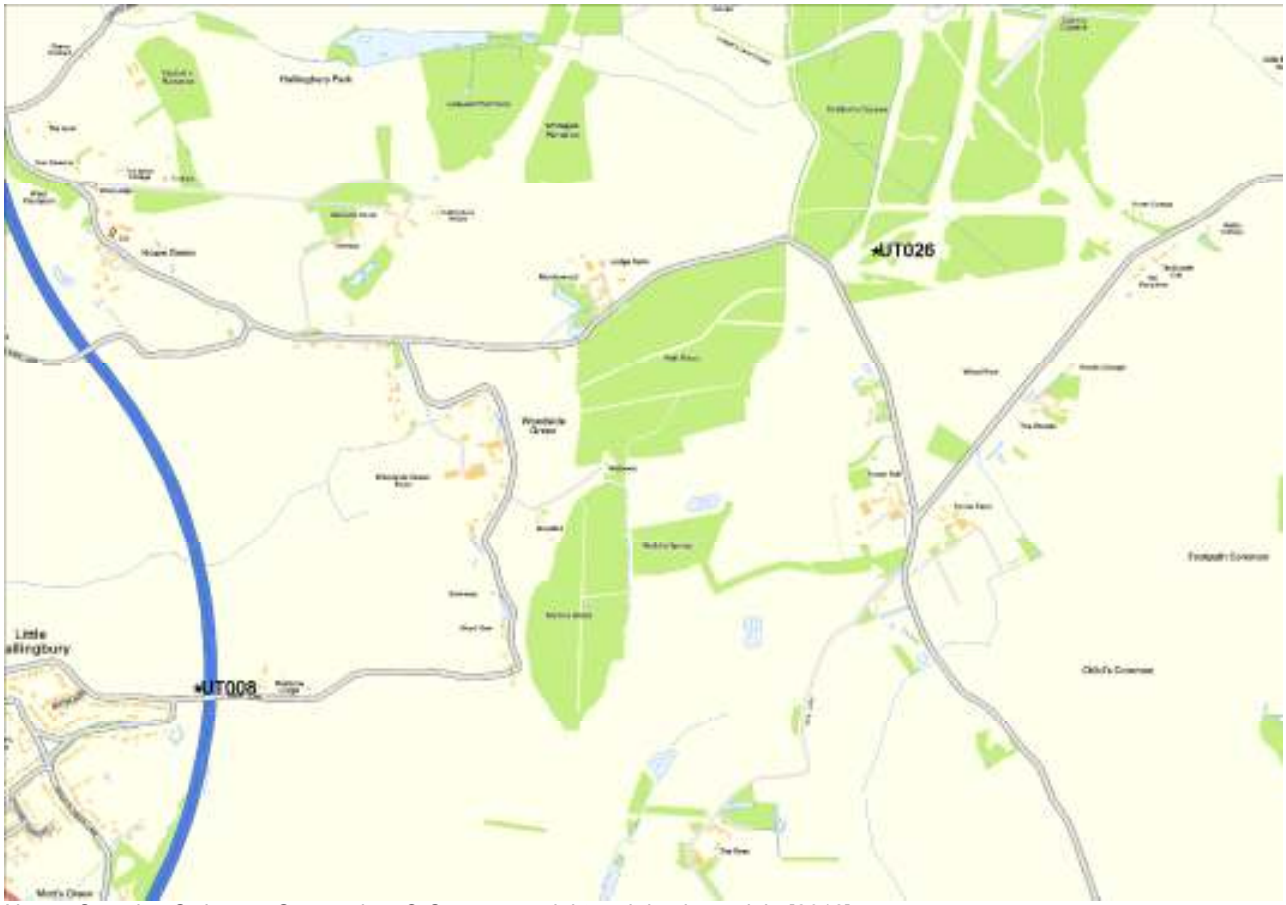
Figure 2.5 Locations of Non-Automatic Monitoring Sites (UT 002, 006, 007, 009, 024 and 025)

Notes: Contains Ordnance Survey data © Crown copyright and database right [2012].

Figure 2.6 Locations of Non-Automatic Monitoring Sites (UT 008 and 026)



Notes: Contains Ordnance Survey data © Crown copyright and database right [2012].

2.2 Comparison of Monitoring Results with AQ Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

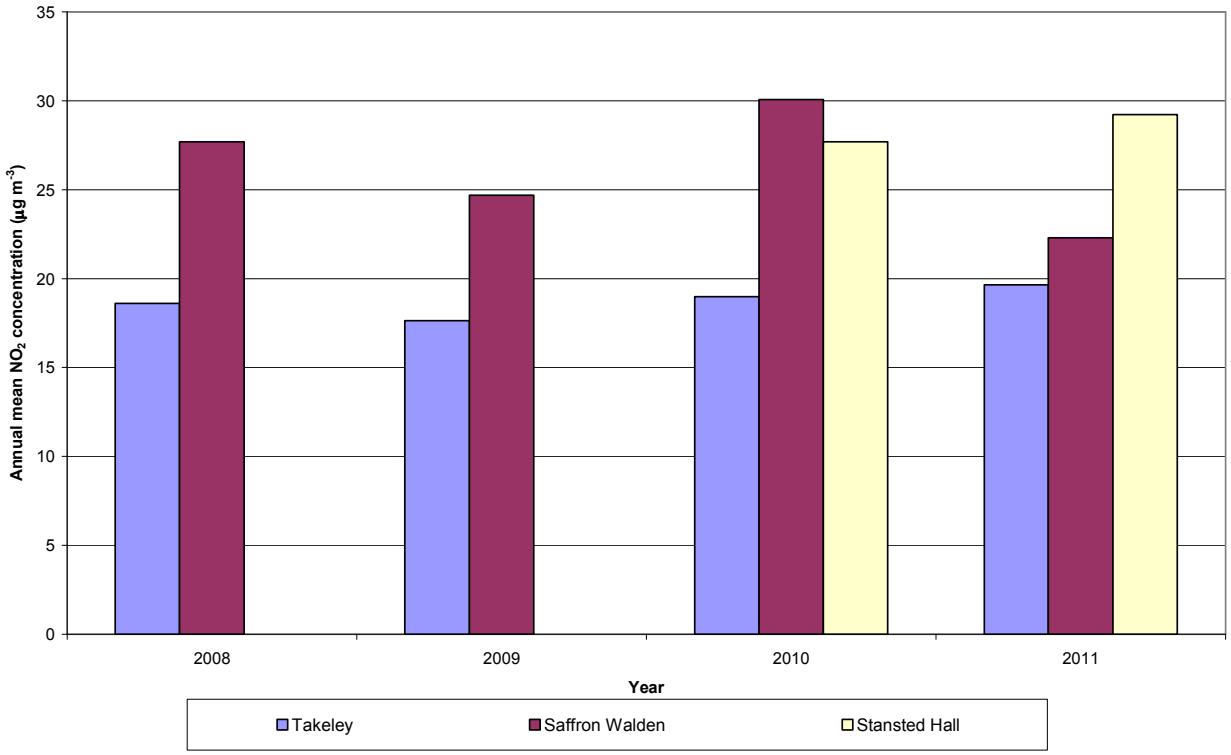
Table 2.3 presents the results of the NO_2 automatic monitoring undertaken in the District in 2011, as well as the results of monitoring in the three previous years. The results show that there have been no exceedences of the annual mean NO_2 AQO or the hourly mean NO_2 AQO during 2011.

The trend in results for the past four years is shown in Figure 2.7. The NO_2 concentrations measured at the Takeley and Stansted Hall monitors have increased slightly when compared to 2010 concentrations. However, the NO_2 annual mean at Saffron Walden has decreased by more than 25% between 2010 and 2011.

Table 2.3 Results of Automatic Monitoring of Nitrogen Dioxide: Comparison with Air Quality Objectives

Location	Within AQMA?	Valid Data Capture for period of monitoring %	Valid Data Capture 2011 %	Descriptor	2008	2009	2010	2011
Saffron Walden	Y	85	85	**Annual mean, μg m^{-3}**	27.7	24.68	30.07	22.29
				Number of Exceedences of Hourly Mean (200 μg m^{-3})	2	0	13	0
Takeley	N	87	87	**Annual mean, μg m^{-3}**	18.6	17.64	18.98	19.64
				Number of Exceedences of Hourly Mean (μg m^{-3})	0	0	0	0
Stansted Hall	N	93	93	**Annual mean, μg m^{-3}**	n/a	n/a	27.7	29.22
				Number of Exceedences of Hourly Mean (200 μg m^{-3})	n/a	n/a	0	1

Figure 2.7 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Automatic Monitoring Sites



Diffusion Tube Monitoring Data

Table 2.4 details the results of the NO_2 diffusion tube monitoring for the past five years. Raw monthly mean concentrations for the 2011 calendar year are included in Appendix A.

A bias adjustment factor of 0.80 has been applied to the data shown in Table 2.4. The factor is an estimate of the difference between tube concentrations and continuous monitoring. The factor has been locally derived and calculated using a spreadsheet from the Defra website[2] as well as the results of the co-located tubes and the continuous monitor situated at the Fire Station in Saffron Walden. A screenshot of the spreadsheet is provided in Appendix B.

The monitoring results show that there were two exceedences of the annual mean AQO for NO_2. These exceedences occurred at Thaxted Road and London Road, which are both situated within the AQMA. No other exceedences of the annual mean NO_2 AQO are reported in the results for 2011.

[2] http://laqm.defra.gov.uk/documents/AEA_DifTPAB_v04.xls

Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes

Site ID	Location	In AQMA?	Data capture 2011 (%)	Annual Mean Concentrations (μg m^{-3}) Adjusted for Bias				
				2007 (Bias Factor 0.89)	2008 (Bias Factor 1.36)	2009 (Bias Factor 0.92)	2010 (Bias Factor 0.95)	2011 (Bias Factor 0.80)
UT001	Walden 1 PO High Street	Y	100	37.1	**42.9**	**40**	**47.22**	36.6
UT003	Walden 3 Gibson Gardens	Y	92	16.0	17.9	18	20.29	14.1
UT004	Walden 4 YHA	Y	83	36.2	**45.2**	**44**	**48.61**	38.4
UT005	Walden 5 Thaxted Road	Y	100	**42.9**	**53.4**	**50**	**57.66**	**43.1**
UT011	Walden 11 33 High Street	Y	100	34.6	37.1	37	**41.53**	30.7
UT012	Walden 12 Town Hall	Y	100	27.6	25.0	22	25.41	18.2
UT013/14/27*	Fire Station	Y	100	-	-	25	29.10	21.2
UT028	Walden 16 London Road	Y	100	-	**47.7**	**43**	**50.00**	**40.7**
UT029	Walden 17 Debden Road	Y	100	-	-	-	32.75	23.0
UT030	Walden 18 Friends School	Y	83	-	-	-	36.95	25.3
UT002	Airport 1 Thatched Cottage	N	92	25.5	28.4	27	30.05	19.8
UT007	Airport 2 Rose Cottage	N	100	25.8	31.1	26	28.10	21.2
UT006	Stansted	N	100	16.5	19.3	18	19.34	15.3
UT008	Hallingbury	N	100	28.1	35.7	31	36.21	26.9
U009	Burton End	N	92	**40.1**	**45.4**	**41**	**47.23**	36.9
UT010	Newport	N	100	26.9	31.8	29	32.07	25.4
UT024	Takeley Hill Hatfield Forest	N	92	16.3	18.2	16	17.95	13.6
UT025	Elman's Green Hatfield Forest	N	100	16.9	17.5	16	21.51	13.8
UT026	South Gate Hatfield Forest	N	92	14.9	16.3	14	15.94	12.6

Notes: * Co-located Tubes.
Figures in bold indicate a value above the annual mean AQO limit value of 40 μg m^{-3}.
Data capture >75%, therefore data have not been annualised.
Data have not been distance corrected.

2.2.2 PM_{10}

Table 2.5 presents the results of the PM_{10} monitoring undertaken at the Saffron Walden and Stansted Hall automatic monitors from 2008 to 2011. The results show that the annual mean AQO was not exceeded at either monitor in 2011. There were a number of exceedences of the 24-hour mean AQO at both monitors during 2011. However, the 24-hour mean AQO was not exceeded on more than 35 occasions and therefore the AQO was not breached.

Table 2.5 Results of Automatic Monitoring of PM_{10}: Comparison with Air Quality Objectives

Location	Within AQMA?	Valid Data Capture for period of monitoring %	Valid Data Capture 2011 %	Descriptor	2008	2009	2010	2011
Saffron Walden	Y	98	98	**Annual mean, μg m^{-3}**	18.8	15.59	19.03*	25.31
				Number of Exceedences of 24-Hour Mean (50 μg m^{-3})	5	1 (28.59 μg m^{-3})	4 (45.87 μg m^{-3})	19
Stansted Hall	N	96	96	**Annual mean, μg m^{-3}**	N/A	N/A	20.99	25.68
				Number of Exceedences of 24-Hour Mean (50 μg m^{-3})	N/A	N/A	4 (45.74 μg m^{-3})	20

Notes: *Annualised using Rainsford, Thurrock and Stanford-le-Hope automatic monitoring stations.

Where data capture is less than 90% of a full year, 90^{th} percentile of 24-hour mean shown in brackets.

Data adjusted to gravimetric equivalent.

2.2.3 Sulphur Dioxide

UDC does not monitor SO_2 within the District.

2.2.4 Benzene

UDC does not monitor benzene within the District.

2.2.5 Other Pollutants Monitored

Ozone and $PM_{2.5}$ are monitored at the Takeley continuous monitoring site. The results are presented below in Table 2.6 and 2.7.

Table 2.6 Results of Automatic Monitoring for Ozone

Location	Within AQMA?	Valid Data Capture for period of monitoring %	Valid Data Capture 2011 %	Annual mean concentration (µg m^{-3}) 2011
Takeley	N	92	92	59.1

Table 2.7 Results of Automatic Monitoring for $PM_{2.5}$

Location	Within AQMA?	Valid Data Capture for period of monitoring %	Valid Data Capture 2011 %	Annual mean concentration (µg m^{-3}) 2011
Takeley	N	98.65	56.76	17.17

2.2.6 Summary of Compliance with AQS Objectives

Uttlesford District Council has examined the results from monitoring in the District. Concentrations are above the annual mean NO_2 AQO at two locations, which are both in the AQMA. Therefore there is no need to proceed to a Detailed Assessment for any of the other monitoring locations or pollutants within Uttlesford.

3. Road Traffic Sources

UDC has not identified any roads or junctions that require assessment under the following criteria.

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Uttlesford 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

Uttlesford 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

This assessment considers roads where there are unusually high proportions of buses and/or HGVs and traffic flows are less than 20,000 vehicles per day, but more than 2,500 HGVs per day. The assessment is also dependent on whether the flow of HGVs is greater than 2,500 per day and relevant exposure being within 10m of the kerbside.

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

3.4 Junctions

Concentrations are usually higher close to junctions, due to the combined effect of traffic emissions on two or more roads and stop-start driving. The assessment, which considers both PM_{10} and NO_2, is dependent on relevant exposure being within 10m of the kerb.

Uttlesford District Council confirms that there are no new/newly identified junctions/busy roads with traffic flows greater than 10,000 vehicles per day.

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

The approach to considering new roads will depend on whether or not an assessment was carried out in advance of building the new road. If the air quality assessment predicted exceedences of NO_2 and PM_{10} at relevant locations then it will be necessary to proceed to a Detailed Assessment.

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

3.6 Roads with Significantly Changed Traffic Flows

The assessment only considers roads which experience traffic flows more than 10,000 vehicles per day and have an increase in traffic flow more than 25%.

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

3.7 Bus and Coach Stations

The assessment considers both NO_2 and PM_{10} emissions at bus stations that are not enclosed, with more than 2,500 movements per day and where there is relevant exposure within 10m of any part of the bus station.

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

4. Other Transport Sources

4.1 Airports

The assessment for airports considers NO_2. If there are no airports in the Local Authority area, there is no need to proceed further with this part.

Stansted Airport is located within the District and has been considered in previous rounds of the Review and Assessment process. No significant changes have occurred at the airport in 2011 which could have a significant effect on air quality.

Uttlesford District Council confirms that Stansted Airport lies within the Local Authority area and no changes to the airport which could affect air quality have occurred in 2011.

Stansted Airport has already been considered in a previous round of Review and Assessment and therefore there is no requirement to proceed to a Detailed Assessment.

4.2 Railways (Diesel and Steam Trains)

Stationary trains can give rise to high levels of SO_2 close to the point of emission. In addition, moving diesel trains can give rise to high NO_2 concentrations. If there are no railways carrying diesel or steam trains in the Local Authority, there is no need to proceed further with this part.

4.2.1 Stationary Trains

Uttlesford 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

Uttlesford 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)

The assessment for shipping considers SO_2 emissions where receptors are located within 250m of the berths and 1km of the main manoeuvring areas.

Uttlesford 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

The assessment of industrial installations considers all of the regulated pollutants. A list of the industrial processes currently operating in the Borough is shown in Appendix C.

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

There are two new permitted processes operating within the District, both taking place at SGA Technologies Ltd. The processes taking place at these premises were not considered to require an air quality assessment.

Uttlesford 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

Uttlesford 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

Uttlesford 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

The assessment considers benzene with respect to the 2010 objective. Previous rounds of Review and Assessment found that there were no major fuel storage depots and the situation has not changed.

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

5.3 Petrol Stations

Similar to major fuel storage depots, the assessment for petrol stations considers benzene, with respect to the 2010 objective.

Large petrol stations, which have not been covered in previous Review and Assessment reports, are to be assessed if the annual throughput is more than 2,000m^3 of petrol and if situated next to a busy road (>30,000 annual average traffic flow).

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

5.4 Poultry Farms

Poultry farms in the Local Authority that house more than 400,000 birds if mechanically ventilated, 200,000 birds if naturally ventilated, and 100,000 birds for a turkey unit, require consideration in this assessment to establish whether there is relevant exposure within 100m of the poultry units. The assessment considers PM_{10}.

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

6. Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

The assessment considers both NO_2 and PM_{10}. There is a biomass combustion plant operating at Stansted Airport. However, this plant does not currently meet the criteria for the assessment.

Uttlesford District Council confirms that there are no biomass combustion plants in the Local Authority area which meet the criteria for assessment.

6.2 Biomass Combustion – Combined Impacts

Whilst small biomass installations may be individually acceptable, there is a possibility that the combined effects of two or more installations could lead to unacceptably high PM_{10} concentrations.

Uttlesford District Council confirms that there are no combined impacts from biomass combustion plants in the Local Authority area.

6.3 Domestic Solid-Fuel Burning

The assessment for domestic solid-fuel burning considers SO_2 emissions from significant areas that use solid fuels to heat houses. 'Significant areas' are defined as areas approximately 500x500m with more than 50 houses burning solid fuel as their primary source of heating.

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

7. Fugitive or Uncontrolled Sources

The assessment of fugitive and uncontrolled sources considers the PM_{10} objectives. This includes consideration to quarries, landfill sites, opencast coal mining, waste transfer sites and materials handling. Only locations not covered by previous rounds of Review and Assessment, or where there is new relevant exposure, require consideration. In the case of proposed new sources, they are only required to be considered if planning approval has been granted.

Uttlesford 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 monitoring undertaken within the District has shown that there were exceedences of the NO_2 annual mean AQO at site UT005 and UT028. However, both of these locations are within the AQMA. There were no other exceedences of any of the AQOs in 2011.

There is no requirement to proceed to a Detailed Assessment for any of the other monitoring stations or pollutants.

8.2 Conclusions from Assessment of Sources

The assessment of sources has concluded that there are no new or significantly changed sources identified within the District.

8.3 Proposed Actions

The USA has not identified any need to proceed to a Detailed Assessment for any pollutant.

The USA has not identified any need for additional monitoring or changes to the current monitoring programme.

The next action for UDC will be to submit a 2013 Progress Report.

9. References

Defra (2009) *Local Air Quality Management: Technical Guidance.* London: Defra Publications. (LAQM.TG(09)).

Defra (2012) *Checking Precision and Accuracy of Triplicate Tubes* [online] Available from: http://laqm.defra.gov.uk/documents/AEA_DifTPAB_v04.xls

Uttlesford District Council (2009) *Local Air Quality Management Updating and Screening Assessment*.

Uttlesford District Council (2010) *Local Air Quality Management Annual Progress Report*.

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Uttlesford District Council (2012) *Cabinet Meeting Held On 10/05/12* [online] Available from: http://ggpweb.uttlesford.gov.uk/CmiswebPublic/Meeting.aspx?meetingID=9258

Appendix A
Diffusion Tube Raw Data 2011

Table A1 – Raw Results Nitrogen Dioxide (μg m^{-3})

Site ID	Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Mean
UT001	Walden 1 PO High Street	**56.7**	**52.3**	**42.6**	**52.9**	34.4	34.9	35.1	37.2	**46.2**	**51.7**	**55.4**	**50.3**	**45.8**
UT003	Walden 3 Gibson Gardens	28.7	26.7	15.0	16.6	9.6	9.7	9.2	12.9	13.8	19.3	32.1	missing	17.6
UT004	Walden 4 YHA	missing	**57.3**	**40.3**	**42.5**	31.2	missing	**44.2**	**45.7**	**47.9**	**58.0**	**62.3**	**50.1**	**48.0**
UT005	Walden 5 Thaxted Road	**67.5**	**57.7**	**57.5**	**58.4**	**51.4**	**40.7**	**44.0**	**46.3**	**51.6**	**55.7**	**59.9**	**55.5**	**53.9**
UT011	Walden 11 33 High Street	**49.3**	**40.5**	39.6	34.0	23.2	31.6	32.3	37.9	37.1	**43.2**	**46.4**	**45.6**	38.4
UT012	Walden 12 Town Hall	32.4	30.3	26.3	17.9	13.1	14.0	14.7	17.3	22.6	27.6	34.9	22.3	22.8
UT013	Fire Station 1 Co-located	38.3	34.4	29.7	23.2	16.0	17.7	15.7	19.2	23.8	30.5	37.0	30.3	26.3
UT014	Fire Station 2 Co-located	37.3	32.1	31.2	28.1	20.6	18.8	15.7	19.4	23.9	30.8	**40.4**	29.5	27.3
UT027	Fire Station 3 Co-located	36.9	34.8	26.7	25.2	15.9	16.6	15.7	18.1	24.0	30.5	37.6	31.3	26.1
UT028	Walden 16 London Road	**65.2**	**56.1**	**54.2**	**50.0**	36.9	**49.5**	39.0	**45.5**	**53.2**	**48.3**	**57.4**	**55.7**	**50.9**
UT029	Walden 17 Debden Road	39.9	38.3	25.7	25.0	17.5	22.0	18.4	21.8	28.0	34.4	**46.7**	27.9	28.8
UT030	Walden 18 Friends School	missing	39.9	**44.6**	18.7	missing	23.3	26.2	24.9	27.9	37.3	**45.9**	27.3	31.6
UT002	Airport 1 Thatched Cottage	39.5	34.0	21.6	27.9	16.5	18.8	21.4	23.9	23.2	20.7	missing	24.0	24.7
UT007	Airport 2 Rose Cottage	34.2	32.2	27.9	26.5	11.9	17.1	20.0	22.5	22.2	31.1	37.8	35.1	26.5

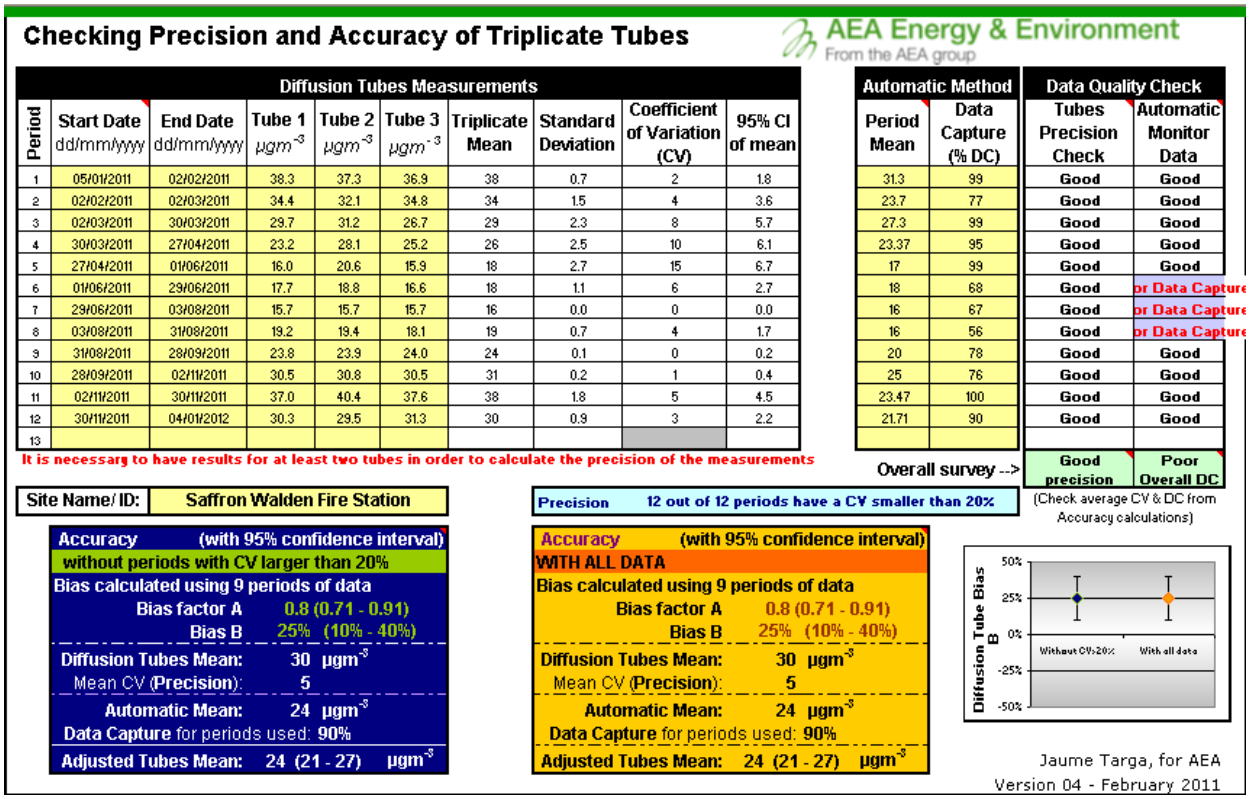
Site ID	Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Mean
UT006	Stansted	25.0	25.5	23.0	17.0	9.3	12.2	12.7	12.0	16.3	23.4	33.1	19.7	19.1
UT008	Hallingbury	**43.1**	**47.1**	**42.2**	**41.8**	18.6	24.8	28.2	19.3	24.1	39.2	**51.3**	23.7	33.6
U00 9	Burton End	missing	**54.7**	**51.0**	**43.1**	36.6	**40.4**	**45.3**	**45.0**	37.5	**48.4**	**51.3**	**53.4**	**46.1**
UT010	Newport	35.9	**40.7**	25.4	30.8	26.6	27.5	26.8	25.0	26.9	38.4	**41.6**	34.9	31.7
UT024	Takeley Hill Hatfield Forest	24.6	22.2	20.1	13.1	missing	9.7	8.7	12.1	11.4	19.5	28.0	17.7	17.0
UT025	Elman's Green Hatfield Forest	25.2	21.9	16.5	16.3	10.6	12.1	12.0	14.3	14.7	17.0	28.4	18.7	17.3
UT026	South Gate Hatfield Forest	22.6	22.6	15.8	13.0	6.2	11.1	9.1	13.2	14.3	19.0	26.6	missing	15.8

Note: Figures in bold indicate a value above the annual mean AQO limit value of 40 $\mu g\ m^{-3}$.

Appendix B
QA/QC Data

Diffusion Tube Bias Adjustment Factors

Below is a screenshot of the spreadsheet used to derive the local bias adjustment factor.



Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm^{-3}	Tube 2 µgm^{-3}	Tube 3 µgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean
1	05/01/2011	02/02/2011	38.3	37.3	36.9	38	0.7	2	1.8
2	02/02/2011	02/03/2011	34.4	32.1	34.8	34	1.5	4	3.6
3	02/03/2011	30/03/2011	29.7	31.2	26.7	29	2.3	8	5.7
4	30/03/2011	27/04/2011	23.2	28.1	25.2	26	2.5	10	6.1
5	27/04/2011	01/06/2011	16.0	20.6	15.9	18	2.7	15	6.7
6	01/06/2011	29/06/2011	17.7	18.8	16.6	18	1.1	6	2.7
7	29/06/2011	03/08/2011	15.7	15.7	15.7	16	0.0	0	0.0
8	03/08/2011	31/08/2011	19.2	19.4	18.1	19	0.7	4	1.7
9	31/08/2011	28/09/2011	23.8	23.9	24.0	24	0.1	0	0.2
10	28/09/2011	02/11/2011	30.5	30.8	30.5	31	0.2	1	0.4
11	02/11/2011	30/11/2011	37.0	40.4	37.6	38	1.8	5	4.5
12	30/11/2011	04/01/2012	30.3	29.5	31.3	30	0.9	3	2.2
13									

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Automatic Method		Data Quality Check	
Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
31.3	99	Good	Good
23.7	77	Good	Good
27.3	99	Good	Good
23.37	95	Good	Good
17	99	Good	Good
18	68	Good	or Data Capture
16	67	Good	or Data Capture
16	56	Good	or Data Capture
20	78	Good	Good
25	76	Good	Good
23.47	100	Good	Good
21.71	90	Good	Good
Overall survey -->		Good precision	Poor Overall DC

(Check average CV & DC from Accuracy calculations)

Site Name/ ID: Saffron Walden Fire Station

Precision: 12 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval)
without periods with CV larger than 20%
Bias calculated using 9 periods of data
Bias factor A: 0.8 (0.71 - 0.91)
Bias B: 25% (10% - 40%)
Diffusion Tubes Mean: 30 µgm^{-3}
Mean CV (Precision): 5
Automatic Mean: 24 µgm^{-3}
Data Capture for periods used: 90%
Adjusted Tubes Mean: 24 (21 - 27) µgm^{-3}

Accuracy (with 95% confidence interval)
WITH ALL DATA
Bias calculated using 9 periods of data
Bias factor A: 0.8 (0.71 - 0.91)
Bias B: 25% (10% - 40%)
Diffusion Tubes Mean: 30 µgm^{-3}
Mean CV (Precision): 5
Automatic Mean: 24 µgm^{-3}
Data Capture for periods used: 90%
Adjusted Tubes Mean: 24 (21 - 27) µgm^{-3}

Jaume Targa, for AEA
Version 04 - February 2011

QA/QC of Diffusion Tube Monitoring

Environmental Scientific Group takes part in the Workplace Analysis Scheme for Proficiency (WASP). Their performance for each quarter in 2011 is summarised in the table below. The table provides a percentage of results submitted which were subsequently determined to be satisfactory based upon a z-score of <±2.

Jan- Mar 2011	Apr-Jun 2011	Jul- Sep 2011	Oct- Dec 2011
100%	100%	100%	100%

Appendix C
List of Permitted Processes 2011

Operator	X	Y	Process	New source
Acrow Galvanizing	555276	239193	Hot Dip galvanizing	N
Printpack	554852	238389	Printing of flexible packaging	N
SGA Technologies Ltd	554790	238262	Surface cleaning using over 1 ton R40	Y
SGA Technologies Ltd	554790	238262	Surface treatment of metal	Y
ReadyMix Concrete	551280	224940	Concrete batching	N
Station Coachworks	563006	221415	Vehicle respraying	N
E Corr x 2	555210	225480	Concrete crushing	N
Airline Services Ltd	554600	222400	Dry Cleaning	N
Barkers of Dunmow	562717	222049	Dry Cleaning	N
Saffron Walden Laundry Co	553835	228344	Dry Cleaning	N
Suit-ability	553748	238429	Dry Cleaning	N
TyreMart	563633	220947	Small waste oil burner	N
Roding Motor Services	560740	215940	Small waste oil burner	N
Jet	551242	225469	Petrol Vapour Recovery	N
TCS Stansted	550983	225125	Petrol Vapour Recovery	N
Dunmow Convenience Stores	563649	220749	Petrol Vapour Recovery	N
Tesco Stores Ltd	555080	238370	Petrol Vapour Recovery	N
Tesco Stores Ltd	561533	221968	Petrol Vapour Recovery	N
Welcome Break	551226	221246	Petrol Vapour Recovery	N
Starthill Service Station	551838	221498	Petrol Vapour Recovery	N
Saracens Filling Station	561320	230830	Petrol Vapour Recovery	N
Stansted AP	552780	222747	Petrol Vapour Recovery	N
BP Oil UK	554903	222036	Petrol Vapour Recovery	N
Avis Rent a Car	555118	222781	Petrol Vapour Recovery	N
Hertz Rent a Car	555162	222820	Petrol Vapour Recovery	N
Europcar UK Ltd	555154	222829	Petrol Vapour Recovery	N
Central garage	552087	233578	Petrol Vapour Recovery	N
Shire Hill garage	554608	237981	Petrol Vapour Recovery	N