



## 2013 Air Quality Progress Report for Angus Council

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

May 2013

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## Executive Summary

This report presents the findings of Angus Council's 2013 air quality Progress Report (PR). The PR evaluates new sources since the 2012 Updating and Screening Assessment to identify those that may give rise to a risk of an exceedance of an air quality objective. Results from monitoring within the Angus Council area are also presented and evaluated in relation to the objectives; the likelihood of an exceedance at relevant locations is discussed, as is the requirement to proceed to a Detailed Assessment.

Previous Review and Assessments have concluded that concentrations of carbon monoxide, benzene, 1,3-butadiene, lead, sulphur dioxide, PM<sub>10</sub> and nitrogen dioxide are compliant with the relevant objectives, and no Air Quality Management Areas (AQMAs) have been declared.

Monitoring data for 2012 confirms that the annual mean nitrogen dioxide objective is unlikely to be exceeded at any location, with measured concentrations well below the objective. Measured PM<sub>10</sub> concentrations also meet the annual mean objective. It is concluded that a Detailed Assessment is not required.

The PR has not identified any significant increases in measured concentrations, or any significant new emissions sources within the Angus Council area. It will therefore not be necessary to proceed to a Detailed Assessment.

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# **1 Introduction**

## **1.1 Description of Local Authority Area**

The Angus Council area is located on the east coast of Scotland between Aberdeenshire Council to the north, Perth and Kinross Council to the west and Dundee City Council to the south.

The area is largely rural and mountainous, with a low population density in the north and west. The main population centres are Arbroath, Forfar and Montrose with the remaining population concentrated in Brechin City and the towns of Monifieth, Carnoustie and Kirriemuir. The population is approximately 110,000. The Angus Council boundary is shown in Figure A1 in Appendix A.

## **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.

Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the Local Air Quality Management process.

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedence of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

## **1.3 Air Quality Objectives**

The air quality objectives applicable to LAQM in Scotland are set out in the Air Quality (Scotland) Regulations 2000 (Scottish SI 2000 No 97), the Air Quality (Scotland) (Amendment) Regulations 2002 (Scottish SI 2002 No 297), 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,  $\text{mg}/\text{m}^3$  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 Scotland**

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
	$3.25\mu\text{g}/\text{m}^3$	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	$10.0\text{mg}/\text{m}^3$	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 ( $\text{PM}_{10}$ ) (gravimetric)	$50\mu\text{g}/\text{m}^3$ , not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	$18\mu\text{g}/\text{m}^3$	Annual mean	31.12.2010
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 2003 Angus Updating and Screening Assessment (USA) was completed in April 2003 and concluded that it was unlikely that any of the air quality objectives would be exceeded within the Angus Council area. During 2004 Angus Council conducted a review of emissions from domestic sources to address issues raised by the Scottish Environment Protection Agency (SEPA) and the Scottish Government following the USA. The review identified twenty-four communities for which further investigation of fuel types and quantities used at domestic properties was required. SEPA recommended that two or three communities with the greatest density of coal burning be investigated to conserve Council resources. The domestic fuel survey was undertaken in 2005 in Glamis, Newbigging and Auchmithie.

A review of particulates was conducted in 2004 to assess in detail the emissions and sources of particulate matter (PM<sub>10</sub>) within the Angus Council area. The review assessed monitoring data, emissions of PM<sub>10</sub> from regulated processes and road traffic. The report concluded that the monitoring data and screening assessment criteria provided in the LAQM.TG(03) technical guidance did not correlate well. The monitoring data indicated exceedences of the 2010 objectives for PM<sub>10</sub> were likely, but the screening criteria indicated that there was unlikely to be an exceedence of the AQS objectives. It was concluded that further investigation was required to identify the sources of PM<sub>10</sub> within the Angus Council area.

The Progress Report 2005 reviewed the changes in industrial and domestic sources of pollutants and assessed new monitoring data for nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>) and PM<sub>10</sub> against the relevant objectives. The report concluded that exceedences of the air quality objectives for carbon monoxide (CO), benzene, 1, 3-butadiene, lead, NO<sub>2</sub> and SO<sub>2</sub> were unlikely. However, based on the Tapered Element Oscillating Monitor (TEOM) results, annual mean projected concentrations of PM<sub>10</sub> were predicted to exceed the 2010 objective at the Forfar monitoring station. In October 2005, a gravimetric Partisol sampler was installed adjacent to the Forfar TEOM in order to verify the results. It was also concluded that further assessment of PM<sub>10</sub> emissions from the Ethibethan Quarry was required, along with domestic fuel surveys in Auchmithie, Glamis and Newbigging.

The 2006 USA concluded that it was unlikely that any of the objectives would be exceeded, including those for PM<sub>10</sub>. The density of coal burning properties was found to be less than 50 properties per 500m<sup>2</sup> and was therefore unlikely to result in exceedences of the PM<sub>10</sub> or SO<sub>2</sub> objectives. However, SEPA and the Scottish Government requested that a Detailed Assessment of PM<sub>10</sub> be carried out in Forfar in relation to potential exceedences of the 2010 objective; this was prepared in 2007.



The Detailed Assessment concluded that measured concentrations for a 12 month period 1<sup>st</sup> June 2006 – 31<sup>st</sup> May 2007 exceeded 18µg/m<sup>3</sup>; projected concentrations for 2010 were below, although approaching, the objective. The report concluded that monitoring should continue, however an AQMA would not be required at that time.

The 2008 Progress Report concluded that it was not necessary for Angus Council to proceed to a Detailed Assessment, but that the current monitoring programme should be maintained in order to identify any changes in NO<sub>2</sub> or PM<sub>10</sub> concentrations. The 2009 USA also concluded that Angus Council were not required to proceed to a Detailed Assessment for NO<sub>2</sub>. The possibility that PM<sub>10</sub> concentrations may exceed the 2010 objective was however identified, and a continuation of the existing monitoring programme was recommended.

Both the 2010 Progress Report and the 2011 Progress Report concluded that there was no need to carry out a Detailed Assessment, but that monitoring should be maintained. The 2012 Updating and Screening Assessment did not identify any new or significantly changed sources requiring Detailed Assessment, and measured concentrations remained below the relevant objectives.

## 2 New Monitoring Data

### 2.1 Summary of Monitoring Undertaken

#### 2.1.1 Automatic Monitoring Sites

Monitoring of PM<sub>10</sub> concentrations was carried out in 2012 at two locations. A gravimetric Partisol sampler is located at both sites, with an FDMS TEOM analyser co-located at the Forfar site. The locations of the analysers are shown in Figure 2.1. In addition, a third Partisol analyser was deployed in Arbroath on the 27<sup>th</sup> December 2012; data for this site will be presented in future Review & Assessment reports.

Figure 2.1 Automatic Monitoring Sites

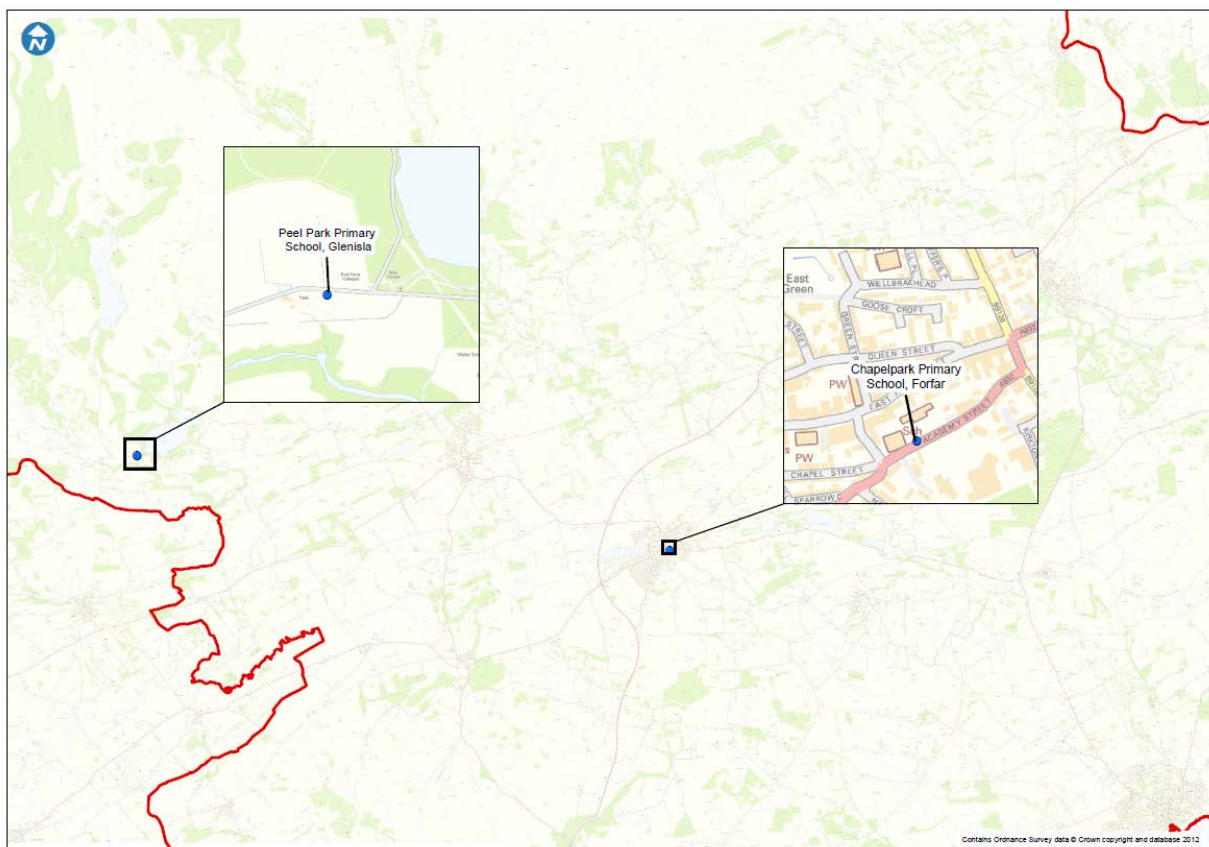


Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure?	Distance to kerb of nearest road	Representative of worst-case exposure?
Chapelark Primary School, Forfar	Roadside	345914	750612	PM <sub>10</sub>	N	Gravimetric	Y (0m)	5m	N
Chapelark Primary School, Forfar	Roadside	345914	750613	PM <sub>10</sub>	N	FDMS	Y (0m)	6m	N
Peel Park Primary School, Glenisla	Rural Background	326515	754046	PM <sub>10</sub>	N	Gravimetric	Y (0m)	20m	N
Burnside Drive, Arbroath*	Kerbside	364169	740861	PM <sub>10</sub>	N	Gravimetric	Y (8m)	1m	Y

\* Operational since 27<sup>th</sup> December 2012. Data to be presented in future R&A reports.

### 2.1.2 Non-Automatic Monitoring Sites

Nitrogen dioxide was measured at 13 locations during 2012 within the Angus Council area. These sites are described further in Table 2.2, and are shown in Figure 2.2. The monitoring sites provide information for a range of roadside, kerbside, industrial and background locations.

The diffusion tubes are prepared and analysed by Tayside Scientific Services (TSS) using the 20% TEA in water method. Tubes are changed on a monthly basis. See Appendix B for further details of QA/QC of the diffusion tubes.

**Figure 2.2 Diffusion Tube Monitoring Sites**



Table 2.2 Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Pollutants Monitored	In AQMA?	Is monitoring co-located with a Continuous Analyser?	Relevant Exposure?	Distance to kerb of nearest road	Does this location represent worst-case exposure?
A1	Ethie Terrace, Arbroath	Urban Background	364585	742349	NO <sub>2</sub>	N	N	Y (0m)	1m	N
A2	Inchcape Road, Arbroath	Urban Background	362987	740642	NO <sub>2</sub>	N	N	Y (0m)	2m	N
A3	Abbey Path, Arbroath	Roadside	364299	741225	NO <sub>2</sub>	N	N	Y (1.5m)	<1m	N
A4	22 Lordburn, Arbroath	Roadside	364158	741122	NO <sub>2</sub>	N	N	Y (3m)	<1m	N
CAR	High St, Carnoustie	Kerbside	356243	734526	NO <sub>2</sub>	N	N	Y (3m)	2m	N
M1	High St, Monifieth	Kerbside	349759	732549	NO <sub>2</sub>	N	N	Y (0m)	2m	N
M2	High St, Montrose	Kerbside	371418	757767	NO <sub>2</sub>	N	N	Y (2m)	1m	Y
B1	High St, Brechin	Kerbside	359727	760170	NO <sub>2</sub>	N	N	Y (2m)	1m	N
B2	Sacone 1, Brechin	Industrial	361216	759644	NO <sub>2</sub>	N	N	N	8m	N
FOR	High St, Forfar	Kerbside	345825	750674	NO <sub>2</sub>	N	N	Y (3m)	<1m	N
KIR	Manse Close, Kirriemuir	Kerbside	338621	754032	NO <sub>2</sub>	N	N	Y (5m)	6m	N
F1	St James Road, Forfar	Roadside	345628	750307	NO <sub>2</sub>	N	N	Y (<1m)	2m	Y
F2	Dundee Loan, Forfar	Roadside	345342	750088	NO <sub>2</sub>	N	N	Y (<1m)	2m	Y

## **2.2 Comparison of Monitoring Results with AQ Objectives**

### **2.2.1 Nitrogen Dioxide**

#### **Diffusion Tube Monitoring Data**

Measured concentrations at the 13 diffusion tube monitoring sites in 2012 are presented in Table 2.3. Concentrations since 2005 are presented in Table 2.4.

Monitoring at two new monitoring sites was initiated in June 2012. Data capture these sites does not therefore meet the minimum of 75% for 2012, and these data have been annualised following guidance in LAQM.TG(09). There is no automatic nitrogen dioxide monitoring carried out within the Angus Council area, and therefore there is no co-location study carried out with which to calculate a local bias adjustment factor; the national bias adjustment factor has therefore been applied to the data. See Appendix B for further details.

Concentrations at all 13 sites were well below the annual mean objective in 2012; the highest concentration was  $28.0\mu\text{g}/\text{m}^3$  measured at monitoring site M2 located on the High Street, Montrose. Overall, there is no clear trend in measured concentrations at any site, although there was a slight increase at the majority of sites between 2011 and 2012 (Figure 2.3).

Table 2.3 Results of Nitrogen Dioxide Diffusion Tubes in 2012 (Bias Adjusted)

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Data Capture (Months)	2012 Annual mean concentration ( $\mu\text{g}/\text{m}^3$ ) (BAF=0.90)
A1	Ethie Terrace, Arbroath	Urban Background	N	N	11	7.6
A2	Inchcape Road, Arbroath	Urban Background	N	N	11	10.1
A3	Abbey Path, Arbroath	Roadside	N	N	11	16.8
A4	22 Lordburn, Arbroath	Roadside	N	N	11	22.8
CAR	High St, Carnoustie	Kerbside	N	N	11	21.6
M1	High St, Monifieth	Kerbside	N	N	11	25.0
M2	High St, Montrose	Kerbside	N	N	11	28.0
B1	High St, Brechin	Kerbside	N	N	11	18.0
B2	Sacone 1, Brechin	Industrial	N	N	12	8.6
FOR	High St, Forfar	Kerbside	N	N	12	18.2
KIR	Manse Close, Kirriemuir	Kerbside	N	N	11	12.5
F1	St James Road, Forfar	Roadside	N	N	5	24.7*
F2	Dundee Loan, Forfar	Roadside	N	N	5	22.6*
<b>Objective</b>						<b>40</b>

\* Annualised (see Appendix B for further details)

Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes (2005 to 2012), Bias Adjusted

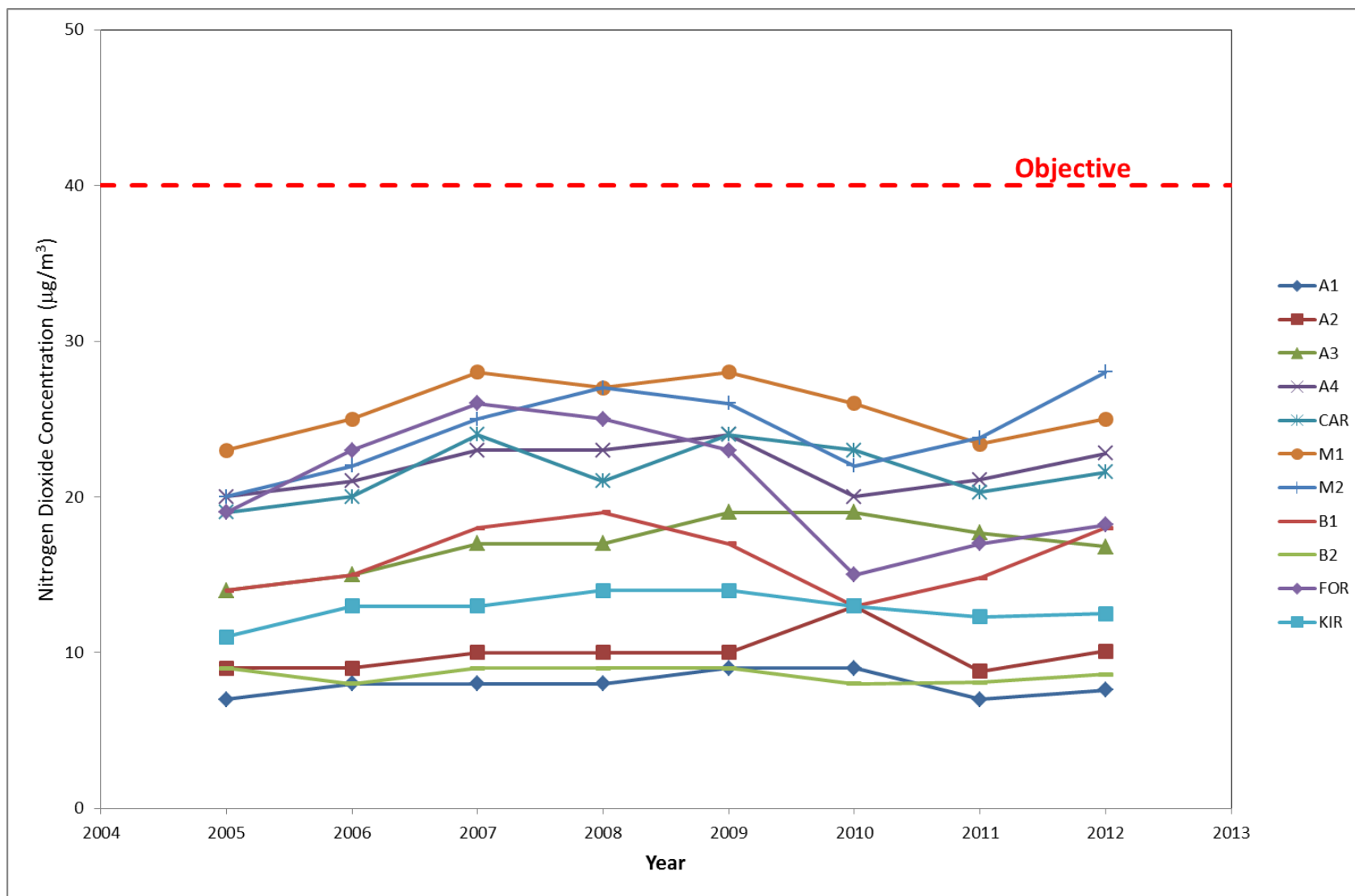
Site ID	Annual mean concentration ( $\mu\text{g}/\text{m}^3$ )							
	2005 (0.73)	2006 (0.78)	2007 (0.91)	2008 (0.86)	2009 (0.77)	2010 (0.78)	2011 (0.78)	2012 (0.90)
A1	7	8	8	8	9	9	7.0	7.6
A2	9	9	10	10	10	13	8.8	10.1
A3	14	15	17	17	19	19	17.7	16.8
A4	20	21	23	23	24	20	21.1	22.8
CAR	19	20	24	21	24	23	20.3	21.6
M1	23	25	28	27	28	26	23.4	25.0
M2	20	22	25	27	26	22	23.8	28.0
B1	14	15	18	19	17	13	14.8	18.0
B2	9	8	9	9	9	8	8.1	8.6
FOR	19	23	26	25	23	15	17.0	18.2
KIR	11	13	13	14	14	13	12.3	12.5
F1	-	-	-	-	-	-	-	24.7*
F2	-	-	-	-	-	-	-	22.6*
<b>Objective</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>

Bias adjustment factors presented in parentheses

\* Annualised



Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tubes



### 2.2.2 PM<sub>10</sub>

PM<sub>10</sub> concentrations were measured at two locations within the Angus Council area during 2012: Chapelpark Primary School in Forfar, where a Partisol sampler and a TEOM FDMS analyser are co-located, and Peel Farm Primary School, Glenisla, where a Partisol sampler has been located since midway through 2010. Data for both Partisol samplers operational in 2012 was low due to a number of faults.

Measured PM<sub>10</sub> concentrations are presented in Tables 2.5 and 2.6. Concentrations measured at Peel Farm Primary School are well below the annual mean and daily mean objectives, although data capture was very low; the concentrations are consistent with those measured in previous years however.

The measured number of daily mean exceedences of 50µg/m<sup>3</sup> are also well below the objective at both analysers at Chapelpark Primary School. The 2010 annual mean objective of 18µg/m<sup>3</sup> is more stringent than the daily mean objective; annual mean concentrations at Chapelpark Primary School are below the annual mean objective.

Annual mean concentrations over the 2007 to 2012 period are presented in Figure 2.4, and are compared with the 2010 objective for those sites where at least five years of data are available. Overall, concentrations measured with the Partisol have reduced, whilst concentrations measured with the FDMS have remained fairly constant.

**Table 2.5 Results of Automatic Monitoring of PM<sub>10</sub>: Comparison with Annual Mean Objective**

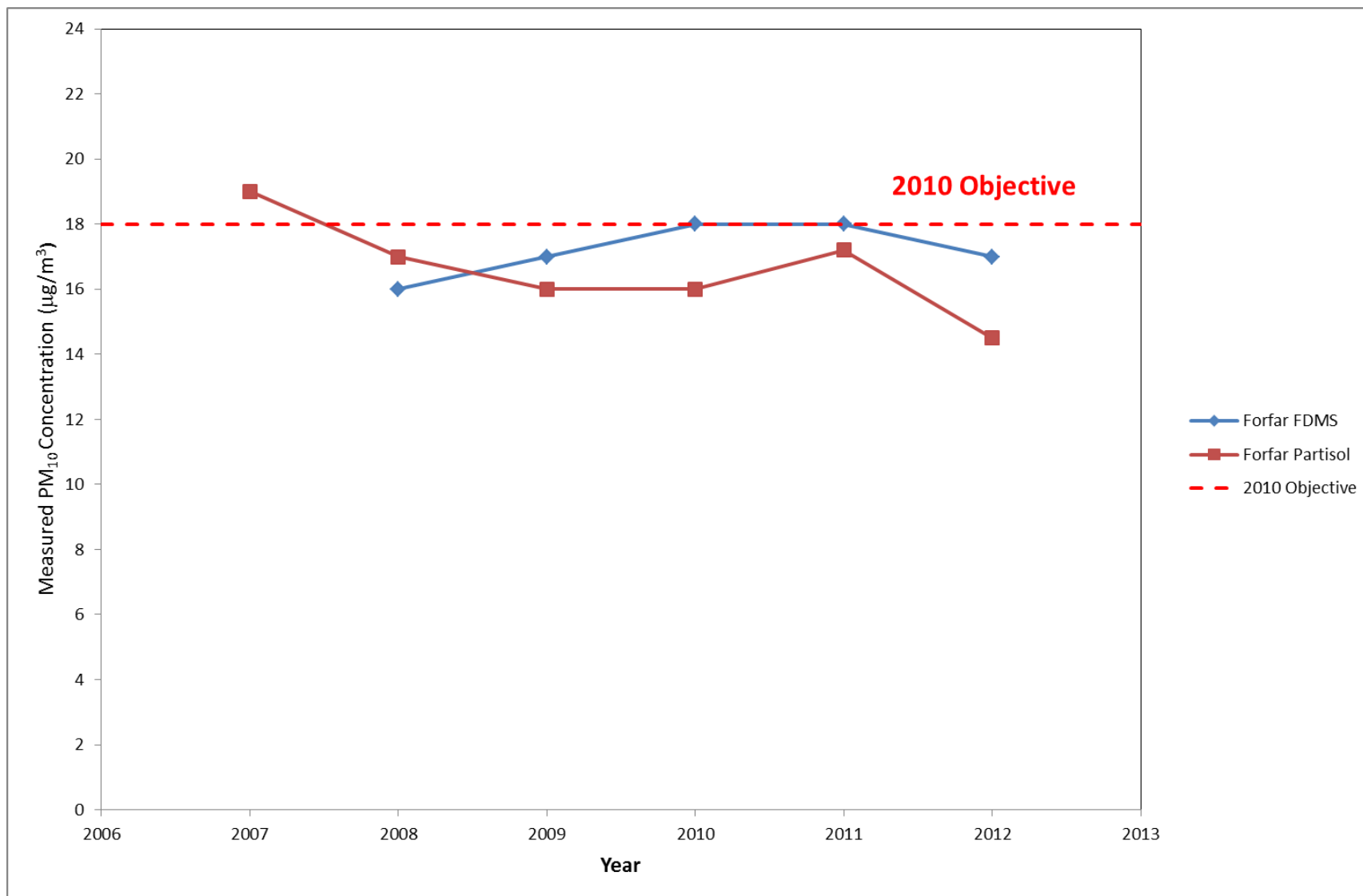
Site	Site Type	Within AQMA?	Valid Data Capture 2012 (%)	Gravimetric Equivalent? (Y or NA)	Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ )					
					2007	2008	2009	2010	2011	2012
Chapelpark Primary School, Forfar	Roadside	N	90.5	FDMS (ref equiv)	-	16	17	18	18	17
Chapelpark Primary School, Forfar	Roadside	N	75.1	Gravimetric	19	17	16	16	17.2	14.5
Peel Park Primary School, Glenisla	Rural Background	N	13.1	Gravimetric	-	-	-	5.7	8.9	6.6
<b>Objective</b>					<b>40</b>	<b>40</b>	<b>40</b>	<b>18</b>	<b>18</b>	<b>18</b>

**Table 2.6 Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with 24-hour mean Objective**

Site	Site Type	Within AQMA?	Valid Data Capture 2012 %	Gravimetric Equivalent?	Number of days $>50\mu\text{g}/\text{m}^3$					
					2007	2008	2009	2010	2011	2012
Chapelpark Primary School, Forfar	Roadside	N	90.5	FDMS (ref equiv)	-	0	2	4	0	2
Chapelpark Primary School, Forfar	Roadside	N	75.1	Gravimetric	n/a	3	1	5	2	1 (38.4)
Peel Park Primary School, Glenisla	Rural Background	N	13.1	Gravimetric	-	-	-	0	1	0 (19.0)
<b>Objective</b>					<b>35</b>	<b>35</b>	<b>35</b>	<b>7</b>	<b>7</b>	<b>7 (50)</b>

98.1<sup>st</sup> percentile presented in parentheses where data capture <90%

Figure 2.4 Trends in Annual Mean PM<sub>10</sub> Concentrations



### **2.2.3 Sulphur Dioxide**

Sulphur dioxide is not monitored within the Angus Council area.

### **2.2.4 Benzene**

Benzene is not monitored within the Angus Council area.

### **2.2.5 Other pollutants monitored**

No other pollutants are monitored within the Angus Council area.

### **2.2.6 Summary of Compliance with AQS Objectives**

Angus Council has examined the results from monitoring within the local authority area. Nitrogen dioxide concentrations are all well below the annual mean objectives. Concentrations of PM<sub>10</sub> are well below the daily mean objective, and the annual mean objective is not exceeded at any location. There is therefore no need to proceed to a Detailed Assessment.

### 3 New Local Developments

The criteria for assessing biomass combustion (individual installations) are set out in Section D.1a of Box 5.8, LAQM.TG(09). Since the 2012 Updating and Screening Assessment was completed, applications for five new biomass boilers have been received by Angus Council.

The biomass calculator<sup>1</sup> was used to calculate the target emission rates for each boiler. The boiler data used are presented in Table 3.1, whilst the calculated Target Emission Rates are presented in Table 3.2. Background concentrations have been taken from the national maps provided on the UK-Air website<sup>2</sup>.

None of the boilers emission rates exceed the Target Emission Rates for nitrogen dioxide or PM<sub>10</sub>, and therefore it is not necessary to proceed to a Detailed Assessment for any of the boilers. The application for the Keptie Road biomass also considered the cumulative impacts of existing biomass in the area, and confirmed that the combined impacts are not significant.

**Table 3.1 Boiler Data used in the Screening Assessment**

Boiler Location	Building Height (m)	Stack Diameter (m)	Stack Height (m)	Background Concentration (µg/m <sup>3</sup> )		Emission Rates (g/s)	
				PM <sub>10</sub>	NO <sub>2</sub>	PM <sub>10</sub>	NO <sub>2</sub>
Orchardbank, Forfar	7.0	0.3	8.5	12.97	13.04	0.0042	0.0090
The Neuk, Lundie	6.2	0.3	9.1	11.46	4.31	0.0055	0.0150
Keptie Road, Arbroath	12.0	0.45	15.0	10.54	9.58	0.0001	0.0055
Kinpurnie, Newtyle	8.2	0.3	8.8	10.10	4.02	0.0083	0.0122
Piperdam, Fowlis	6.5	0.3	7.1	10.99	7.43	0.0056	0.0118

<sup>1</sup> Available at: [http://laqm.defra.gov.uk/documents/biomass\\_calculator\\_tool6.xls](http://laqm.defra.gov.uk/documents/biomass_calculator_tool6.xls)

<sup>2</sup> <http://uk-air.defra.gov.uk/>

Table 3.2 Target Emission Rates from Biomass Calculator

Boiler Location	PM <sub>10</sub> Annual Mean		Nitrogen Dioxide Annual Mean		Nitrogen Dioxide Hourly Mean	
	Target Emission Rate (g/s)	DA Required?	Target Emission Rate (g/s)	DA Required?	Target Emission Rate (g/s)	DA Required?
Orchardbank, Forfar	0.0175	No	0.0937	No	0.1455	No
The Neuk, Lundie	0.0378	No	0.2084	No	0.2560	No
Keptie Road, Arbroath	0.0548	No	0.2234	No	0.3464	No
Kinburnie, Newtyle	0.0105	No	0.0479	No	0.0843	No
Piperdam, Fowlis	0.0093	No	0.0457	No	0.0829	No

There have been no applications for other developments which are likely to have a significant impact on air quality within the Angus Council area.

Angus Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

Angus Council confirms that all the following have been considered:

- **Road traffic sources**
- **Other transport sources**
- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

## 4 Local / Regional Air Quality Strategy

The Angus Environmental Strategy was approved in 1998, and outlines the Council's environmental policies and sets out the Council's commitment to sustainable development. The six principal aims of the strategy are:

*“to integrate environmental and sustainability considerations into Council strategy, policy and programme formulation;*

*to work in partnership with other agencies, businesses, community groups and individuals;*

*to consult and involve people more fully where decisions affect our environment;*

*to work towards sustainability by balancing economic, social and environmental considerations for both present and future generations;*

*to recognise that working towards sustainability will be a continuing process requiring flexibility and adaptability;*

*to monitor and report on progress towards sustainability.”*

In order to achieve the aims of the Environmental Strategy, an Action Plan (Angus 1999) has been prepared. This sets out over a hundred actions relating to eight areas, including Pollution and Transport, which will be implemented to improve the environment within Angus. A number of actions relate specifically to air quality, including Pollution Action Point 3, which commits the Council to:

*“Continue with the Council's statutory responsibility to manage air quality...”*



## **5 Planning Applications**

No planning applications for major developments with the potential to significantly impact air quality have been identified since the 2012 Updating and Screening assessment was prepared.

## 6 Air Quality Planning Policies

Currently, the Local Development Plan within Angus comprises the Dundee and Angus Structure Plan (adopted 2002), the Angus Local Plan Review (adopted 2009) and the Cairngorms National Park Local Plan (adopted 2010). These documents provide the planning context for development.

One of the main principles of the Structure Plan is the need to integrate land use and transport in order to maintain air quality and reduce pollution due to unnecessary travel. The Local Plan Review also sets out the need for air quality assessments to accompany planning applications. The Cairngorms National Park Local Plan states that new developments should not result in breaches of the air quality objectives. None of the documents set out any specific policies relating to air quality.

The Council is currently in the process of preparing a new Local Development Plan for the area, which is likely to be adopted in 2014.

## 7 Local Transport Plans and Strategies

Angus Council is a member of Tayside and Central Scotland Transport Partnership (TACTRAN), along with Perth and Kinross Council, Dundee City Council and Stirling Council. TACTRAN is one of seven Regional Transport Partnerships covering the whole of Scotland, which were created under the Transport (Scotland) Act 2005. The primary purpose of the Partnership is to develop a Regional Transport Strategy (RTS) setting out a vision for the future of transport in the area over the period to 2023, and to oversee its implementation.

The RTS was adopted in 2008. The Vision is to deliver:

*“a transport system, shaped by engagement with its citizens, which helps deliver prosperity and connects communities across the region and beyond, which is socially inclusive and environmentally sustainable and which promotes the health and well-being of all.”*

In order to support the Vision, a number of Objectives have been defined, including:

*“To ensure that the transport system contributes to safeguarding the environment and promotes opportunities for improvement.”*

And:

*“To promote the health and well-being of communities.”*

By:

*“11. Promoting a shift towards more sustainable modes.  
12. Helping to meet or better all statutory air quality requirements in the TACTRAN area.”*

## 8 Climate Change Strategies

The Angus Climate Change Strategy & Action Plan 2012-2016 sets out the way in which the Council will reduce its emissions in order to reduce the effect on climate change. The Strategy sets out the objectives and actions defined relating to ten main themes, focusing on the Council's operational emissions. The main objectives are:

***“Health & Wellbeing:*** *To improve the health and well-being of the population in Angus and planning for the impacts of climate change on human health.*

***Education & Awareness:*** *To raise awareness of climate change issues in Angus so individuals can take local action to mitigate and adapt to the impacts of a changing climate.*

***Energy:*** *To reduce the consumption of fossil fuel for energy use, promote energy efficiency and increase the use of renewable energy for the Council's own operations and throughout the county.*

***Resource Management:*** *To reduce waste and the levels of waste going to landfill; increase recycling and increase public awareness of the contribution that waste makes to climate change.*

***Transport:*** *To develop “A transport system, shaped by engagement with its citizens, which helps deliver prosperity and connects communities across the region and beyond, which is socially inclusive and environmentally sustainable and which promotes the health and well-being of all.”*

***Sustainable Procurement:*** *To ensure that goods and services purchased by the council contribute to sustainable development whilst delivering value for money for the citizens of Angus.*

***Cultural & Natural Heritage:*** *To raise awareness of climate change issues which will influence our stewardship of biodiversity natural resources and the promotion of the unique natural environment of Angus.*

***Water:*** *To promote issues such as sustainable water use practices not only in Angus Council's premises but in the wider community, the importance of water quality improvement on ecosystem health and the awareness of fluvial and coastal flood risk prevention measures*

***Planning & Built Environment:*** *To guide development and changes in land use, in a sustainable manner that can best serve the needs of communities throughout Angus.*

***Adaptation:*** *To prepare, plan and adapt to the changing weather patterns in Angus in an effort to reduce and manage those impacts, especially on those most vulnerable in our community.”*

The Strategy sets out a range of Actions to be implemented, many of which build on work already carried out by the Council in order to achieve the Objectives.

## **9 Conclusions and Proposed Actions**

### **9.1 Conclusions from New Monitoring Data**

Concentrations of nitrogen dioxide measured at 13 monitoring sites across the Angus Council area were well below the annual mean objective in 2012. Concentrations have remained similar at all long term sites over an eight year period (2005 – 2012).

Data capture at the Peel Farm Primary School Partisol was low during 2012, however PM<sub>10</sub> concentrations at this site remained well below both the annual and daily mean objectives. The measured number of daily mean exceedences of 50µg/m<sup>3</sup> were also well below the objective at both analysers at Chapelpark Primary School, whilst the annual mean concentrations remained below the annual mean objective in 2012.

Annual mean PM<sub>10</sub> concentrations over the 2007 to 2012 period have remained fairly constant at the Chapelpark FDMS, with no clear trend evident, whilst concentrations measured with the Partisol have reduced overall.

### **9.2 Conclusions relating to New Local Developments**

The Progress Report has not identified any significant changes to emissions sources within the Angus Council area that will lead to a deterioration in air quality. Emissions associated with proposed biomass boilers have been assessed using the biomass calculator, and are not considered significant. There have been no new road traffic, other transport, industrial, commercial, domestic or fugitive sources of emissions for which a more Detailed Assessment is required.

### **9.3 Proposed Actions**

Angus Council will continue monitoring nitrogen dioxide and PM<sub>10</sub> concentrations. A third Partisol sampler began sampling within Arbroath at the end of December 2012, and data for this site will be presented in future reports.

A Progress Report will be submitted in April 2014 setting out 2013 monitoring data and newly identified sources.

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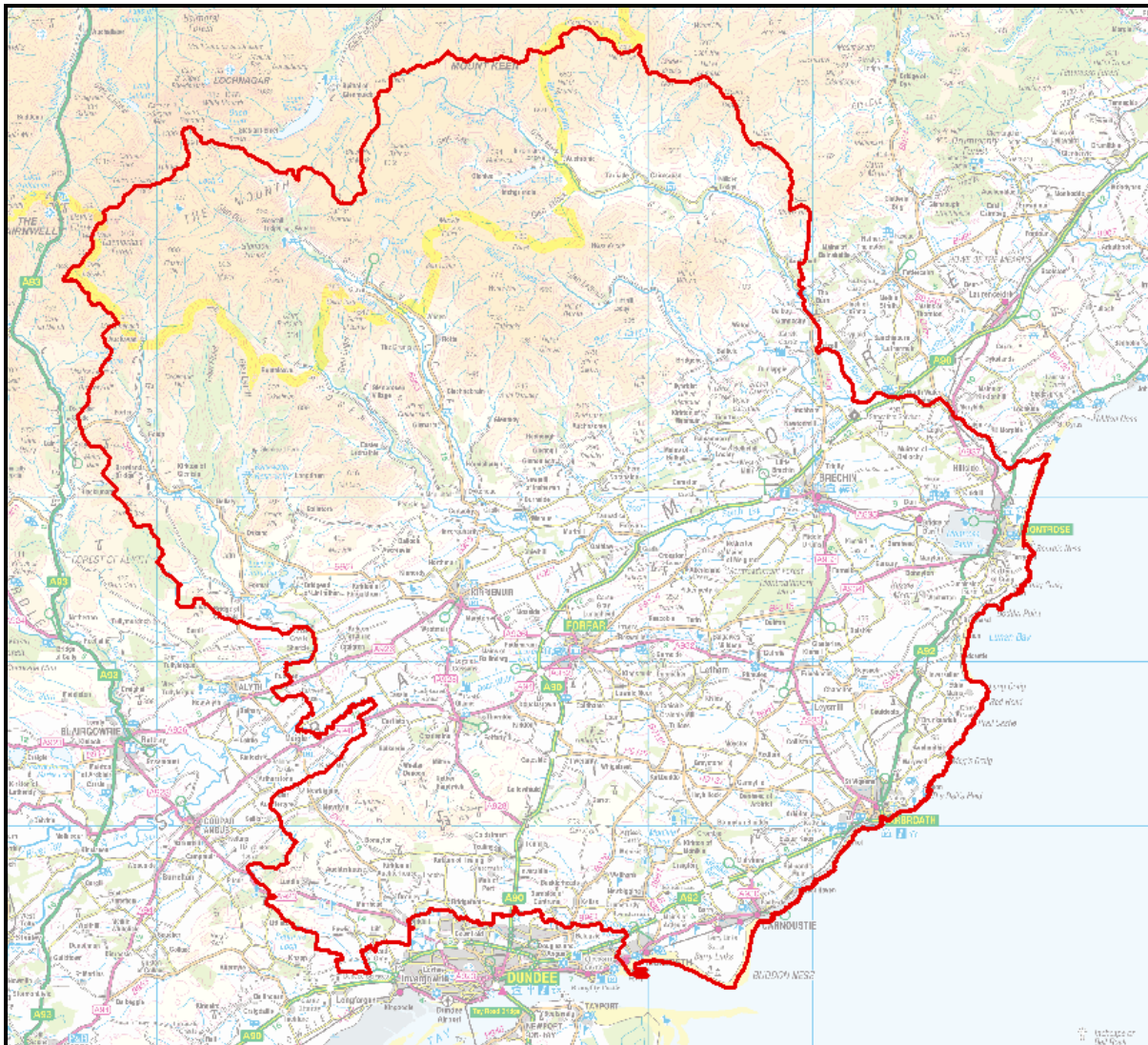
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# Appendices



# Appendix A – Angus Council Area



**Figure A.1 Angus Council Boundary.** Contains Ordnance Survey data © Crown copyright and database 2012.

## Appendix B: QA/QC

### Diffusion Tube QA/QC

Angus Council deploy diffusion tubes prepared and analysed by Tayside Scientific Services (TSS; 20% TEA in water method). Tubes are changed on a monthly basis.

### **Bias Adjustment Factors from Local Co-location Studies**

Angus Council do not operate a chemiluminescent analyser, and therefore no co-location study is carried out. It is therefore not possible to calculate a local bias adjustment factor.

### **National Bias Adjustment Factor**

The national bias adjustment factor for TSS in 2012 is 0.90 (taken from spreadsheet v03/13, based on 1 study; available at: <http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>). This factor has been applied to all 2012 diffusion tube data.

### **WASP**

Tayside Scientific Services take part in the Workplace Analysis Scheme for Proficiency (WASP), operated by the Health and Safety Laboratory (HSL). During 2012, on average, 100% of samples were determined to have been satisfactory (1st quarter: 100%; 2nd quarter: 100%; 3rd quarter: 100%, 4th quarter: 100%).

### **Short-term to Long-term Data Adjustment (Annualisation)**

Two new monitoring sites were initiated in June 2012; consequently there are less than 9 months of data available for these sites and the resulting period mean is not directly comparable to the objective. Therefore, in accordance with the guidance set out in Box 3.2 of LAQM.TG(09), the data have been adjusted to an annual mean, based on the ratio of concentrations during the short-term monitoring period to those over the 2012 calendar year. This has utilised data from three or four background sites operated as part of the Automatic Urban and Rural Network (AURN) where long-term data are available (with data capture >90%).

The annual mean nitrogen dioxide concentrations and the period means for each of the monitoring sites from which adjustment factors have been calculated are presented in the tables below, along with the Ratio applied.

June, August - November 2012

Site	Site Type	2012 Annual Mean	Period Mean	Ratio
Aberdeen	Urban Background	21.0	19.5	1.077
Edinburgh St Leonards	Urban Background	24.1	22.9	1.053
Fort William	Suburban Background	12.1	11.7	1.030
Grangemouth Moray	Urban Background	19.6	17.8	1.100
			Average	1.065

June, August, October - December 2012

Site	Site Type	2012 Annual Mean	Period Mean	Ratio
Edinburgh St Leonards	Urban Background	24.1	26.4	0.911
Fort William	Suburban Background	12.1	12.9	0.937
Grangemouth Moray	Urban Background	19.6	21.8	0.899
			Average	0.916

### **Automatic Monitoring QA/QC**

Angus Council change the Partisol filter cassettes on a two-weekly basis. The samplers are serviced bi-annually by SupportingU Ltd.

Data from the FDMS analyser are collected via automatic telemetry by Air Monitors Ltd and are checked daily by AEA. The analyser is also serviced on an annual basis and audited every six months. All data are ratified 6-monthly using procedures comparable to those used for national network monitoring data. Data are available on the Scottish air quality website [www.scottishairquality.co.uk](http://www.scottishairquality.co.uk).

Personnel from Angus Council visit each site on a regular basis in order to change filters and check diagnostics.