



## 2014 Air Quality Progress Report for Aberdeenshire Council

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

September 2014

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## Executive Summary

A review of monitoring data and emission sources within Aberdeenshire Council area was undertaken and resultant information compared with NAQS objectives.

Aberdeenshire Council undertook monitoring of NO<sub>2</sub> concentrations at 11 sites within 5 settlements, including new monitoring sites in the town of Ellon. Monitoring results show that concentrations of NO<sub>2</sub> in these locations are unlikely to exceed the objectives.

There are a number of new biomass developments within the local authority area. Information will continue to be sought and screening assessments will be undertaken where information is available. For developments where information has already been submitted and where screening assessments have been completed, there are no exceedances of AQS objectives predicted.

A number of new local developments with potential to impact on air quality have been identified within the local authority area.

There is no requirement for Aberdeenshire Council to proceed to a Detailed Assessment for any pollutant at present.

An Updating and Screening Report will be submitted in 2015.

# Table of Contents

<b>1</b>	<b>Introduction</b>	<b>5</b>
1.1	Description of Local Authority Area	5
1.2	Purpose of Progress Report	6
1.3	Air Quality Objectives	7
1.4	Summary of Previous Review and Assessments	9
<b>2</b>	<b>New Monitoring Data</b>	<b>10</b>
2.1	Summary of Monitoring Undertaken	10
2.2	Comparison of Monitoring Results with Air Quality Objectives	11
<b>3</b>	<b>New Local Developments</b>	<b>18</b>
3.1	Road Traffic Sources	18
3.2	Other Transport Sources	18
3.3	Industrial Sources	18
3.4	Commercial and Domestic Sources	20
3.5	New Developments with Fugitive or Uncontrolled Sources	22
<b>4</b>	<b>Planning Applications</b>	<b>23</b>
<b>5</b>	<b>Local Transport Plans and Strategies</b>	<b>24</b>
<b>6</b>	<b>Conclusions and Proposed Actions</b>	<b>25</b>
6.1	Conclusions from New Monitoring Data	25
6.2	Conclusions relating to New Local Developments	25
6.3	Other Conclusions	25
6.4	Proposed Actions	26
<b>7</b>	<b>References</b>	<b>27</b>

## List of Tables

Table 1.1	Air Quality Objectives included in Regulations for the purpose of LAQM in Scotland
Table 1.2	Details of Local Air Quality Reports submitted by Aberdeenshire Council
Table 2.1	Details of Non-Automatic Monitoring Sites
Table 2.2	Results of Nitrogen Dioxide Diffusion Tubes in 2013
Table 2.3	Results of Nitrogen Dioxide Diffusion Tubes (2009-13)

Table 3.1 Biomass Plant Identified in Aberdeenshire 2013

Table 3.2 Primary Heating Types Used in Aberdeenshire

### **List of Figures**

Figure 2.1 Trends in Annual Mean Nitrogen Dioxide Concentrations at Diffusion Tube Monitoring Sites 2005-2013

### **Appendices**

Appendix A: Maps of Non-Automatic Monitoring Sites

Appendix B: Diffusion Tube Raw Data

Appendix C: Quality Assurance / Quality Control (QA/QC) Data

# **1 Introduction**

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

Aberdeenshire Council is located on the north-east coast of Scotland and surrounds Aberdeen City Council area. The Council area is bordered to the south by Angus and Perth and Kinross Councils and to the west by Moray and The Highland Councils. The northern and eastern borders of Aberdeenshire Council area are the Moray Firth and the North Sea coast.

The Council area is split into two distinct geographical types: the western part of the Council area is dominated by the Grampian mountain range and includes large areas of forest and moorland. The northern and eastern parts of the Council area are relatively flat with large expanses of agricultural land, coastal grassland and a greater density of urban centres.

The population of the Aberdeenshire Council area is approximately 240,000 with largest urban populations residing in Peterhead, Fraserburgh, Inverurie, Stonehaven, Westhill and Ellon. A large proportion of the Aberdeenshire population is involved in the off-shore oil and gas industry. A significant proportion of the population are also involved in the traditional industries of farming, forestry and fishing with approximately one third of Scotland's agricultural produce originating in the region. The industrial and commercial areas are primarily located in the east of the Council area around Aberdeen, Stonehaven, Peterhead and Fraserburgh. A large section of the central region of Aberdeenshire is a commuter region for Aberdeen City with a significant proportion of the local population commuting in to Aberdeen City on a regular basis.

The rail network within Aberdeenshire comprises two mainline passenger and freight rail routes: one passing north-south through the Council area along the North Sea coastline from Dundee to Aberdeen; and the second linking Aberdeen to Inverness passing through Inverurie and Huntly.

The major roads passing through the Council area comprise:

- the A90 trunk road linking the coastal towns of Fraserburgh, Peterhead, Portlethen and Stonehaven to Aberdeen and providing the arterial route south to Dundee and Central and Southern Scotland; and
- the A96 trunk road which links Aberdeen to Elgin and Inverness.

There are also several harbours and ports located along the Aberdeenshire coast which are used by fishing boats, oil and gas industry support vessels and leisure craft. The two largest ports are Peterhead and Fraserburgh where there is a significant number of fishing, commercial and oil and gas shipping operations.

## **1.2 Purpose of Progress 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 are likely to be achieved. Where exceedances 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 LAQM 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 exceedance 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 exceedances 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 µg/m <sup>3</sup>	Running annual mean	31.12.2003
	3.25 µg/m <sup>3</sup>	Running annual mean	31.12.2011
1,3-Butadiene	2.25 µg/m <sup>3</sup>	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m <sup>3</sup>	Running 8-hour mean	31.12.2003
Lead	0.50 µg/m <sup>3</sup>	Annual mean	31.12.2004
	0.25 µg/m <sup>3</sup>	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m <sup>3</sup>	Annual mean	31.12.2005
Particulate Matter (PM <sub>10</sub> ) (gravimetric)	50 µg/m <sup>3</sup> , not to be exceeded more than 7 times a year	24-hour mean	31.12.2011
	18 µg/m <sup>3</sup>	Annual mean	31.12.2011
Sulphur dioxide	350 µg/m <sup>3</sup> , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m <sup>3</sup> , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

## 1.4 Summary of Previous Review and Assessments

Aberdeenshire Council has undertaken regular reviews of air quality since the introduction of the LAQM process. A summary of reports submitted, from 2003, is provided in Table 1.2.

**Table 1.2 Details of Local Air Quality Reports submitted by Aberdeenshire Council**

<b>Date Submitted</b>	<b>Review &amp; Assessment Task</b>	<b>Conclusions</b>
August 2003	Updating & Screening Assessment (2003) <sup>1</sup>	Monitoring of NO <sub>2</sub> was undertaken at 13 sites. No observed or predicted exceedances of annual mean air quality objectives. No requirement for a detailed assessment.
April 2004	Progress Report (2004) <sup>2</sup>	Monitoring of NO <sub>2</sub> ceased at 4 sites. Monitoring at the remaining 9 sites. No observed or predicted exceedances of annual mean air quality objectives. No requirement for a detailed assessment.
May 2005	Progress Report (2005) <sup>3</sup>	NO <sub>2</sub> monitoring at 9 sites. No observed or predicted exceedances of annual mean air quality objectives. No requirement for a detailed assessment.
June 2006	Updating & Screening Assessment (2006) <sup>4</sup>	Monitoring of NO <sub>2</sub> undertaken at 14 sites (5 new sites added). No observed or predicted exceedances of annual mean air quality objectives. No requirement for a detailed assessment.
June 2007	Progress Report (2007) <sup>5</sup>	Monitoring of NO <sub>2</sub> undertaken at 14 sites. No observed or predicted exceedances of annual mean air quality objectives. No requirement for a detailed assessment.
August 2008	Progress Report (2008) <sup>6</sup>	Monitoring of NO <sub>2</sub> undertaken at 14 sites. No observed or predicted exceedances of annual mean air quality objectives. No requirement for a detailed assessment.
July 2009	Updating & Screening Assessment (2009) <sup>7</sup>	Monitoring of NO <sub>2</sub> undertaken at 14 sites. No observed or predicted exceedances of annual mean air quality objectives. No requirement for a detailed assessment.
July 2010	Progress Report (2010) <sup>8</sup>	Monitoring of NO <sub>2</sub> undertaken at 14 sites. All recorded concentrations remained below the annual mean NAQS objective. Six sites will be removed from the monitoring programme over this year. No requirement for a detailed assessment.
June 2011	Progress Report (2011) <sup>9</sup>	Monitoring of NO <sub>2</sub> undertaken at 8 sites. No observed or predicted exceedances of annual mean air quality objectives. No requirement for a detailed assessment.
September 2012	Updating & Screening Assessment (2012) <sup>10</sup>	Monitoring of NO <sub>2</sub> undertaken at 8 sites. No observed or predicted exceedances of annual mean air quality objectives. No requirement for a detailed assessment.
June 2013	Progress Report (2013) <sup>11</sup>	Monitoring of NO <sub>2</sub> undertaken at 8 sites. No observed or predicted exceedances of annual mean air quality objectives. No requirement for a detailed assessment.

## 2 New Monitoring Data

### 2.1 Summary of Monitoring Undertaken

#### 2.1.1 Automatic Monitoring Sites

Aberdeenshire Council does not operate, nor does it have located within its boundaries, any automatic analysers or monitors.

#### 2.1.2 Non-Automatic Monitoring Sites

Details of the current monitoring sites are presented in Table 2.1. Maps detailing the locations of the non-automatic monitoring sites are presented in Appendix A, Maps A.1-A.6 (p29-35).

**Table 2.1 Details of Non- Automatic Monitoring Sites**

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	Relevant Exposure?	Distance to kerb of nearest road	Worst-case exposure?
Inverurie 1	Kerbside	E 377403 N 821584	NO <sub>2</sub>	Y (2m)	< 5m	Y
Inverurie 2	Roadside	E 376646 N821469	NO <sub>2</sub>	Y (5m)	< 2m	Y
Peterhead 1	Kerbside	E 413594 N 846066	NO <sub>2</sub>	Y (2m)	< 5m	Y
Peterhead 2	Kerbside	E 413209 N 846356	NO <sub>2</sub>	Y (2m)	< 5m	Y
Peterhead 3	Kerbside	E 412716 N 846734	NO <sub>2</sub>	Y (2m)	< 5m	Y
Peterhead 4	Kerbside	E 412758 N 846144	NO <sub>2</sub>	Y (2m)	< 5m	Y
Stonehaven 1	Kerbside	E 387445 N 785823	NO <sub>2</sub>	Y (2m)	< 5m	Y
Westhill 2	Kerbside	E 382118 N 806577	NO <sub>2</sub>	Y (2m)	< 5m	Y
Ellon 1	Roadside	E 395604 N 830472	NO <sub>2</sub>	Y (2m)	< 5m	Y
Ellon 3	Roadside	E 395711 N 830170	NO <sub>2</sub>	Y (3m)	< 5m	Y
Ellon 4	Roadside	E 395893 N 830509	NO <sub>2</sub>	Y (2m)	< 5m	Y

## 2.2 Comparison of Monitoring Results with Air Quality Objectives

Comparison of measured NO<sub>2</sub> concentrations with relevant air quality standards are discussed in Section 2.2.1.

### 2.2.1 Nitrogen Dioxide (NO<sub>2</sub>)

#### Diffusion Tube Monitoring Data

The NO<sub>2</sub> diffusion tube monitoring data for 2013 is presented in Table 2.2. Raw data is presented in Appendix B (p36). NO<sub>2</sub> diffusion tube monitoring data for the previous 5 years is presented in Table 2.3, with a longer term trend chart for the data obtained from 2005 onwards period presented in Figure 2.1.

QA:QC data in relation to NO<sub>2</sub> diffusion tube monitoring data is presented in Appendix C (p37-39).

Data capture is satisfactory at the majority of sites, with the exception of Peterhead 4 where data capture was only 58%. There is an ongoing problem with vandalism of diffusion tubes, on a monthly basis, at Peterhead 4.

Recommendations in the generic Progress Report Template, provided on the DEFRA website<sup>12</sup> state that “*Where data capture is less than 75% of a full calendar year (less than 9 months), the mean should be “annualised”*”. Consequently, the measured mean of a 3 month monitoring period (with 100% data capture) for the site at Peterhead 4 was annualised in accordance with instructions given in Box 3.2 of TG(09)<sup>13</sup>. The annualisation ratio used in these calculations is described in Appendix C (p37-38) and is based on automatic urban background sites in Aberdeen City, Dundee City and City of Edinburgh. These sites were used in the absence of any automatic urban background monitoring data within the Aberdeenshire Council area. All sites are part of the national network. The sites at Dundee City and City of Edinburgh have a data capture above 90%, as recommended in the guidance. Although the site at Aberdeen City has lower percentage data capture it has been included in the calculations as the nearest background automatic site and as the period of data capture coincides with the data available for Peterhead 4.

The annualised mean data for the site at Peterhead 4 was subject to bias adjustment in the normal way and is presented alongside all other bias adjusted mean data in Table 2.2.

The highest recorded annual mean concentration continues to be observed at site Inverurie 1. This is a kerbside location on the busy B9170 close to the junction with the B9001 where there is a traffic light system in place. The road is the main shopping street in Inverurie and the junction is important for through traffic. In addition, there is a shopping area with large national retailers nearby accessed from the B9001 junction.

There were no exceedances of the NO<sub>2</sub> annual mean objective recorded in Aberdeenshire Council area during 2013.

Analysis of the presented data does not reveal any significant trend at any individual site or across Aberdeenshire as a whole.

**Table 2.2 Results of NO<sub>2</sub> Diffusion Tubes 2013**

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months) <sup>a</sup>	2013 Annual Mean Concentration (µg/m <sup>3</sup> ) - Bias Adjustment factor = 0.83 <sup>b</sup>
Inverurie 1	West High St	Kerbside	N	N	10	33.1
Inverurie 2	Gordon House	Roadside	N	N	10	8.5
Westhill 2	Elrick Cottages	Kerbside	N	N	10	22.6
Peterhead 1	Broad St	Kerbside	N	N	11	21.5
Peterhead 2	Queen St	Kerbside	N	N	11	27.5
Peterhead 3	Hay Crescent	Kerbside	N	N	11	21.2
Peterhead 4	Kirk St	Kerbside	N	N	7	28.5 <sup>a</sup>
Stonehaven 1	Allardice St	Kerbside	N	N	9	21.7
Ellon 1	Bridge St	Roadside	N	N	10	22.6
Ellon 3	South Road	Roadside	N	N	9	26.3
Ellon 4	The Square	Roadside	N	N	10	21.0

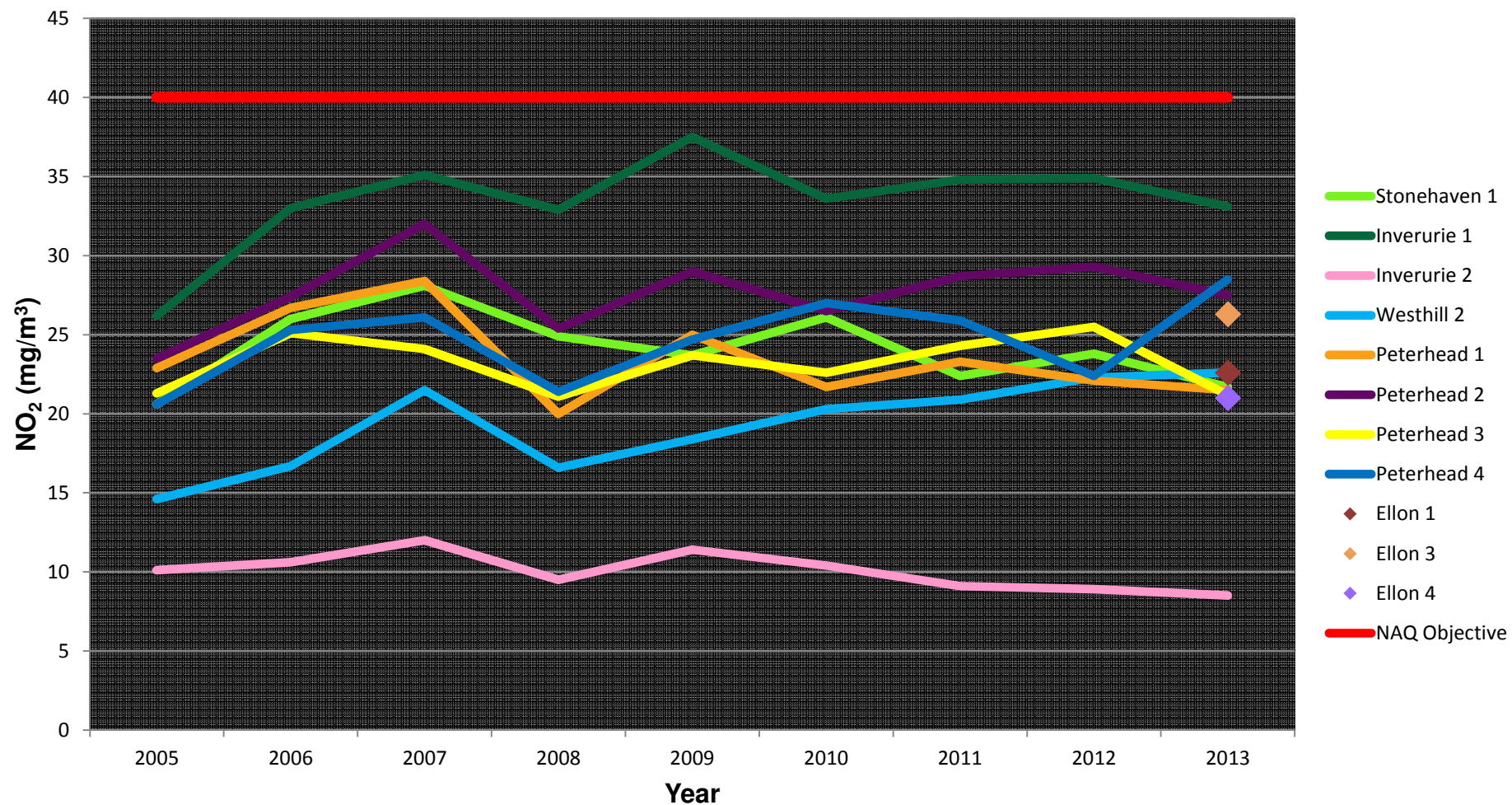
<sup>a</sup> Means have been “annualised” as in Box 3.2 of TG(09)<sup>13</sup> where full calendar year data capture is less than 75%

**Table 2.3 Results of NO<sub>2</sub> Diffusion Tubes (2009 to 2013)**

Site ID	Location	Site Type	Annual mean concentration (adjusted for bias) µg/m <sup>3</sup>				
			2009 (Bias Adjustment factor = 0.84)	2010 (Bias Adjustment factor = 0.82)	2011 (Bias Adjustment factor = 0.85)	2012 (Bias Adjustment factor = 0.83)	2013 (Bias Adjustment factor = 0.83)
Inverurie 1	West High St	Kerbside	37.5	33.6	34.8	34.9 <sup>a</sup>	33.1
Inverurie 2	Gordon House	Roadside	11.4	10.4	9.1	8.9	8.5
Westhill 2	Elrick Cottages	Kerbside	18.4	20.3	20.9	22.3	22.6
Peterhead 1	Broad St	Kerbside	25.0	21.7	23.3	22.1	21.5
Peterhead 2	Queen St	Kerbside	29.0	26.5	28.7	29.3	27.5
Peterhead 3	Hay Crescent	Kerbside	23.7	22.6	24.3	25.5	21.2
Peterhead 4	Kirk St	Kerbside	24.7	27.0 <sup>a</sup>	25.9	22.4 <sup>a</sup>	28.5 <sup>a</sup>
Stonehaven 1	Allardice St	Kerbside	23.7	26.1 <sup>a</sup>	22.4	23.8	21.7
Ellon 1	Bridge St	Roadside	N/A	N/A	N/A	N/A	22.6
Ellon 3	South Rd	Roadside	N/A	N/A	N/A	N/A	26.3
Ellon 4	The Square	Roadside	N/A	N/A	N/A	N/A	21.0

<sup>a</sup> Means have been “annualised” as in Box 3.2 of TG(09)<sup>13</sup> where full calendar year data capture is less than 75%

**Figure 2.1: Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites 2005-2013**





### **2.2.2 Particulate Matter (PM<sub>10</sub>)**

Aberdeenshire Council does not carry out any monitoring in respect of PM<sub>10</sub>.

### **2.2.3 Sulphur Dioxide (SO<sub>2</sub>)**

Aberdeenshire Council does not carry out any monitoring in respect of Sulphur Dioxide.

### **2.2.4 Benzene**

Aberdeenshire Council does not carry out any monitoring in respect of Benzene.

### **2.2.5 Other Pollutants Monitored**

Aberdeenshire Council has not undertaken specific monitoring in respect of any other pollutant.

There were a total of 106 complaints received by Aberdeenshire Council during 2013 in regard to matters relevant to air quality. The 106 complaints comprised of the following;

- 33 domestic bonfire complaints
- 16 complaints relating to activities on construction sites
- 3 complaints relating to smoke/odour from small domestic biomass plant
- 14 complaints relating to agricultural activity
- 40 miscellaneous complaints

All the above noted complaints relate to transient events, some unsubstantiated.

Aberdeenshire Council do not consider that the sources mentioned here are likely to have any significant long term effect on local air quality.

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

Aberdeenshire Council has examined the results from monitoring in the local authority area. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

## **3 New Local Developments**

### **3.1 Road Traffic Sources**

No new road traffic sources or areas of significantly changed traffic flow have been identified since the last Updating and Screening Assessment.

### **3.2 Other Transport Sources**

No new transport sources have been identified since the last Updating and Screening Assessment.

### **3.3 Industrial Sources**

Information on substantially changed industrial processes was requested from the Scottish Environment Protection Agency (SEPA). The information provided by SEPA states:

- SEPA has identified a new leachate treatment activity at an existing waste water treatment plant in Peterhead with potential for H<sub>2</sub>S and NH<sub>3</sub> emissions (PPC/A/1103919).
- SEPA is not aware of any regulated process where emissions to air have increased by more than 30%.
- SEPA has identified new development at Whitecairns Farm, New Deer where there is some potential for significant impact on local air quality, due to new intensive pig farming activity (PPC/A/1116152).
- SEPA has provided a list of industrial processes that have ceased to operate over the past year and thus no longer continue to produce emissions to air:
  - Fetternear Poultry Unit, Woodend, Inverurie (PPC/A/1016796)
  - Kirkhill Waste Treatment Facility, Peterhead (PPC/A/1010898)
  - Inverboyndie, Banff (PPC/A/1010879)
  - Lower Inchdrewer Pig Unit, Banff (PPC/N/20021)
  - Mains of Auchenbadie Pig Unit, Banff (PPC/A/1016194)
  - Drum of Wartle PVR, Inverurie (PPC/B/1003251)

- SEPA is not aware of any new petrol stations with an annual throughput of over 2000 m<sup>3</sup> of petrol.
- SEPA is not aware of any new mineral extraction processes that are likely to have a significant impact on local air quality.
- SEPA has identified two new poultry units that meet the criteria detailed in TG.09 and thus have some potential to significantly impact on local air quality
  - Lower Inchdrewer Poultry Unit, Banff (PPC/A/1114617)
  - Mains of Auchenbadie Poultry Unit, Banff (PPC/A/1114003)

### 3.4 Commercial and Domestic Sources

A review of planning applications, building warrant applications and local knowledge has identified the following new biomass combustion plant, as listed in Table 3.1 below.

**Table 3.1 Biomass plant identified in Aberdeenshire 2013**

Location	Biomass Type	Capacity (kW)
Westfield School, Fraserburgh	unknown	unknown
Castelton Farm, Fordoun	Wood Pellet	70
Sandhaven & Pittulie Hall, Fraserburgh	unknown	unknown
Fordoun Sawmill, Fordoun	unknown	unknown
Inverernan House, Strathdon	Wood Chip	150
Mid Deeside Church, Torphins	unknown	unknown
Pitmurchie House, Aboyne	Wood Pellet	180
New Kendal, Keith Hall, Inverurie	unknown	unknown
East Bandodole, Midmar	unknown	unknown
Altdourie Home Farm, Braemar	Wood Pellet	70
Gallabog Croft, Largue	unknown	unknown
House of Glack, Daviot	unknown	unknown
Midmill Primary, Kintore	Wood Pellet	199
New Sheltered Housing, Inverurie	unknown	unknown
Mar Lodge, Braemar	Wood Chip	700
Maryculter House Hotel	Wood Pellet	200
Aberdeenshire Grain, Whiterashes	Wood Chip	6000
Queen Elizabeth Ct, Fettercairn	Wood Pellet	199
Scalloway Park, Fraserburgh	unknown	unknown
Berryhill House, Peterhead	Wood Chip	150
Mearns Academy, Laurencekirk	Wood Pellet	250
Ellon Academy, Ellon	Wood Pellet	600

Detailed information will be sought from the developers of the above sites and screening assessments completed. The results of the screening assessments will be reported in the next Updating and Screening Assessment, due 2015.

A summary of data gathered for the Scottish Government's Scottish House Condition Survey, and provided by Aberdeenshire Council's Housing Service, is listed in Table 3.2, below. This data demonstrates that domestic solid fuel burning is not likely to be a significant source of emissions to air in the Aberdeenshire Council area. It is not expected that this fuel mix will have changed significantly since the survey period, although available survey data will be reviewed again next year and reported in the next Updating and Screening Assessment, due 2015.

Table 3.2 Primary Heating Types Used in Aberdeenshire

Year	Primary Heating Fuel	Estimated Frequency in Aberdeenshire	% Estimated Frequency by Aberdeenshire Household
2007-2009	Gas (mains)	51000	50
	Bulk LPG	4000	4
	Bottled gas	-	-
	Oil	23000	23
	House coal	1000	1
	Smokeless fuel	1000	1
	Antracite nuts and grain	-	-
	Wood or peat	1000	1
	Peak electric	1000	1
	Off-peak electric	20000	20
	Communal heating	-	-
	Not applicable	-	-
<b>Total</b>		<b>101000</b>	<b>100</b>
<b>Number of Sampled Cases in Aberdeenshire</b>			<b>353.00</b>

### **3.5 New Developments with Fugitive or Uncontrolled Sources**

Two planning applications were received relating to small scale quarrying with operations proposed for a limited period only. It is not expected that these operations will have significant impact on local air quality.

Aberdeenshire Council has identified the following new or previously unidentified local developments which may impact on air quality in the Local Authority area.

- New leachate treatment activity identified by SEPA (PPC/A/1103919)
- New intensive pig farming activity identified by SEPA (PPC/A/1116152)
- New intensive poultry farming activities identified by SEPA (PPC/A/1114617 and PPC/A/1114003)
- New biomass combustion plant (Listed in Table 3.1)

These will be taken into consideration in the next Updating and Screening Assessment.

## **4 Planning Applications**

In addition to those developments already discussed, Aberdeenshire Council has approved a planning application for a new Crematorium in Crathes near Banchory. This development also requires approval for emissions to air under the SEPA regulated PPC regime. Should the development meet the requirements of the PPC regime and become operational, it is unlikely there would be any significant impact on local air quality management; although this will be reviewed at the next Updating and Screening Assessment in 2015.



## **5 Local Transport Plans and Strategies**

There has been no further Local Transport Strategy update since the previous LAQM Progress Report 2013<sup>11</sup>.

Aberdeenshire Council is currently working on new strategies within the Scottish Traffic Appraisal Guidance (STAG) and Modern Transport System (MTS) framework. Further details can be found at the following link:

<http://aberdeenshire.gov.uk/transportation/other/index.asp>

## **6 Conclusions and Proposed Actions**

### **6.1 Conclusions from New Monitoring Data**

New monitoring sites in the town of Ellon show results consistent with the other sites throughout the local authority area. As Aberdeenshire Council has identified the town of Ellon and surrounding areas as key expansion areas for development, monitoring will continue at these sites meantime.

New monitoring data, across all sites, demonstrates that concentrations of NO<sub>2</sub> in Aberdeenshire continue to remain below AQS objectives.

No AQMAs have been declared in the Aberdeenshire Council area and no requirement for detailed assessment has been identified.

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

Aberdeenshire Council has identified the following new or previously unidentified local developments which may impact on air quality in the Local Authority area.

- New industrial activities identified by SEPA (listed in Section 3.3)
- New biomass combustion plant (listed in Table 3.2)
- New crematorium at Crathes, Banchory

These will be taken into consideration in the next Updating and Screening Assessment, scheduled for 2015.

### **6.3 Other Conclusions**

Aberdeenshire Council received a number of complaints during 2013 in regard to matters relevant to air quality.

All of the sources that gave rise to the logged complaints were transient and are not expected to have any significant long term impact on local air quality.

## **6.4 Proposed Actions**

The new monitoring data has been considered and it is concluded there is no requirement to proceed to a Detailed Assessment for any pollutant at this time. However, Aberdeenshire Council will continue to monitor NO<sub>2</sub> levels at all existing sites.

In terms of new development, Aberdeenshire Council will continue to identify and collate technical information regarding biomass installations for which details are submitted under the planning regime, and will also continue to seek, identify and collate technical information for those installations not controlled by the planning regime but where there may be an impact on local air quality. This information will be held in an inventory of known biomass installations throughout the Aberdeenshire Council area. Aberdeenshire Council will carry out screening assessments of new biomass installations and report results in the next Updating and Screening Assessment, scheduled for 2015.

Aberdeenshire Council will also consider the identified industrial developments and new local developments in the next Updating and Screening Assessment in 2015.

## 7 References

- 1 Aberdeenshire Council, *Air Quality Updating and Screening Assessment for Aberdeenshire Council 2003 for Aberdeenshire Council*, available at <http://www.aberdeenshire.gov.uk/environmental/atmosphere.asp>, July 2003
- 2 Aberdeenshire Council, *Local Air Quality Management Progress Report 2004*, available at <http://www.aberdeenshire.gov.uk/environmental/atmosphere.asp>, April 2004
- 3 Aberdeenshire Council, *Local Air Quality Management Progress Report 2005*, available at <http://www.aberdeenshire.gov.uk/environmental/atmosphere.asp>, April 2005
- 4 Aberdeenshire Council, *Air Quality Updating and Screening Assessment 2006 for Aberdeenshire Council*, available at <http://www.aberdeenshire.gov.uk/environmental/atmosphere.asp>, August 2006
- 5 Aberdeenshire Council, *Local Air Quality Management Progress Report 2007*, available at <http://www.aberdeenshire.gov.uk/environmental/atmosphere.asp>, April 2007
- 6 Aberdeenshire Council, *Local Air Quality Management Progress Report 2008*, available at <http://www.aberdeenshire.gov.uk/environmental/atmosphere.asp>, April 2008
- 7 Aberdeenshire Council, *Air Quality Updating and Screening Assessment 2009 for Aberdeenshire Council*, available at <http://www.aberdeenshire.gov.uk/environmental/atmosphere.asp>, July 2009
- 8 Aberdeenshire Council, *Local Air Quality Management Progress Report 2010*, available at <http://www.aberdeenshire.gov.uk/environmental/atmosphere.asp>, July 2010
- 9 Aberdeenshire Council, *Local Air Quality Management Progress Report 2011*, available at <http://www.aberdeenshire.gov.uk/environmental/atmosphere.asp>, June 2011
- 10 Aberdeenshire Council, *Air Quality Updating and Screening Assessment 2012 for Aberdeenshire Council*, available at <http://www.aberdeenshire.gov.uk/environmental/atmosphere.asp>, September 2012
- 11 Aberdeenshire Council, *Local Air Quality Management Progress Report 2013*, available at <http://www.aberdeenshire.gov.uk/environmental/atmosphere.asp>, June 2013
- 12 Department for Environment, Food and Rural Affairs: London, *Local Air Quality Management Support, Report Templates*, available at <http://laqm.defra.gov.uk/review-and-assessment/report-templates.html>, June 2013
- 13 Department for Environment, Food and Rural Affairs: London, *Local Air Quality Management Technical Guidance LAQM.TG(09)* (PB13215 February 2009)

## Appendices

Appendix A: Maps of Non-Automatic Monitoring Sites

Appendix B: Diffusion Tube Raw Data

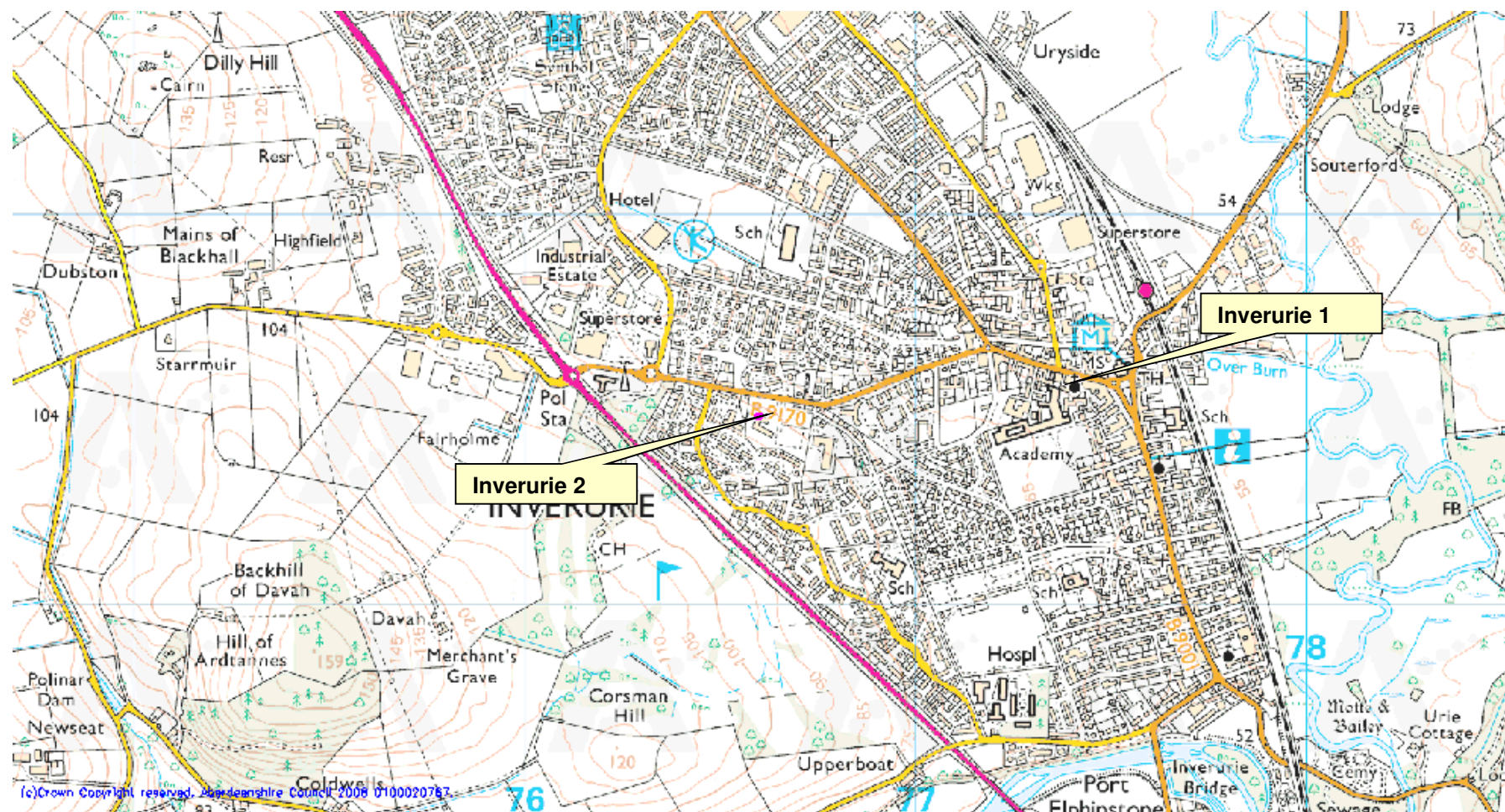
Appendix C: Quality Assurance / Quality Control (QA/QC) Data

## **Appendix A: Maps of Non-Automatic Monitoring Sites**

- Map A.1      Settlements in Aberdeenshire where NO<sub>2</sub> Diffusion Tube Monitoring was undertaken during 2013**
- Map A.2      Location of NO<sub>2</sub> Diffusion Tube Sites (Inverurie)**
- Map A.3      Location of NO<sub>2</sub> Diffusion Tube Sites (Peterhead)**
- Map A.4      Location of NO<sub>2</sub> Diffusion Tube Sites (Stonehaven)**
- Map A.5      Location of NO<sub>2</sub> Diffusion Tube Sites (Westhill)**
- Map A.6      Location of NO<sub>2</sub> Diffusion Tube Sites (Ellon)**

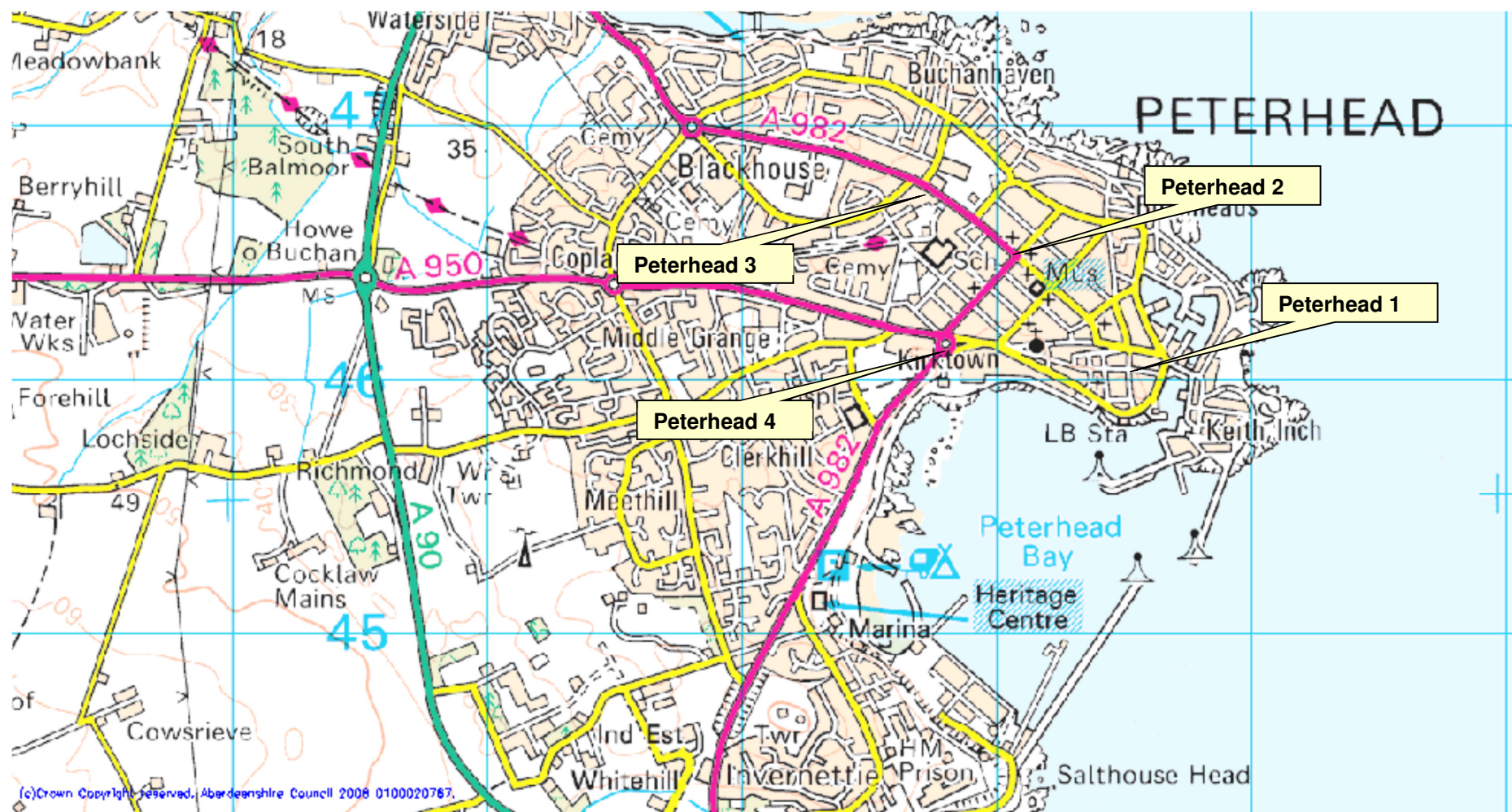
**Map A.1      Settlements in Aberdeenshire where NO<sub>2</sub> Diffusion Tube Monitoring was undertaken during 2013**





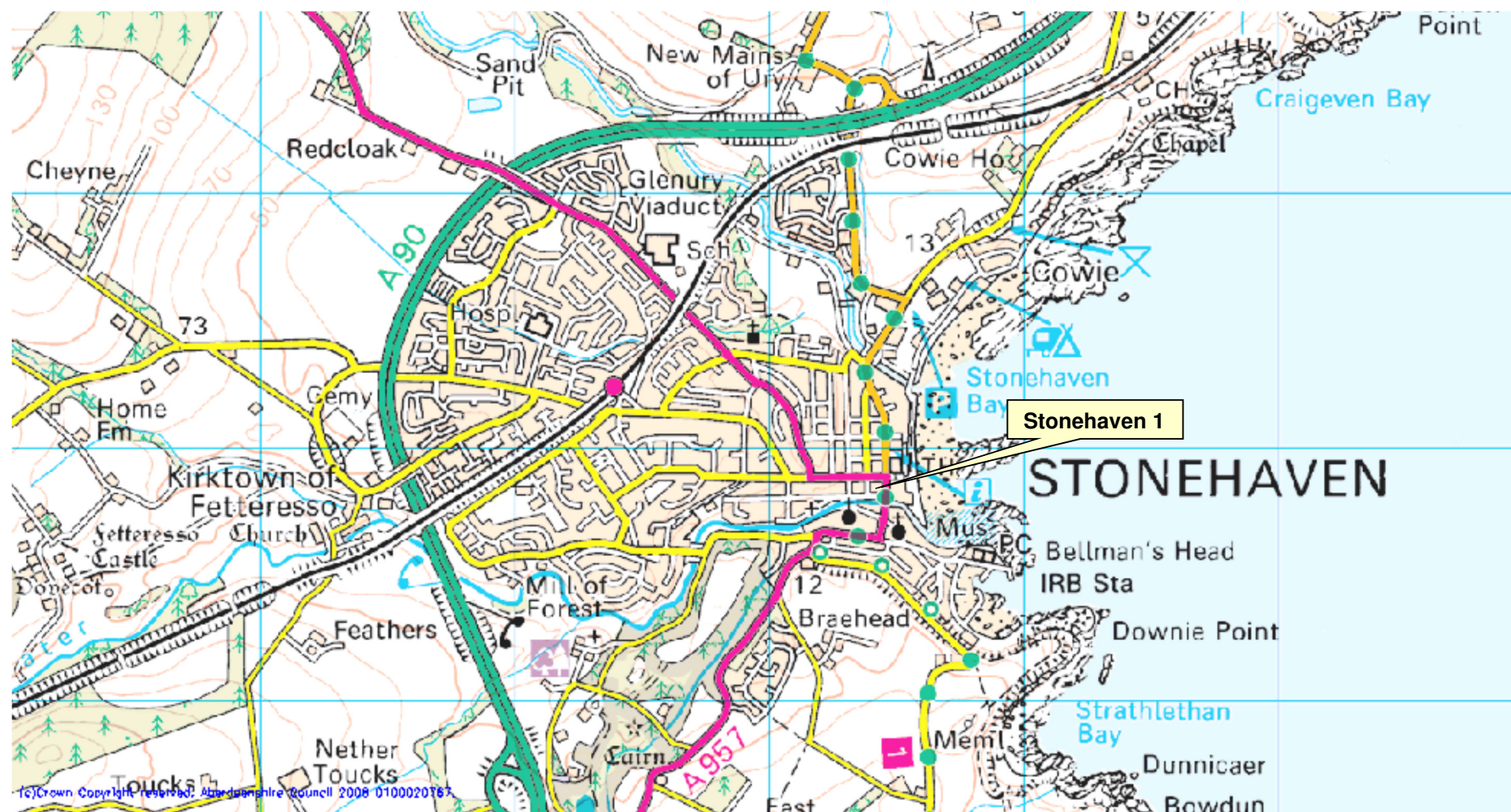


**Map A.3 Location of NO<sub>2</sub> Diffusion Tube Sites (Peterhead)**



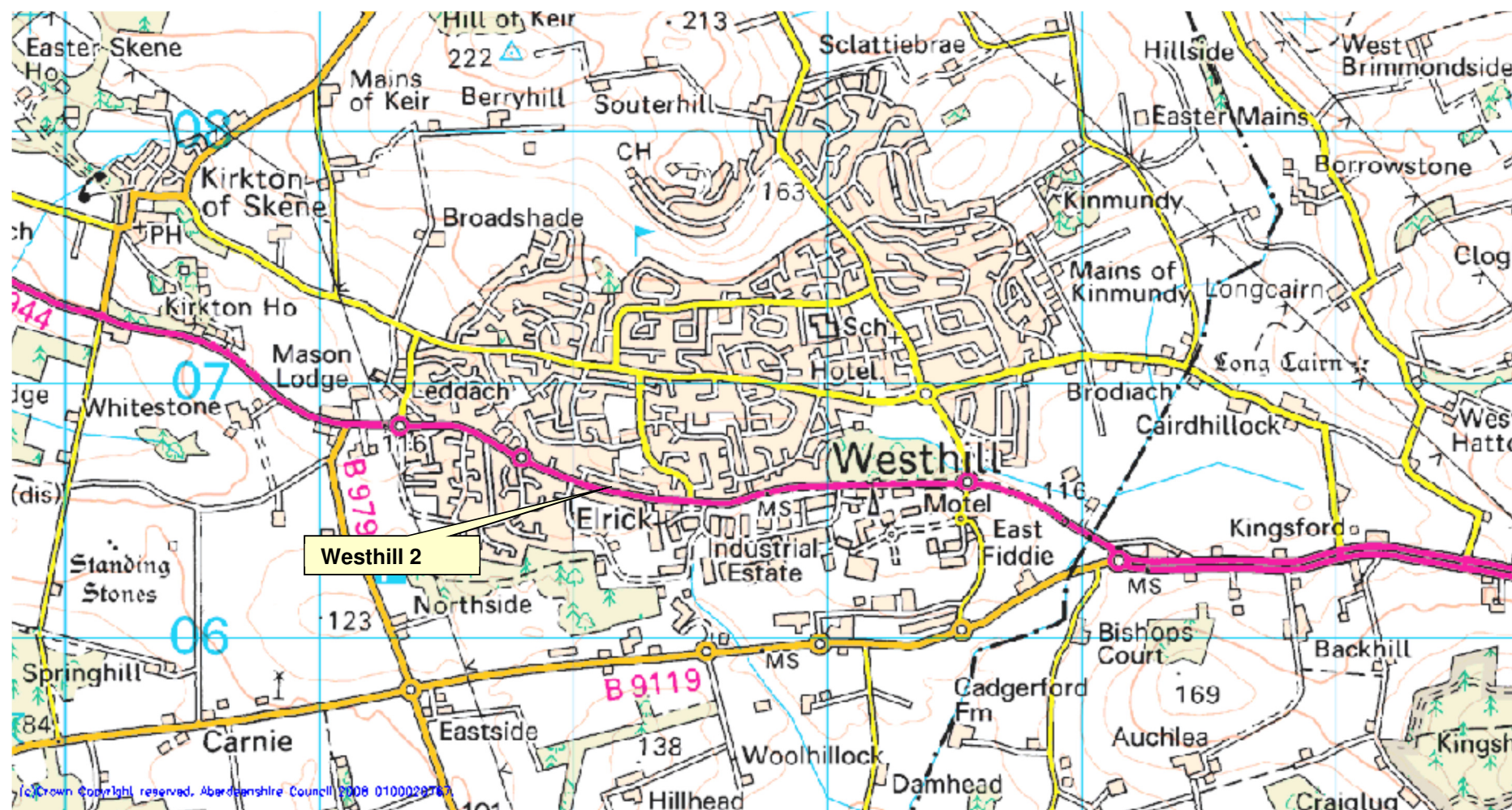


Map A.4 Location of NO<sub>2</sub> Diffusion Tube Sites (Stonehaven)



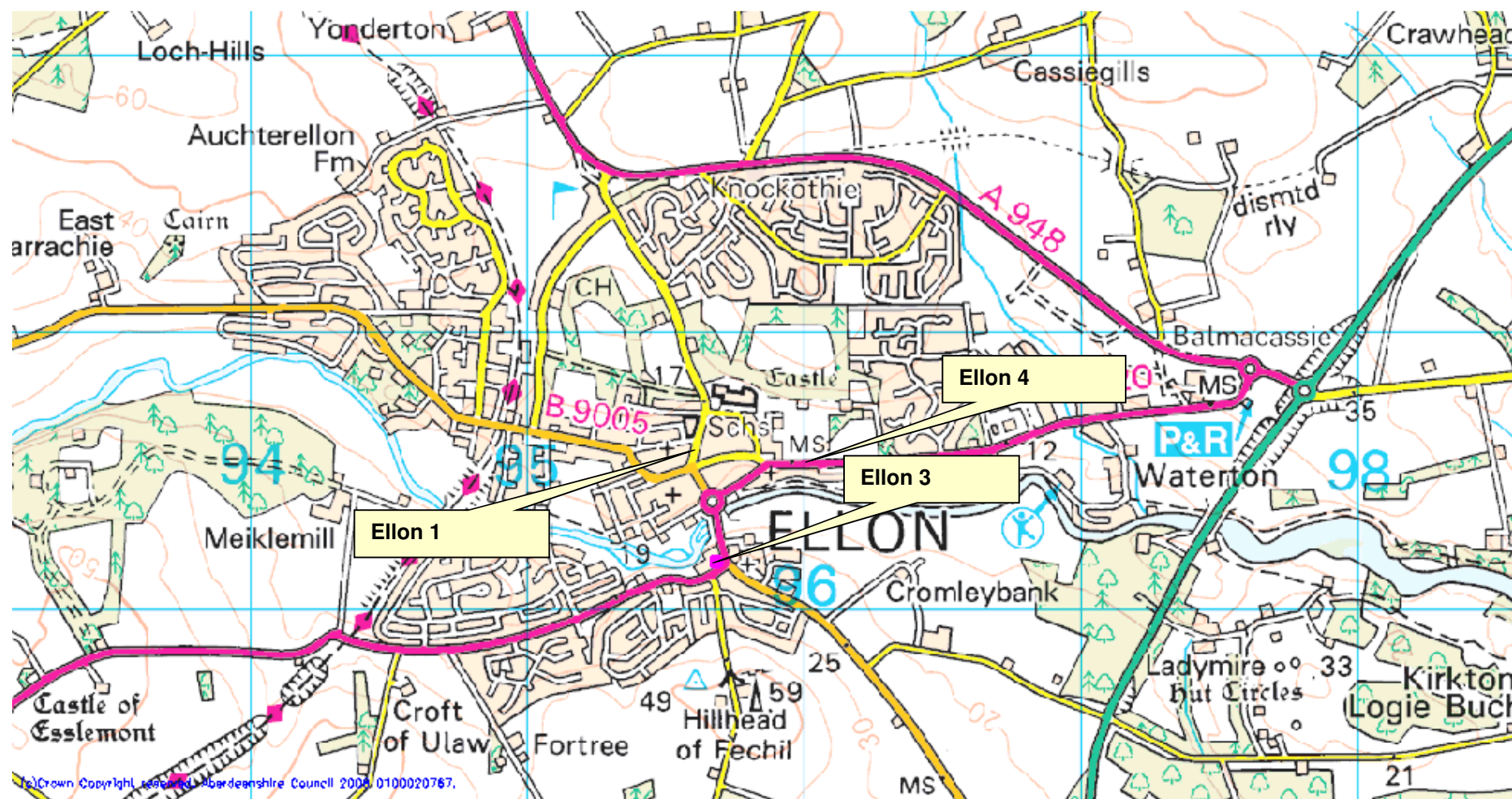


Map A.5 Location of NO<sub>2</sub> Diffusion Tube Sites (Westhill)





Map A.6 Location of NO<sub>2</sub> Diffusion Tube Sites (Ellon)



## Appendix B: Diffusion Tube Raw Data

Table B.1: Raw Nitrogen Dioxide Diffusion Tube Data from Periods 1-12 in Year 2013

	Period (2011)											
Site ID	1	2	3	4	5	6	7	8	9	10	11	12
Inverurie 1	N/A	45	40	42	29	32	36	36	N/A	40	53	46
Inverurie 2	N/A	14	13	12	6	6	7	8	N/A	14	14	9
Westhill 2	N/A	30	36	31	19	29	23	23	N/A	32	27	22
Peterhead 1	N/A	27	20	23	18	27	28	31	25	24	25	37
Peterhead 2	N/A	35	34	36	26	37	39	34	34	30	27	32
Peterhead 3	N/A	32	28	24	21	24	25	24	27	25	27	24
Peterhead 4	N/A	29	26	25	17	27	29	N/A	N/A	26	N/A	N/A
Stonehaven 1	N/A	N/A	N/A	32	23	29	26	24	27	27	28	19
Ellon 1	N/A	35	24	27	20	26	22	N/A	26	28	36	28
Ellon 3	N/A	39	30	31	23	25	N/A	N/A	26	43	40	28
Ellon 4	N/A	33	25	26	18	22	22	N/A	22	26	32	27

### Key:

	Tube lost , contaminated, or unobtainable due to scaffolding etc
	Exposure period too long or too short (by a factor greater than +/- 2 days)
	Valid data

## Appendix C: QA:QC Data

### Diffusion Tube Bias Adjustment Factors

Laboratory analysis of passive diffusion tubes used by Aberdeenshire Council is undertaken by Aberdeen Scientific Services (Aberdeen City Council). Aberdeen Scientific Services is a UKAS accredited laboratory with documented Quality Assurance/Quality Control (QA/QC) procedures for diffusion tube analysis. The laboratory prepares the diffusion tubes using the 20% triethanolamine (TEA) in water method.

The 2013 bias adjustment factor for Aberdeen Scientific Services was obtained from the National Diffusion Tube Bias Adjustment Spreadsheet, version 06/14 (available at <http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>) and is presented in Table C.1.

**Table C.1 Details of 2013 Bias Adjustment Factors for Aberdeen Scientific Services (Aberdeen City Council)**

<b>Analysed By<sup>1</sup></b>	<b>Method</b> To undo your selection, choose (All) from the pop-up list	<b>Year<sup>5</sup></b> To undo your selection, choose (All)	<b>Bias (B)</b>	<b>Tube Precision<sup>6</sup></b>	<b>Bias Adjustment Factor (A) (Cm/Dm)</b>
Aberdeen Scientific Services	20% TEA in Water	2013	20.7%	G	0.83
Aberdeen Scientific Services	20% TEA in water	2013	Use		0.83

### Factor from Local Co-location Studies (if available)

Aberdeenshire Council does not undertake any co-location studies.

### Short-term to Long-term Data adjustment

At one diffusion tube monitoring site (Peterhead 4) the annual data capture was below 75% and consequently the captured data for this site was subject to annualisation as per the instructions given in Box 3.2 of TG(09)<sup>13</sup>.

Sites chosen to obtain the annualisation ratio are detailed in Table C.2, below. The data period chosen to obtain the ratio was a 3 month period from April-June to coincide with the limited data available at the nearest AURN background monitoring site at Errol Place, Aberdeen.

**Table C.2 Annualisation Ratio Data for Peterhead 4: (Apr-May-June)**

Site	Site Type	Annual Mean $\mu\text{g}/\text{m}^3$	Period Mean $\mu\text{g}/\text{m}^3$	Ratio (AM/PM)
Aberdeen Errol Place	Urban Background	20.0	15.0	1.333
Dundee Mains Loan	Urban Background	11.9	6.7	1.776
Edinburgh St Leonards	Urban Background	22.3	16.33	1.368
			<b>Average</b>	<b>1.492</b>

Measured Period Mean (Apr-May-Jun) for Peterhead 4

$$= (25+17+27)/3$$

$$= \underline{23}$$

Estimation of Annual Mean (Apr-May-Jun) for Peterhead 4

$$= \text{Measured Period Mean} \times \text{Average Annualisation Ratio}$$

$$= 23 \times 1.492$$

$$= \underline{34.3}$$

Bias Adjusted Annual Mean for Peterhead 4

$$= 34.3 \times 0.83$$

$$= \underline{28.5 \mu\text{g}/\text{m}^3}$$

The National Diffusion Tube Bias Adjustment Spreadsheet, version 06/14 (available at <http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>) presents Tube Precision for Aberdeen Scientific Services as **GOOD**.

Aberdeen Scientific Services (Aberdeen City Council) participates in the WASP scheme, and have **100% SATISFACTORY** score from the last 8 rounds (R113-120) of the scheme.

### **QA/QC of Diffusion Tube Monitoring**

The National Diffusion Tube Bias Adjustment Spreadsheet, version 06/14 (available at <http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>) presents Tube Precision for Aberdeen Scientific Services as **GOOD**.

Aberdeen Scientific Services (Aberdeen City Council) participates in the WASP scheme, and have **100% SATISFACTORY** score during 2013 (R120-122 inclusive), although R123 at the end of 2013 was not reported. Given consistent score of 100% SATISFACTORY the non-reporting of R123 is not thought to be significant to the conclusions of this Progress Report.