2014 Air Quality Progress Report for The Moray Council

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

April, 2014

TSI Scotland

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Executive Summary

The Local Air Quality Management process as set out in Part IV of the Environment Act (1995) (Ref.1) and the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 (Ref.2) requires all local authorities to complete a Progress Report due for submission in April 2014 in accordance with technical guidance LAQM.TG(09) (Ref.3). The progress report is intended to maintain continuity in the Local Air Quality Management (LAQM) process, and fill in the gaps between the three-yearly cycle of Review and Assessment.

This is the 2014 Progress Report for The Moray Council which identifies all matters regarding impacts to local air quality that are new or have changed since the Progress Report in 2013 (Ref.4) and whether further consideration of such changes is required.

The Air Quality Strategy (AQS) details objective concentrations for the following pollutants:

- Benzene
- 1,3-Butadiene
- Carbon Monoxide (CO)
- Lead
- Sulphur Dioxide (SO_2)
- Nitrogen Dioxide (NO_2)
- Particles (PM_{10})

The results of the monitoring programme across The Moray Council are as follows:

- Diffusion tube results indicate that annual average concentrations of NO_2 are below the AQS annual mean objective of 40µg/m^3 at all monitoring locations. The maximum recorded annual mean concentration was 25.8µg/m^3 in Moss Street Keith.

- There is a general downward trend in annual mean NO_2 concentrations across the diffusion tube network. The concentration marginally decreased at 15 out of 17 comparable sites between 2012 and 2013. There was marginal increase at 1 Elgin site (E1-DT) and 1 Keith site (K2-DT15) however, the annual mean remains considerably below the limit of 40µg/m^3 at all locations.
- There was a significant reduction in concentration in Fochabers High Street (F1-DT11) from between 30-37µg/m^3 in recent years to 12.2µg/m^3 in 2012 which is likely to be due to the opening of the Bypass in January 2012, reducing traffic flow in Fochabers High Street. This level reduced during 2013 to 11.3µg/m^3 (although this is an annualized mean due to low data capture) with the Fochabers George Street site (DT12) remaining unchanged at 4.7µg/m^3.

A review of planning applications submitted in 2013 showed that there were no new commercial or residential developments likely to result in any exceedences of the AQS objectives for any pollutant.

Consultation with SEPA has confirmed that there are no new or significantly changed industrial sources likely to result in an exceedence of any AQS objectives for any pollutant.

The Moray Council Transportation Section confirmed that there were no new road developments with the potential to result in an exceedence of the AQS objectives. For the majority of roads monitored in Elgin, the Annual Average Daily Traffic (AADT) count has increased slightly between 2012 and 2013 but there have been some reductions.

The AADT flows have increased on 13 out of 16 of the road links between 2012 and 2013. The vast increase in traffic flow on the A96 Mosstodloch is due to the complete opening of the new bypass in 2012. The maximum increase on any other link is 12% on the A95 West of Keith. It is not expected that there will be any exceedences of the NAQS objectives at nearby receptors due to changes in traffic flow on the trunk roads.

There are proposals for a new Western Link Road linking the A96 to the west of Elgin. The proposed scheme will result in an increase in traffic flow on some roads, but a decrease on others. The Environmental Statement for the development concluded that

the impact for local air quality due to the scheme would be negligible. This will be submitted with the planning application for the development which is due for submission in Spring 2014.

No other new or significantly changed roads were identified.

It is concluded that The Moray Council is not required to proceed to a Detailed Assessment for any pollutant.

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1 Introduction

1.1 Description of Local Authority Area

The Moray Council area is located in the north-east of Scotland between the main cities of Inverness and Aberdeen. It is bordered by The Highland Council area to the west and by Aberdeenshire Council to the south and east. The northern border of the Moray Council area is the coastline of the Moray Firth.

Topographically, the area is dominated by the Glens of the Grampian Mountain Range including large areas of forest and moorland to the south. The northern area is relatively flat with large expanses of agricultural land and coastal grassland.

The population of the Moray Council area is approximately 88,000 with the majority of residents living in the towns of Elgin, Forres, Fochabers, Keith, Buckie, Aberlour and Lossiemouth. The main industries are distilling, food processing and traditional farming, forestry and fishing. The former RAF base in Kinloss is now an army barracks with minimal flight movements while RAF Lossiemouth site is still operational as a Typhoon flight centre.

There is a mainline passenger rail route passing through the north of the area that runs between Inverness and Aberdeen and the main Trunk Roads are the A96, part of which forms the Fochabers and Mosstodloch bypass, which passes through Elgin, and the A95 which passes through Keith, Craigellachie and Aberlour.

The Moray Council boundary is shown in Figure 1.1

Figure 1.1 Map of The Moray Council Area

1.2 Purpose of Progress 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 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 Scotland

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m^3	Running annual mean	31.12.2003
	3.25 µg/m^3	Running annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 µg/m^3	Annual mean	31.12.2004
	0.25 µg/m^3	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10}) (gravimetric)	50 µg/m^3, not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	18 µg/m^3	Annual mean	31.12.2010
Sulphur dioxide	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

Table 1.2 summarises the Air Quality Review and Assessment reports submitted by The Moray Council since 2003 with the most recent report of 2013 listed first.

Table 1.2 Summary of Previous Air Quality Review and Assessment Reports 2003-2013

Report	Date Completed	Summary and Conclusions
Progress Report (Ref.4)	May 2013	No predicted exceedences of AQS Objectives
Updating and Screening Assessment (Ref.5)	April 2012	No predicted exceedences of AQS Objectives
Progress Report (Ref.6)	June 2011	No predicted exceedences of AQS Objectives
Progress Report (Ref.7)	May 2010	No predicted exceedences of AQS Objectives
Updating and Screening Assessment (Ref.8)	May 2009	No predicted exceedences of AQS Objectives
Progress Report (Ref.9)	April 2008	No predicted exceedences of AQS Objectives
Progress Report (Ref.10)	May 2007	No predicted exceedences of AQS Objectives
Updating and Screening Assessment (Ref.11)	June 2006	No predicted exceedences of AQS Objectives
Detailed Assessment of Road Traffic Particulate Emissions (Ref.12)	August 2005	Assessment of short-term monitoring data and modelled road traffic emissions concluded that it was unlikely that there would be an exceedence of the PM_{10} objectives
Progress Report (Ref.13)	May 2005	No predicted exceedences of AQS Objectives
Air Quality Study in the Vicinity of RAF Kinloss and Lossiemouth (Ref.14)	November 2004	No identified exceedences of the AQS Objectives or Odour Threshold Values
Updating & Screening Assessment Supplementary Report (Ref.15)	January 2004	No further assessment of domestic fuel burning or quarries required. Relevant public exposure to PM_{10} identified at 2 road junctions

Updating & Screening Assessment (Ref.16)	May 2003	Additional information on domestic fuel burning and quarry emissions required. DMRB screening tool identified requirement for assessment of PM_{10} at 3 busy junctions

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

Monitoring is carried out for NO_2 within The Moray Council. During 2013, NO_2 was monitored at 19 locations using passive diffusion tubes. There is no other monitoring undertaken for any other pollutant.

2.1.1 Automatic Monitoring Sites

There are no automatic monitoring sites within The Moray Council.

2.1.2 Non-Automatic Monitoring Sites

Non-automatic monitoring of NO_2 was undertaken at 19 locations within The Moray Council in 2013 using passive diffusion tubes. The location and description of each site is shown in Table 2.1. The sites are classified as a mixture of kerbside, roadside and urban background sites. Maps showing the locations of the monitoring sites are shown in Figures 2.1-2.7.

The tubes are provided and analysed by Aberdeen Scientific Services using 20% TEA in Acetone and are changed on a monthly basis by Moray Council personnel. The data capture was above 90% for 18 out of 19 sites. The QA/QC procedures for diffusion tube analysis are included in more detail in Appendix A.

Table 2.1 Details of Non- Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
DT1	Lamp Post West Park Court-Elgin	Kerbside	321105	862669	2.8	NO_2	N	N	Y (<5m)	1m	Y
DT2	Junction East & Maisondieu Rd-Elgin	Kerbside	322348	862745	3	NO_2	N	N	Y (<2m)	1m	Y
DT3	99-101 Maisondieu Road-Elgin	Roadside	322302	862727	3	NO_2	N	N	Y (<5m)	2m	Y
DT4	26-28 Priory Place-Elgin	Urban Background	322249	862630	2.8	NO_2	N	N	Y (<5m)	N/A	N
DT5	Main Street New Elgin	Kerbside	322233	861869	3	NO_2	N	N	Y (<5m)	1m	Y
DT6	Queen Street Roundabout-Elgin	Kerbside	322029	862832	3	NO_2	N	N	Y (<5m)	1m	Y
DT7	Hay Street-Elgin	Roadside	321615	862307	2.3	NO_2	N	N	Y (<5m)	2m	Y
DT8	Newmill Road-Elgin	Roadside	322492	863309	3	NO_2	N	N	Y (<5m)	2m	Y
DT9	37 Sandy Road	Kerbside	321775	861115	3	NO_2	N	N	Y (5m)	1m	Y

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
DT10	47 Wittet Drive	Kerbside	320641	862291	3	NO_2	N	N	Y (5m)	1m	Y
DT11	50A High Street-Fochabers	Kerbside	334423	858663	3	NO_2	N	N	Y (<2m)	2m	Y
DT12	Sunndach George Street-Fochabers	Urban Background	303726	858931	3	NO_2	N	N	Y (<2m)	N/A	N
DT13	Tolbooth, High Street-Forres	Roadside	343323	850458	3	NO_2	N	N	Y (<5m)	2m	Y
DT14	106 Moss Street-Keith	Kerbside	343329	850415	2.8	NO_2	N	N	Y (<5m)	2m	Y
DT15	87 Moss Street-Keith	Kerbside	322463	870293	3.1	NO_2	N	N	Y (<5m)	2m	Y
DT16	1 Merryton Court-Lossiemouth	Urban Background	323515	870931	3	NO_2	N	N	Y (<2m)	N/A	N
DT17	7 James Street-Lossiemouth	Kerbside	327756	849658	3	NO_2	N	N	Y (<2m)	1m	Y
DT18	New Street-Rothes	Roadside	327740	849239	3	NO_2	N	N	Y (<5m)	2m	Y
DT19	New Street-Rothes	Roadside	334423	858663	3	NO_2	N	N	Y (<5m)	2m	Y

Figure 2.1 Map of All Non-Automatic Monitoring Sites

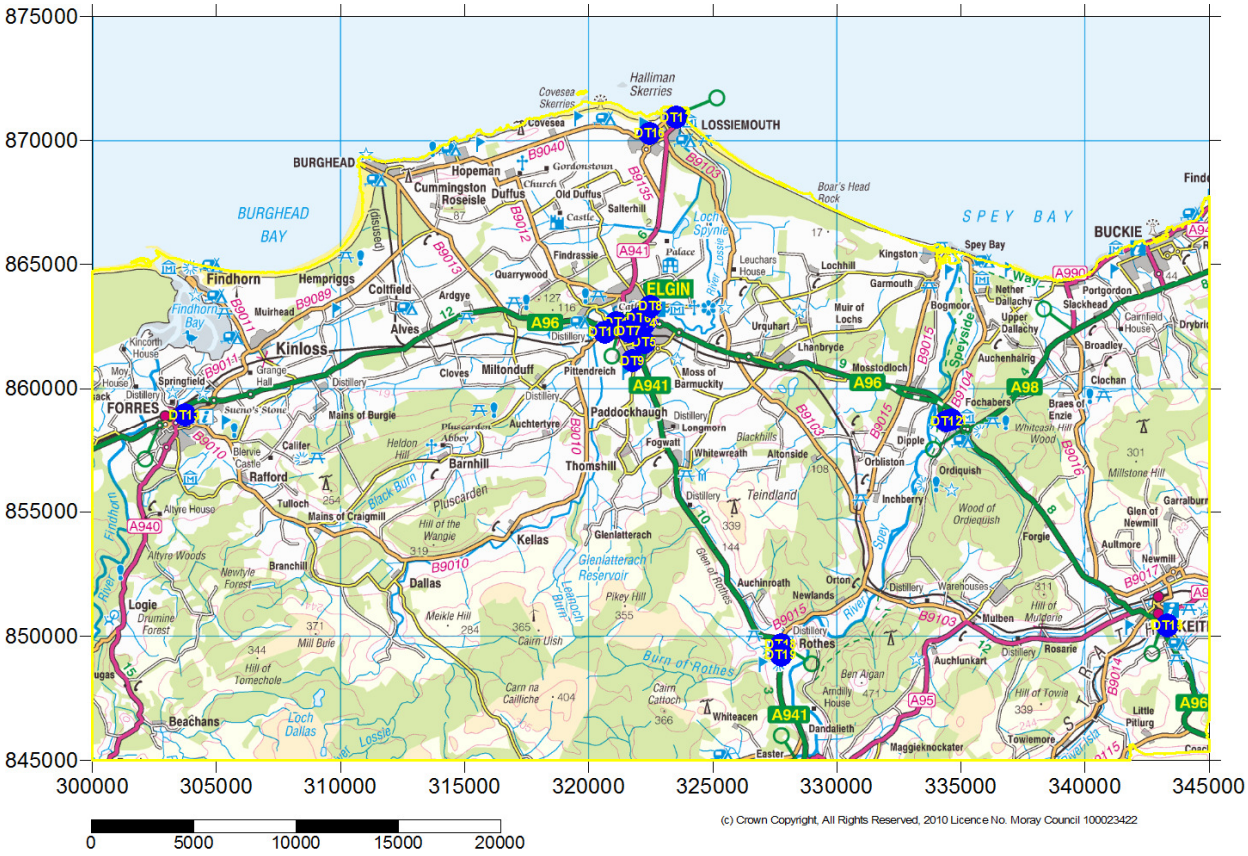

Figure 2.2 Elgin NO_2 Monitoring Sites

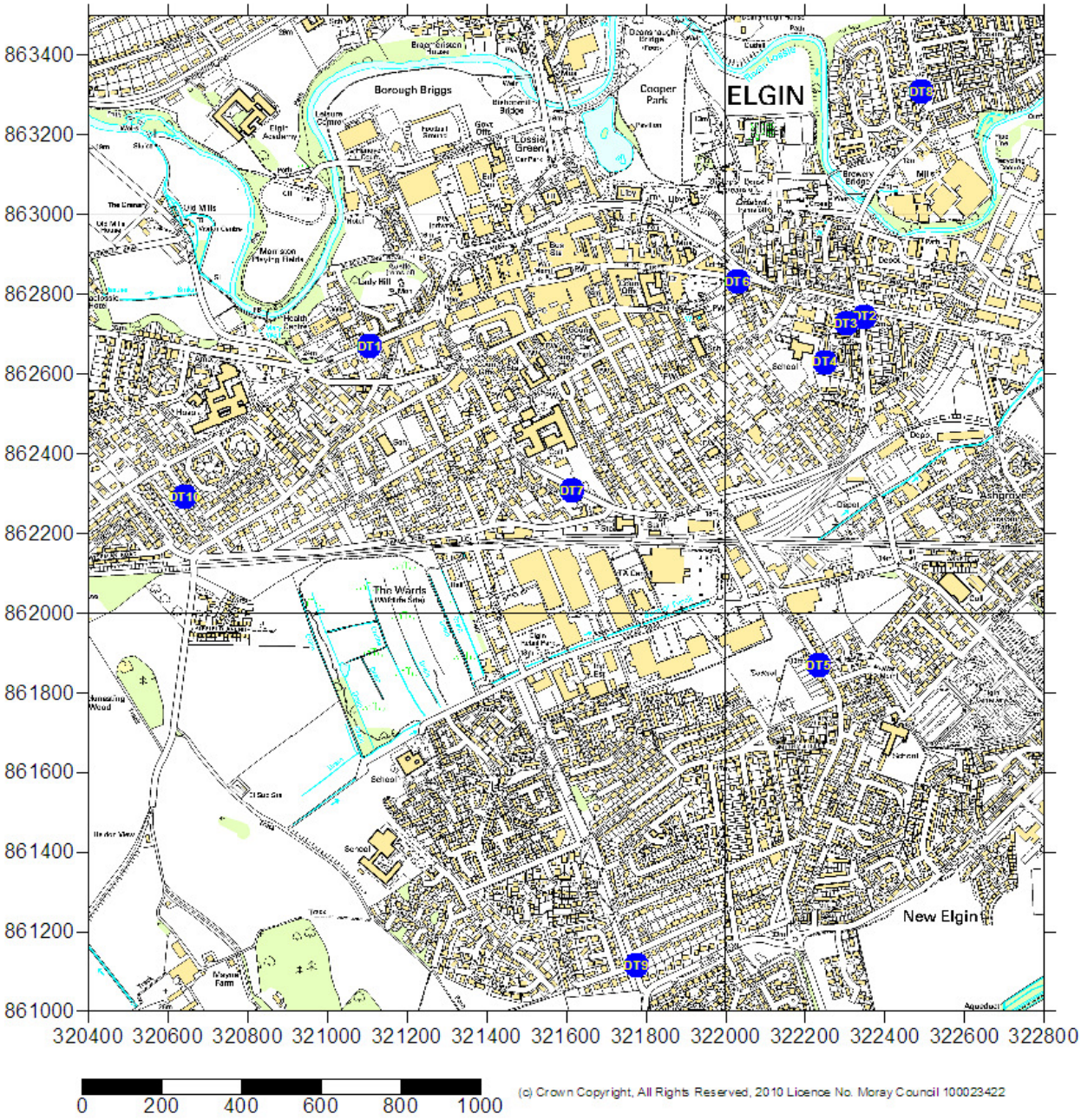

Figure 2.3 Fochabers NO_2 Monitoring Sites

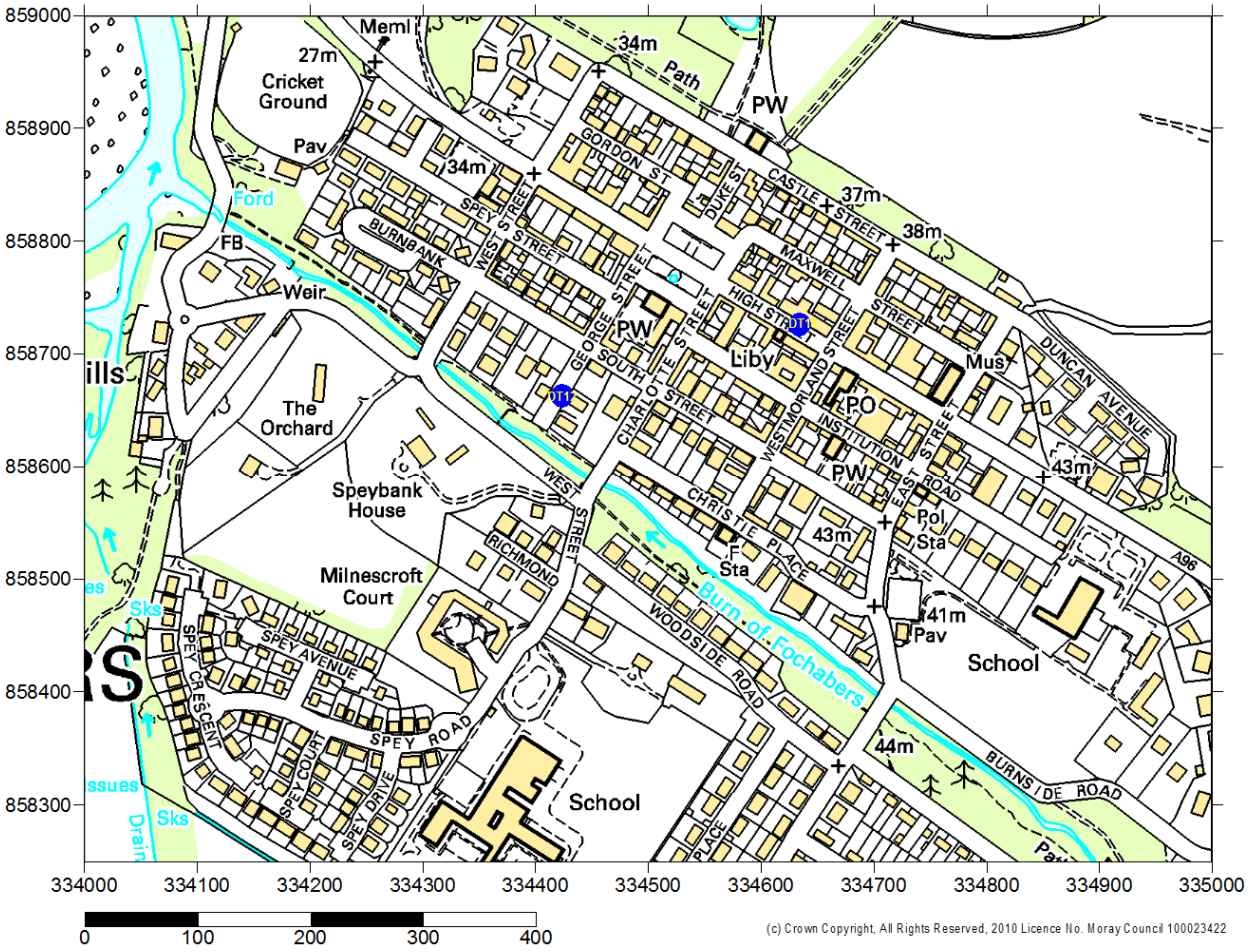

Figure 2.4 Forres NO_2 Monitoring Sites

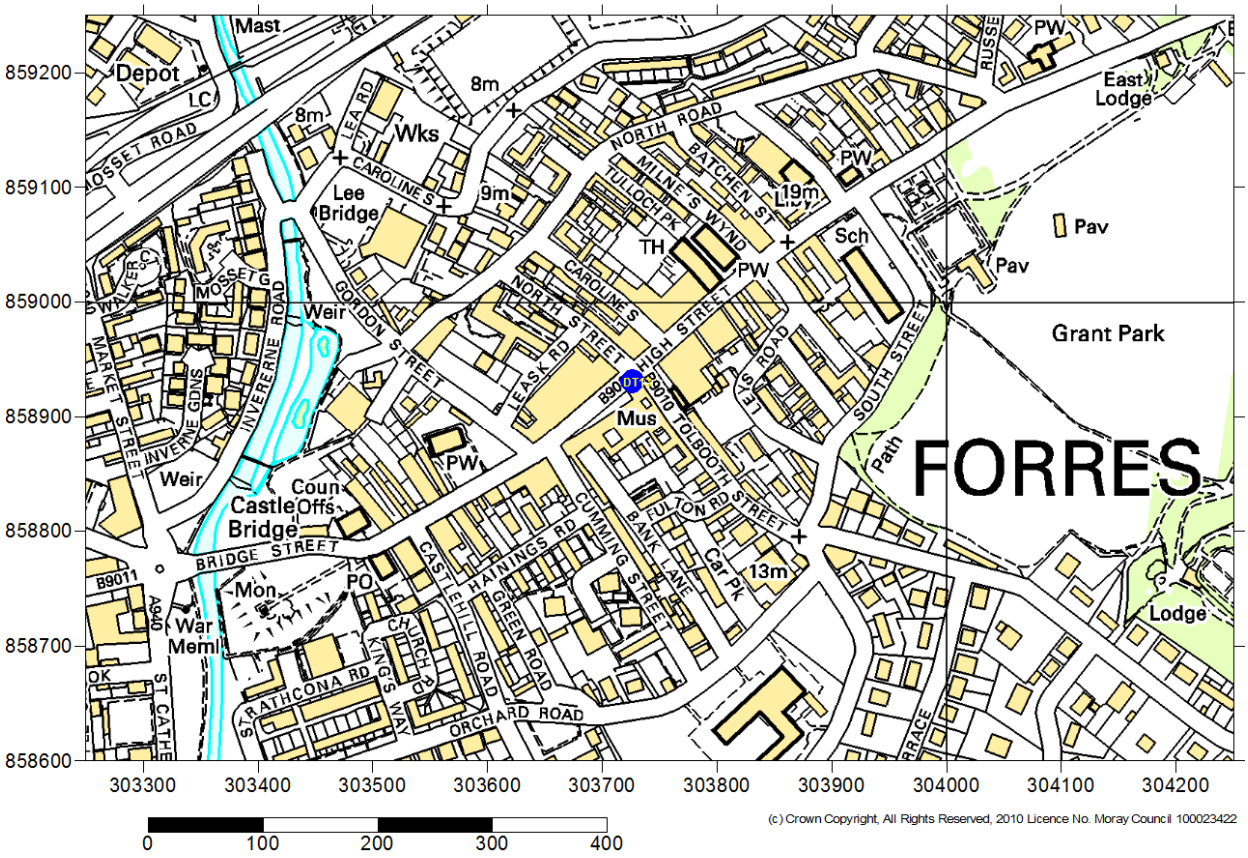

Figure 2.5 Keith NO_2 Monitoring Sites

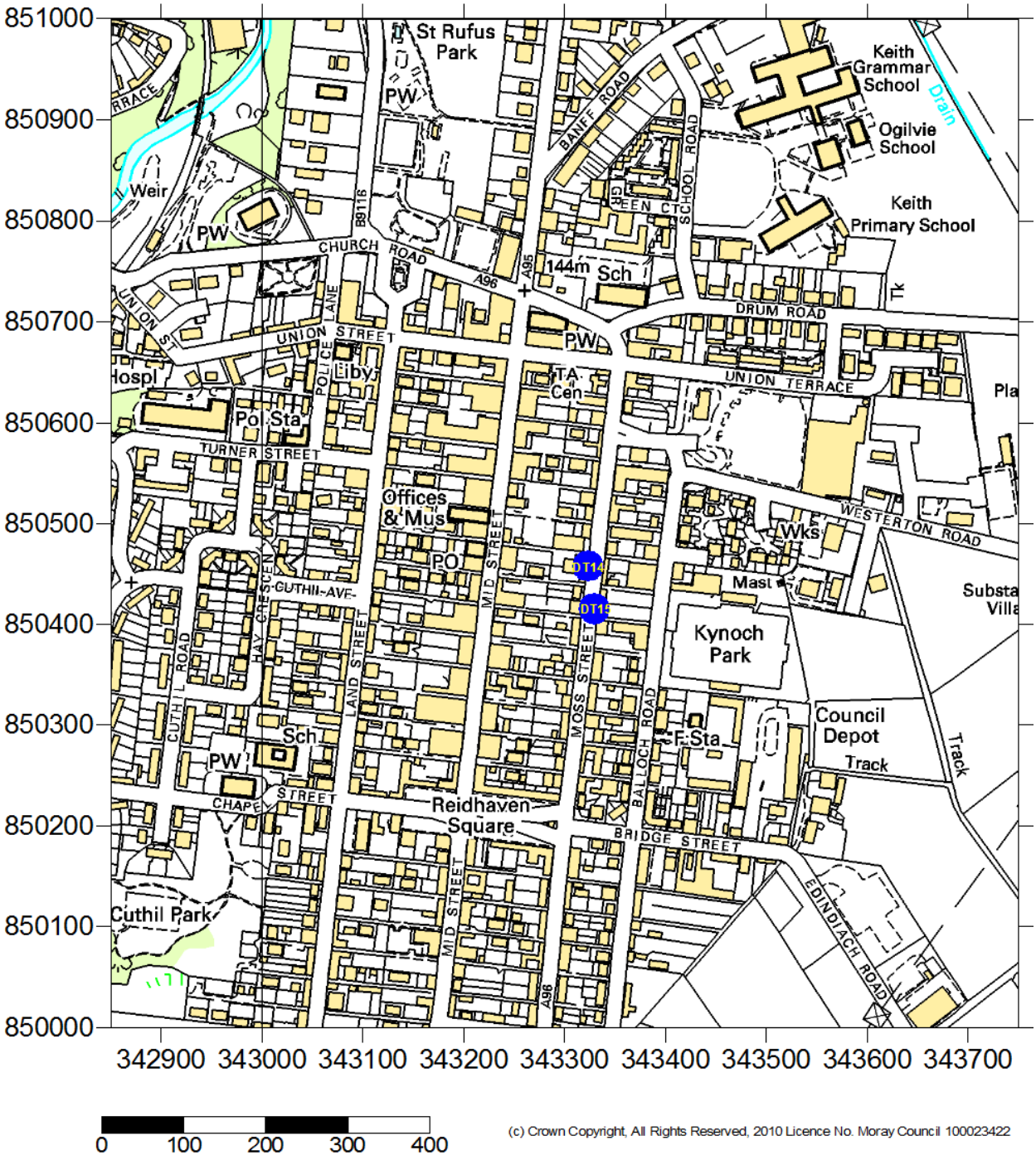

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Figure 2.6 Lossiemouth NO_2 Monitoring Sites

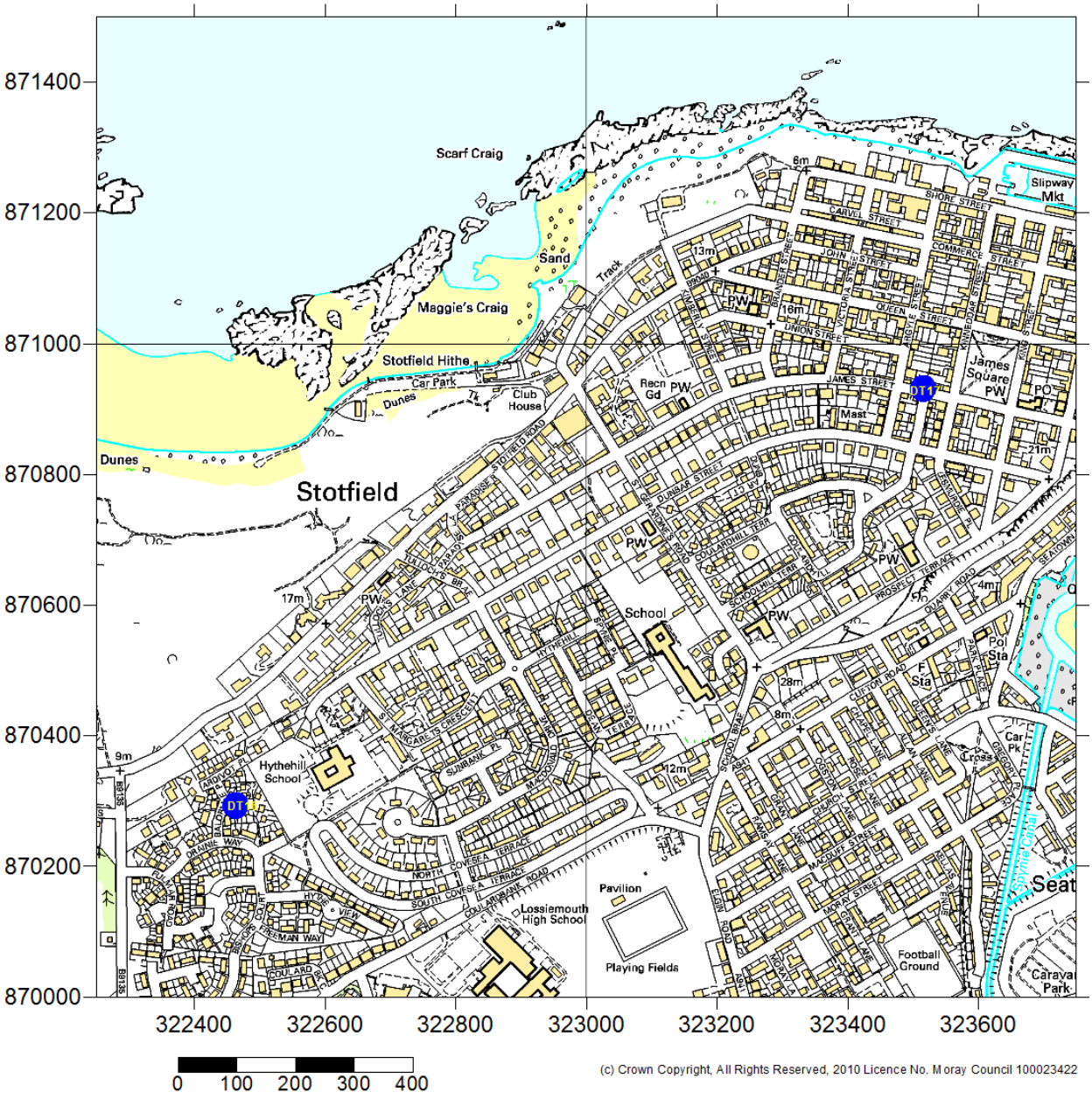
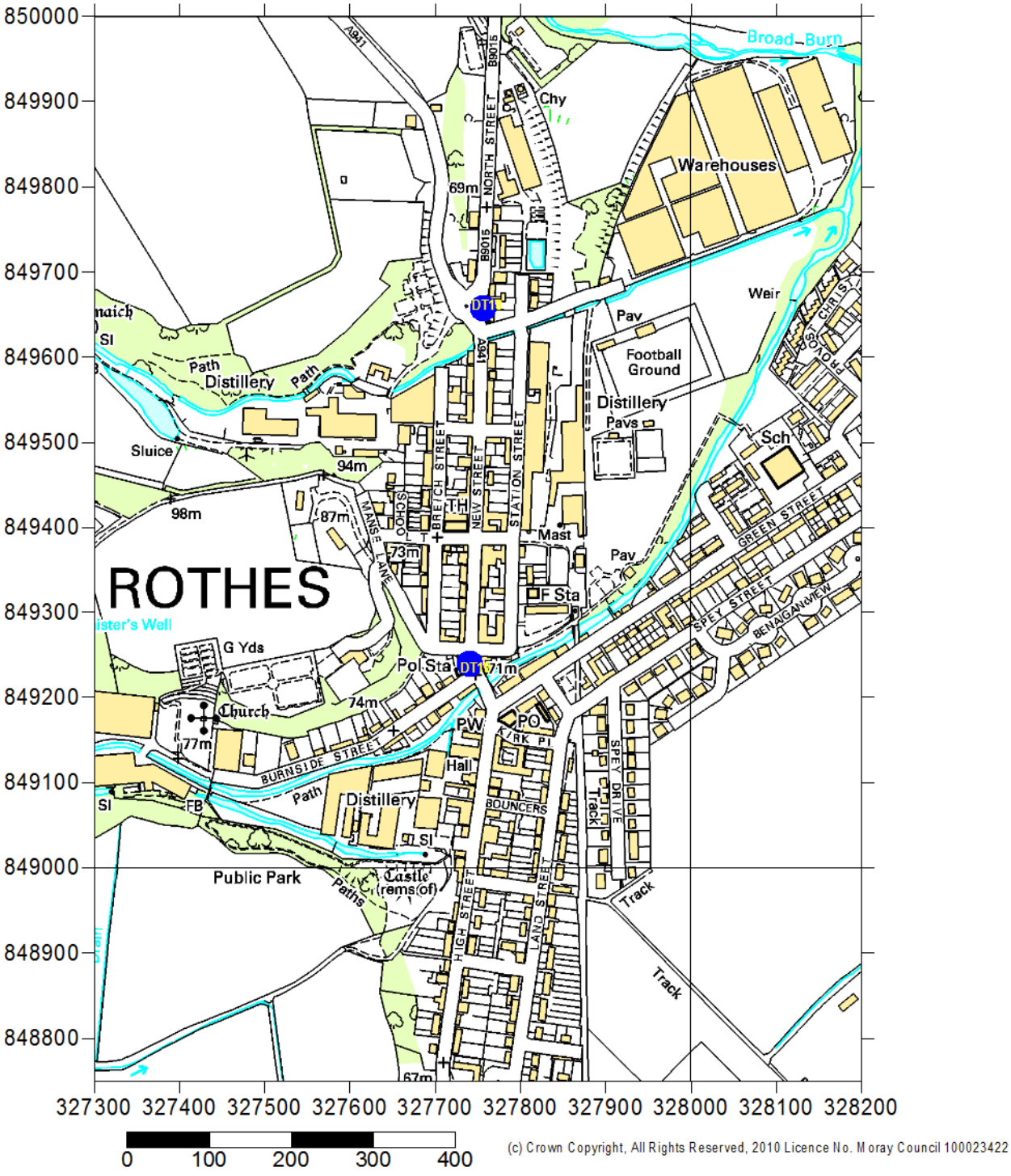


Figure 2.7 Rothes NO_2 Monitoring Sites



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2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide (NO_2)

Diffusion Tube Monitoring Data

A summary of the bias-adjusted annual mean diffusion tube concentrations of NO_2 across the monitoring network for 2013 is shown in Table 2.2. The raw monthly results are included in Appendix A. A summary of data for the last five years is shown in Table 2.3.

A trend graph is shown in Figure 2.8 which illustrates that there is a general downward trend in annual mean NO_2 concentrations across the diffusion tube network. The concentration marginally decreased at 15 out of 17 comparable sites between 2012 and 2013. There was marginal increase at 1 Elgin site (E1-DT) and 1 Keith site (K2-DT15) however, the annual mean remains considerably below the limit of 40µg/m^3 at all locations.

There was a significant reduction in concentration in Fochabers High Street (F1-DT11) from between 30-37µg/m^3 in recent years to 12.2µg/m^3 in 2012 which is likely to be due to the opening of the Bypass in January 2012, reducing traffic flow in Fochabers High Street. This level decreased during 2013 to 11.3µg/m^3 (although this is an annualized mean due to low data capture) with the Fochabers George Street site (DT12) remaining unchanged at 4.7µg/m^3.

The maximum annual mean in 2013 was 25.8 µg/m^3 in Moss Street, Keith (DT15).

2.2.1 Summary of Compliance with AQS Objectives

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

Table 2.2 Results of NO_2 Diffusion Tubes 2013

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (%)	2013 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.83
DT1	Lamp Post West Park Court-Elgin	Kerbside	N	N	100.0	23.8
DT2	Junction East & Maisondieu Rd-Elgin	Kerbside	N	N	100.0	22.9
DT3	99-101 Maisondieu Road-Elgin	Roadside	N	N	100.0	13.6
DT4	26-28 Priory Place-Elgin	Urban Background	N	N	100.0	8.9
DT5	Main Street New Elgin	Kerbside	N	N	91.7	16.8
DT6	Queen Street Roundabout-Elgin	Kerbside	N	N	100.0	17.1
DT7	Hay Street-Elgin	Roadside	N	N	91.7	10.3
DT8	Newmill Road-Elgin	Roadside	N	N	100.0	13.8
DT9	37 Sandy Road	Kerbside	N	N	100.0	7.8
DT10	47 Wittet Drive	Kerbside	N	N	100.0	12.7
DT11	50A High Street-Fochabers	Kerbside	N	N	66.7	11.3*
DT12	Sunndach George Street-Fochabers	Urban Background	N	N	91.7	4.7

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (%)	2013 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.83
DT13	Tolbooth, High Street-Forres	Roadside	N	N	100.0	12.7
DT14	106 Moss Street-Keith	Kerbside	N	N	100.0	25.8
DT15	87 Moss Street-Keith	Kerbside	N	N	100.0	23.1
DT16	1 Merryton Court-Lossiemouth	Urban Background	N	N	100.0	5.4
DT17	7 James Street-Lossiemouth	Kerbside	N	N	91.7	5.3
DT18	New Street-Rothes	Roadside	N	N	100.0	16.5
DT19	New Street-Rothes	Roadside	N	N	100.0	18.0

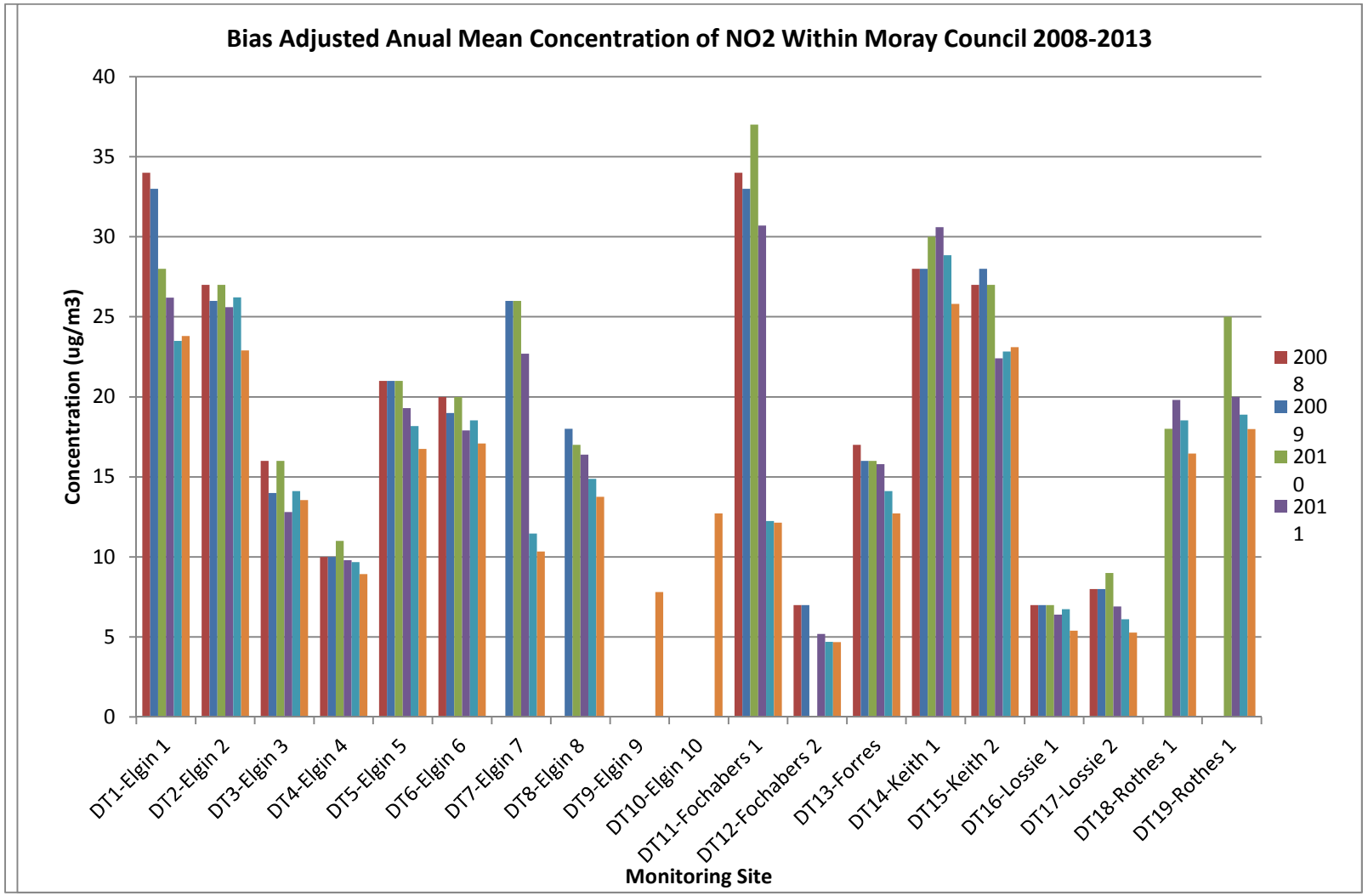
***Annualised mean due to low data capture – calculation in Appendix A**

Table 2.3 Results of NO_2 Diffusion Tubes (2009 to 2013)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias				
			2009 (Bias Adjustment Factor = 0.84)	2010 (Bias Adjustment Factor = 0.82)	2011 (Bias Adjustment Factor = 0.85)	2012 (Bias Adjustment Factor = 83)	2013 (Bias Adjustment Factor = 0.83)
DT1	Kerbside	N	33	28	26.2	23.5	23.8
DT2	Kerbside	N	26	27	25.6	26.2	22.9
DT3	Roadside	N	14	16	12.8	14.1	13.6
DT4	Urban Background	N	10	11	9.8	9.7	8.9
DT5	Kerbside	N	21	21	19.3	18.2	16.8
DT6	Kerbside	N	19	20	17.9	18.5	17.1
DT7	Roadside	N	26	26	22.7	11.5	10.3
DT8	Roadside	N	18	17	16.4	14.9	13.8
DT9	Kerbside	N	-	-	-	-	7.8
DT10	Kerbside	N	-	-	-	-	12.7
DT11	Kerbside	N	33	37	30.7	12.2	11.3*
DT12	Urban Background	N	7	6	5.2	4.7	4.7
DT13	Roadside	N	16	16	15.8	14.1	12.7
DT14	Kerbside	N	28	30	30.6	28.8	25.8
DT15	Kerbside	N	28	27	22.4	22.8	23.1
DT16	Urban Background	N	7	7	6.4	6.2	5.4
DT17	Kerbside	N	8	9	6.9	6.1	5.3
DT18	Roadside	N	-	18	19.8	18.5	16.5
DT19	Roadside	N	-	25	20.0	18.9	18.0

***Annualised mean due to low data capture – calculation in Appendix A**

Figure 2.8 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites



3 New Local Developments

This section examines any local development changes that have taken place since the last Progress Report (Ref.5) which may affect air quality. The items included are:

- Road Traffic Sources;
- Other Transport Sources;
- Industrial Sources;
- Biomass Sources
- Commercial and Domestic Sources; and
- Fugitive and Uncontrolled Sources.

3.1 Road Traffic Sources

A review of traffic flow data was undertaken in order to establish if there were any significant changes in traffic flow since 2012 that could impact on local air quality.

The Moray Council Transportation Section was consulted to obtain automatic traffic count information for Council operated sites in and around Elgin for 2013. A map showing the count locations is shown in Figure 3.1 and the data for 2010-2013 are summarised in Table 3.1 below.

Figure 3.1 Location Map of Automatic Traffic Counts in Elgin

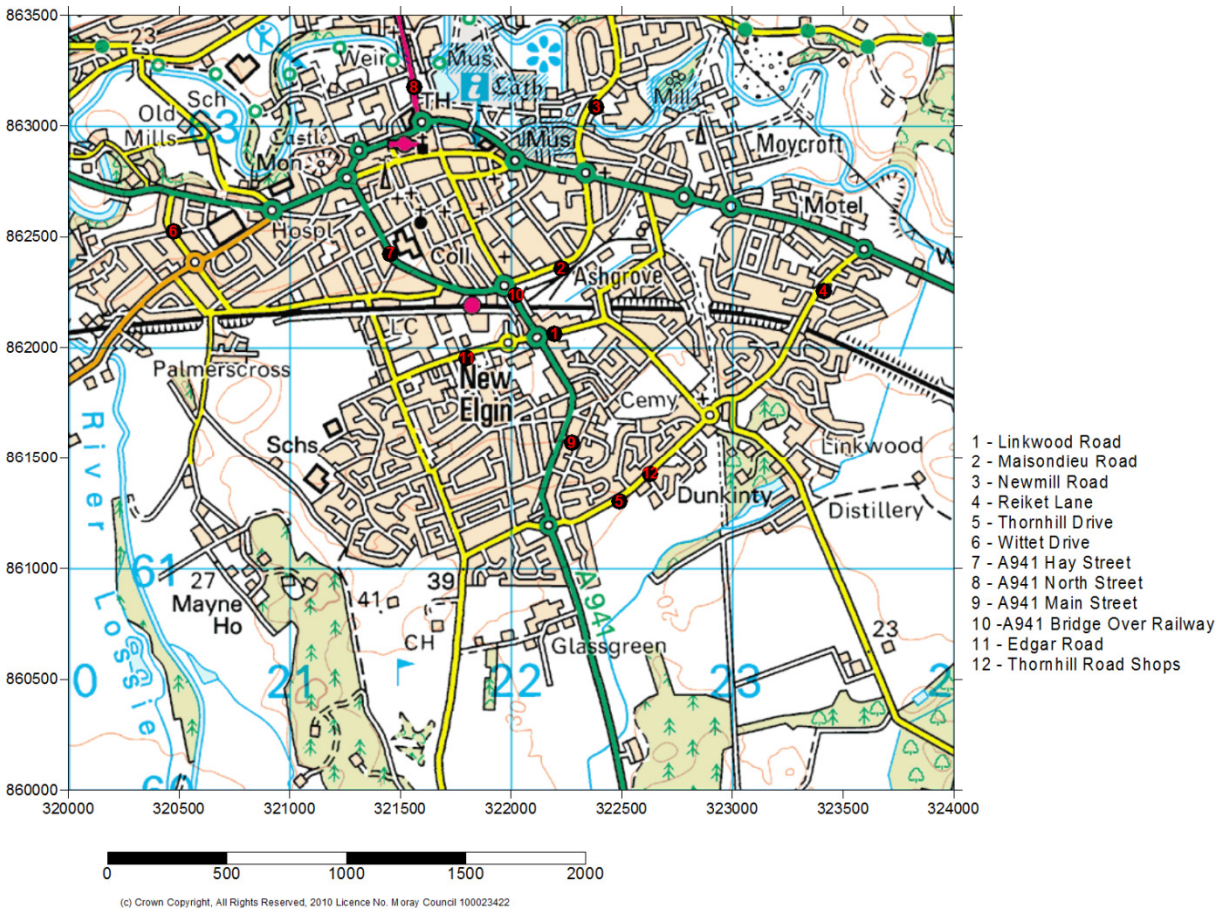


Table 3.1 Summary of Council Operated Traffic Counts Elgin 2010-2013

ID	Description	Annual Average Daily Traffic (AADT)				% Change 2012-2013
		2010	2011	2012	2013	
1	Linkwood Road	8189	8357	8600	8946	4.0
2	Maisondieu Road	7987	7867	7938	8016	1.0
3	Newmill Road	10630	10435	No data[1]		
4	Reiket Lane	6414	6865	7377	7885	6.9
5	Thornhill Road	5343	5618	5787	6833	18.1
6	Wittet Drive	3468	3726	3593	3712	3.3
7	A941 Hay St	12776	12582	12998	12741	-2.0
8	A941 North St	15654	15663	15307	No Data[2]	
9	A941 Main St	10638	10620	10718	10680	-0.4
10	A941 Bridge over Railway	20819	20341	20252	19348	-4.5
11	Edgar Rd	7925	7955	8220	8901	8.3
12	Thornhill Rd Shops	-	2834	3061	3245	6

There are no sites with significantly increased traffic flow that would require a screening assessment.

Transport Scotland was consulted in order to obtain automatic traffic count data for 2013 for the trunk roads A95 and A96 that are the main routes through the Moray Council area. A map showing the count locations is shown in Figure 3.2 and the data for 2010-2013 are summarised in Table 3.2.

[1] Counter removed due to bridge replacement works
[2] Counter removed due to flood alleviation works

Figure 3.2 Location Map of Transport Scotland Automatic Traffic Counts in Moray

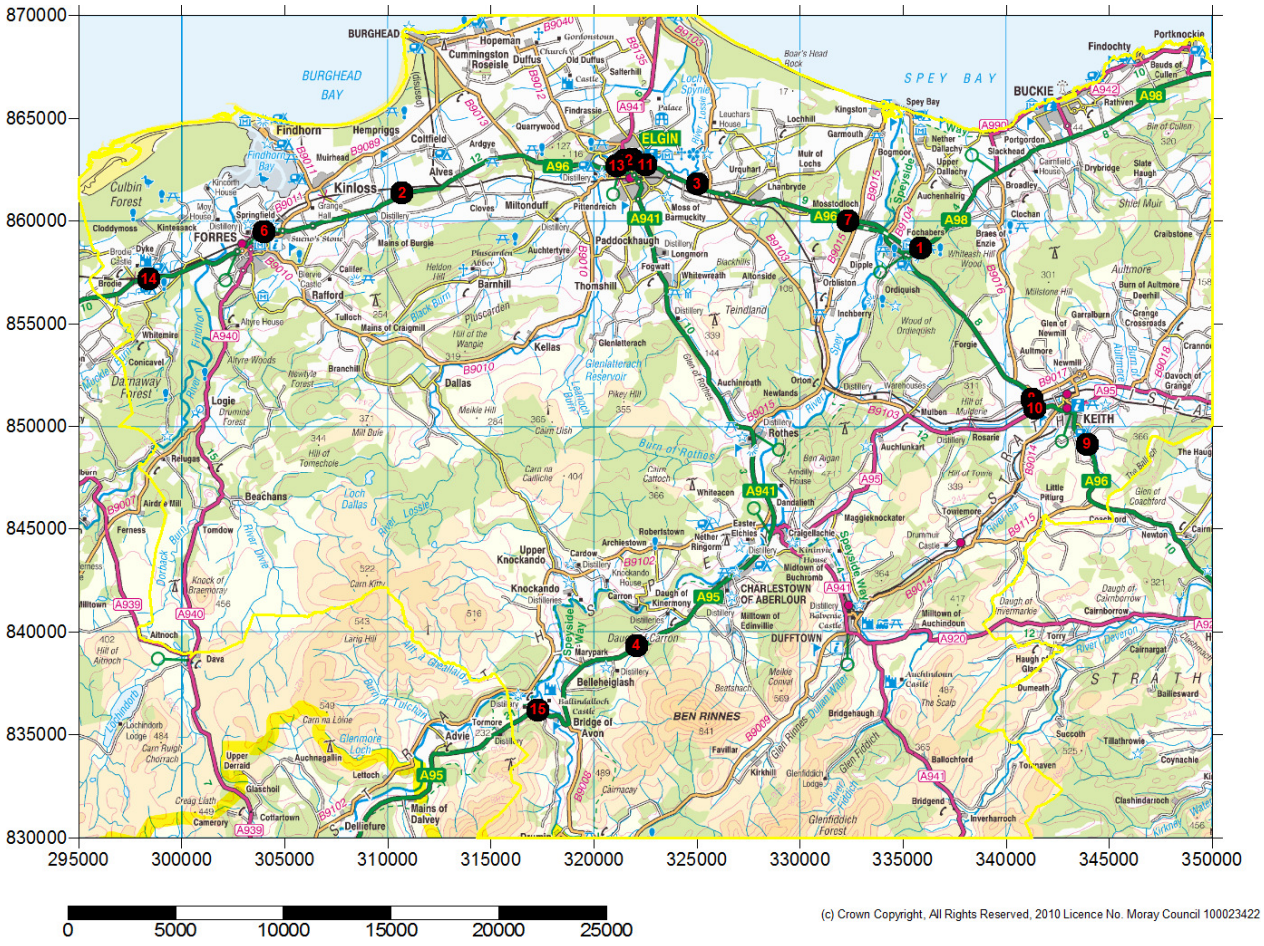


Table 3.2 Summary of Trunk Road Traffic Count Data for A95 & A96 2009-2013

ID	Description	AADT				% Change 2012-2013
		2010	2011	2012	2013	
1	A98 Fochabers	6379	5957	No data	6528	
2	A96 Forres to Elgin	11416	11075	11054	11309	2
3	A96 Elgin to Lhanbryde	16212	15964	16211	16408	1
4	A95 Dowans Brae	2702	2761	2773	2757	-1
5	A96 Elgin Town Centre	16502	16524	16525	17271	5
6	A96 Forres	11164	11039	11376	11641	2
7	A96 Mosstodloch	13712	7403	1436	14016	876
8	A96 North of Keith	6020	5805	6341	6287	-1
9	A95 West of Keith	2124	2291	1794	2005	12
10	A96 Elgin - East Road	21254	21605	21981	22853	4
11	A96 Elgin – Alexandra Road	21617	21656	21290	22789	7
12	A96 Elgin - High Street West	13083	13245	12849	13454	5
13	A96 Elgin - West Road	15112	14667	14791	13494	-9
14	A96 Brodie (WiM)	10194	10015	9856	10694	9
15	A96 Forres (aka Brodie)(Core 744)	10196	10019	9881	10714	8
16	A95 Ballindalloch (Core 905)	2207	2261	2096	2197	5

The AADT flows have increased on 13 out of 16 of the road links between 2012 and 2013. The vast increase in traffic flow on the A96 Mosstodloch is due to the complete opening of the new bypass in 2012. The maximum increase on any other link is 12% on the A95 West of Keith. It is not expected that there will be any exceedences of the NAQS objectives at nearby receptors due to changes in traffic flow on the trunk roads.

There are plans for a new Western Link Road linking the A96 to the west of Elgin with Edgar Road in New Elgin to the south. More details of the development can be seen on the Moray Council web site at http://www.moray.gov.uk/moray_standard/page_76809.html. The proposed scheme will result in an increase in traffic flow on some roads, but a decrease on others. The scheme has been designed to cater for housing, retail and commercial development in the south of the city and ease congestion on existing routes connecting the south of Elgin with the A96 to the west. An Air Quality Impact Assessment has been requested by The Moray Council Environmental Health Section to be submitted with the planning application. This is included in the Environmental Statement which can be viewed via the above link. The ES concluded that there was negligible impact for local air quality due to the scheme. In addition, The Moray Council commenced diffusion tube monitoring at 2 new sites at each end of the proposed route (Whittet Drive (DT10) and Sandy Road (DT9)) at the beginning of 2013 in order to obtain existing background concentrations of NO_2. These will be closely monitored during the construction and operational stages of the new road.

The results at these sites are shown in Table 2.3.

No other new or significantly changed roads were identified.

3.2 Other Transport Sources

There have been no significant changes in rail or shipping operations within the Moray Council area since the 2013 Progress Report (Ref.4).

Flight operations at Lossiemouth have changed from Tornados to Typhoons and RAF Kinloss is now an army barracks with minimal flight movements. It is therefore expected that emissions from air traffic will be reduced across the Moray Council area.

The Moray Council confirms that there are no new or newly identified transport sources which are likely to have an impact on air quality within the Local Authority area.

3.3 Industrial Sources

SEPA and The Moray Council confirm that there are no new or significantly changed industrial developments which may have an impact on air quality within the Local Authority area.

3.4 Commercial and Domestic Sources

The Moray Council has approved 3 planning applications for developments relating to biomass installations since the last Progress Report (Ref.4). A summary is provided in Table 3.3.

The Environmental Health Section within the Moray Council has an established team of personnel who undertake the appropriate air quality impact screening assessments of all proposed wood burning biomass installations in accordance with the Environmental Protection UK guidance (Ref.17) and ensure installations are compliant with the Clean Air Act 1993 and are not likely to result in a breach of air quality standards for NO_2 and PM_{10} before granting permission.

Copies of calculations for the three recent applications are included in Appendix B.

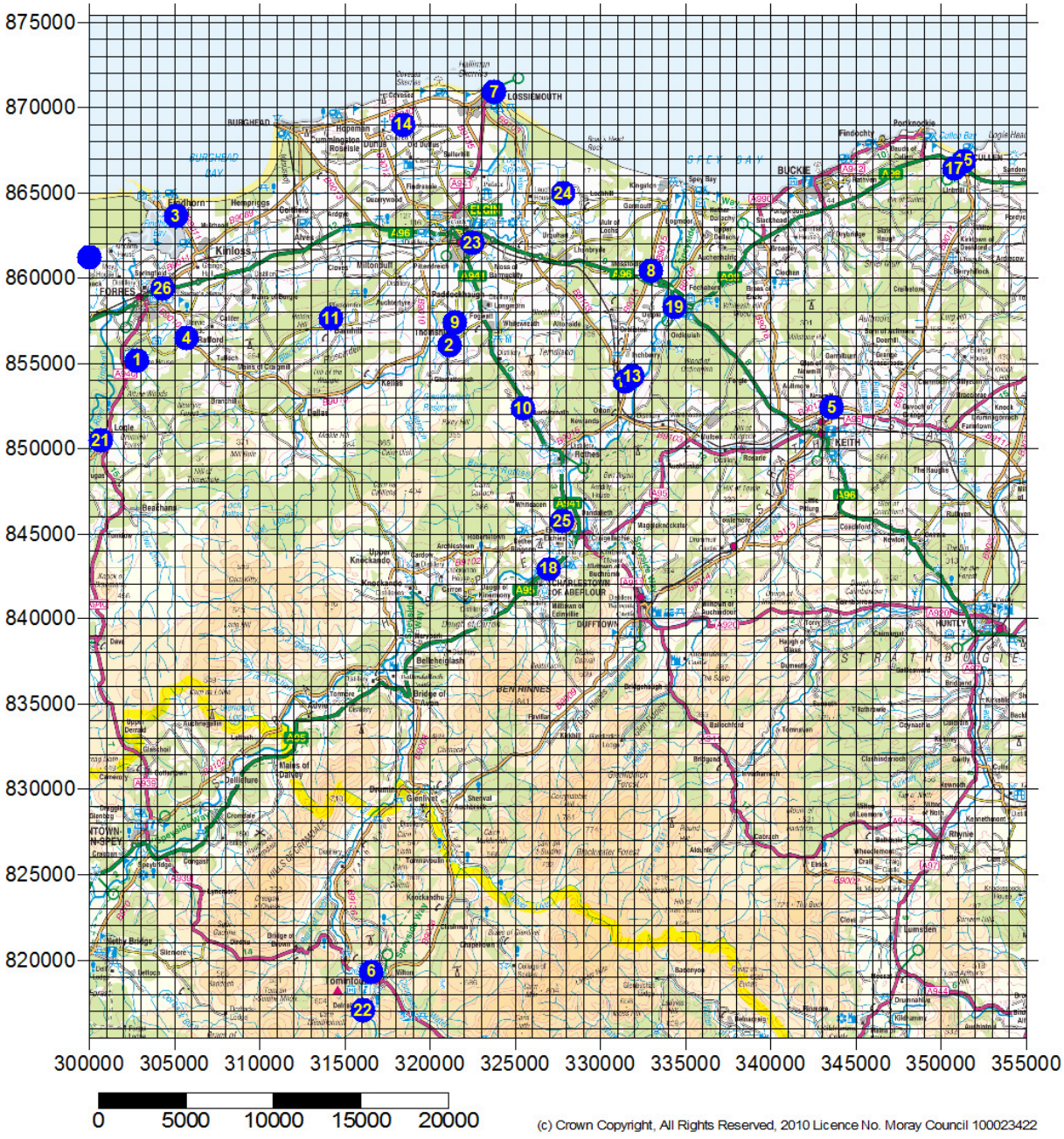
While each installation has been assessed for potential air quality impact, the potential combined impact of clusters of installations needs to be considered for PM_{10}. The Moray Council keeps a log of all biomass installations and their geographical location and combined impacts are assessed at each Updating and

Screening Assessment. The locations of current and consented installations are shown in the map in Figure 3.3.

Table 3.3 Planning Applications Permitted for Biomass Developments in 2013

Application Reference	Description	Date Permitted
13/00691/APP	Site a 160kw Bio Mass boiler at Ramnee Hotel Victoria Road Forres Moray IV36 3BN	30/08/2013
13/01388/APP	Install two boiler biomass heating units at Wellhill Farm House Kintessack Forres Moray IV36 2TG	11/11/2013
13/01479/APP	Erection of bio mass boiler container at Aberlour Primary School Mary Avenue Aberlour Moray AB38 9PN	17/12/2013

Figure 3.3 Location Map of Biomass Installations in Moray



The map shows 1km x 1km grid squares. It can be seen that the installations are widely spread across the Council area, mostly in rural locations and there are no clusters in a 500 x 500m^2 area or installations adjacent to any areas of concentrated domestic solid fuel burning.

Previous reports concluded that there were no areas of domestic solid-fuel burning with a density of greater than 100 houses in a 500 x 500m area. There have been no

new areas of development with significant solid-fuel burning and it is therefore not necessary to undertake any further assessment.

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

3.5 New Developments with Fugitive or Uncontrolled Sources

SEPA confirmed that there were no new industrial sources of fugitive emissions within the Moray Council area.

The Moray Council confirms that there are no potential sources of fugitive emissions that have not been previously assessed within the local authority area.

4 Planning Applications

Planning applications relating to biomass installations that have been permitted have already been discussed in Section 3.4.

There are no other planning applications with a potential impact for local air quality.

5 Air Quality Planning Policies

The Moray Council has several planning policies contained within the Local Plan (Ref.18), Development Plan and Structure Plan (Ref.19) as well as supplementary planning guidance which relate to air quality and atmospheric pollution. These policies ensure that appropriate assessments are made when considering planning applications for developments or variations within the Moray Council area.

These were described in previous reports and remain unchanged.

6 Local Transport Plans and Strategies

The Moray Council Local Transport Strategy (LTS) (Ref.20) sets out how the Council intends to reconcile international, national, regional and local objectives at the local level and outlines actions which will achieve these objectives. It contains a series of aims, objectives, policies and actions supporting the overall vision to meet the transport needs of all within The Moray Council area.

As part of the preparation of the LTS, a Strategic Environmental Assessment (SEA) was undertaken identifying key environmental issues and the relationship with other plans, policies and strategies.

Key environmental baseline information was gathered for the report. The baseline air quality data was obtained from the air quality monitoring carried out by the Council and was considered good as all pollutants are below the AQS objectives.

Consultations and workshops were set up with a number of interested parties including community councils, schools, public transport providers, local freight operators and representatives of the national freight organizations, special interest groups such as the elderly and disabled groups and members of the public.

As expected in a rural area such as Moray, public consultation identified a need for better public transport links. However, whilst this is undoubtedly a very difficult matter when considering air quality, unlike the large urban areas of the Central Belt in Scotland the present level of road traffic in Moray is not regarded as an obstacle to achieving this.

Within Moray, there is not a significant congestion issue. The proposal for the Western Link Road in Elgin is designed to cater for housing, retail and commercial development and contribute to the growth of South Elgin and alleviate potential congestion hotspots in the south and west of the City.

There is almost unanimous recognition of the vital role played by road transport in Moray amongst those consulted. There is considerable support in this area for improvements to existing roads rather than targets for reducing the traffic on the network. The opening of the A96 Fochabers and Mosstodloch Bypass has achieved significant improvements in traffic flow across the area and eased congestion in both villages.

The general need for reduction in levels of road traffic in parts of Scotland is not being challenged in the report, and there is general agreement that wherever possible efforts should be made to encourage the use of modes of transport other than the private car. The Council is currently pursuing various initiatives which would at least make a small contribution to this objective. These include Safer Routes to School, Rural Transport Initiatives and the preparation of Access and Cycling Strategies. Nevertheless, it must be acknowledged that the character of Moray, which is dictated by its rural location and the particular constraints which apply to public transport, means that some measures which might be successful in other parts of Scotland would be wholly inappropriate in this area.

The consistent approach of Moray Council to improving its transport network is shown to be maintained throughout the Development Plan policies and the Local Transport Strategy. Therefore it is not considered that setting targets to reduce traffic volumes on non-trunk roads is appropriate in Moray.

7 Climate Change Strategies

The Climate Change (Scotland) Act 2009 requires public bodies to act in the way best calculated to contribute to the delivery of the emissions targets in the Act and the Government's climate change adaptation programme in the most sustainable way.

The Moray Council Climate Change Action Plan (Ref.21) established a framework for action in Moray, to tackle the causes and consequences of climate change. It describes the present situation, future intentions and actions for the Moray Council. While the measures will have benefits in many areas, some will be directly linked to improvements in air quality, particularly improvements to the council vehicle fleet and reduction in business mileage.

In order to seek to fulfill these requirements the aims of the Moray Climate Change Action Plan are as follows:

- To contribute towards national targets to reduce CO_2 emissions by 80% by 2050 and interim target of 42% by 2020.
- To contribute towards the achievement of the Scottish Government's National Outcomes 12 and 14.
- To ensure climate change risks to Moray are appropriately identified, assessed, communicated and managed.

Tackling climate change will require the Council to work in partnership with community planning partners, the wider community as well as the business and voluntary sectors. In order to meet these objectives, a programme of actions has been identified for implementation during the period 2010 to 2015.

The main projects are as follows.

- Implementation of Carbon Management plan to reduce the Council's emissions by 30% over 5 years
- Dissemination of Awareness raising campaign to encourage behavioral change

- Installation of energy efficiency measures across Council buildings to reduce emissions
- Adoption and Implementation of corporate and office travel plans
- Reduce business and fleet mileage through vehicle rationalization and increased use of video and teleconferencing
- Promotion and installation of renewables, development of Renewable Energy Action Plan for Moray
- Develop Green Procurement Strategy
- Reduce waste by introducing food composting and anaerobic digestion

Significant progress has been made in these projects including the ongoing installation of biomass boilers in schools as detailed in Section 3.4.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

The results of the NO_2 monitoring across The Moray Council during 2013 confirm that there are no exceedences of the AQS objectives for this pollutant.

Analysis of NO_2 concentrations during the period 2009-2013 shows that the concentrations are showing a general downward trend.

The review of new monitoring data available for 2013 confirms that The Moray Council does not need to proceed to a Detailed Assessment for any pollutant.

8.2 Conclusions relating to New Local Developments

The opening of the A96 Fochabers and Mosstodloch Bypass in 2012 has significantly reduced traffic flow and congestion in both villages and resulted in a significant decrease in the NO_2 concentration in Fochabers High Street which was maintained throughout 2013.

The proposed Western Link Road in Elgin will result in an increase in traffic flow on some roads, but a decrease on others. The scheme has been designed to cater for housing, retail and commercial development in the south of the city and is a key part of the LTS. It will ease congestion on existing roads that connect this area with the A96 to the west of Elgin. An Air Quality Impact Assessment was requested by The Moray Council Environmental Health Section to be submitted with the planning application for this development. The Environmental Statement for the application concluded that impact of the scheme on local air quality would be negligible. (The non-technical summary of the Environmental Statement can be viewed via the following link: http://www.moray.gov.uk/moray_standard/page_76809.html). The Moray Council commenced diffusion tube monitoring at 2 new sites at each end of the proposed route (Whittet Drive and Sandy Road) at the beginning of 2013 in order to obtain existing background concentrations of NO_2.

8.3 Proposed Actions

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

The current NO_2 monitoring and traffic flow monitoring will continue during 2014. The results of these activities will be included in the next Updating and Screening Assessment due for submission in April 2015.

9 References

1) The Environment Act (1995)- © Crown Copyright

2) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland - Department for Environment, Food and Rural Affairs in partnership with the Scottish Executive, Welsh Assembly Government and Department of the Environment Northern Ireland. July 2007

3) Local Air Quality Management Technical Guidance LAQM TG.(09) – DEFRA

4) 2013 Air Quality Progress Report for The Moray Council, TSI Scotland Ltd, Report Ref: TSI/MOR.004-04-03, May 2013

5) Moray Council LAQM Updating and Screening Assessment 2012, TSI Scotland Ltd Report Ref: TSI/MOR003-04-02, April 2012

6) 2011 Air Quality Progress Report for The Moray Council, TSI Scotland Ltd, Report Ref: TSI/MOR.001-04-03, June 2011

7) Moray Council LAQM Progress Report 2010, BMT Cordah Ltd Report Ref: G_MOR_015, May 2010

8) Moray Council LAQM Updating and Screening Assessment 2009, BMT Cordah Ltd Report Ref: G_MOR_014, May 2009

9) Moray Council LAQM Progress Report 2008, BMT Cordah Ltd Report Ref: G_MOR_013, May 2008

10) Moray Council LAQM Progress Report 2007, BMT Cordah Ltd Report Ref: E_MOR_012, April 2007

11) Moray Council LAQM Updating and Screening Assessment 2006, BMT Cordah Ltd Report Ref: E_MOR_011, April 2006

12) Detailed Assessment of Road Traffic Particulate Emissions, BMT Cordah Ltd Report Ref: MOR_009, August 2005

13) Moray Council LAQM Progress Report 2005, BMT Cordah Ltd Report Ref: E_MOR_010, May 2005

14) Air Quality Study in the Vicinity of RAF Lossiemouth and RAF Kinloss, BMT Cordah Ltd, Report Ref: MOR_007, November 2004

15) Supplementary Report to the Updating and Screening Assessment, BMT Cordah Ltd, Report Ref: MOR_008, January 2004

16) Updating and Screening Assessment, BMT Cordah Ltd, Report Ref: MOR_005, 2003

17) Environmental Protection UK, Biomass and Air Quality Guidance for Scottish Local Authorities, June 2010, www.environmental-protection.org.uk/biomass

18) Moray Structure Plan, April 2007

19) The Moray Council, Local Plan 2008, December 2008

20) Local Transport Strategy, Jacobs Consultancy, June 2010, http://www.moray.gov.uk/downloads/file64607.pdf

21) The Moray Climate Change Action Plan, January 2011, Planning and Development Services, The Moray Council

22) http://laqm.defra.gov.uk/documents/Diffusion_Tube_Factors_v04_11_v6.xls

Appendices

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

Appendix A: QA:QC Data

Table A1: Raw Unadjusted Monthly Diffusion Tube NO_2 Concentrations

ID	SITE	JAN	FEB[3]	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Data Capture %	MEAN
DT1	Lamp Post West Park Court-Elgin	39	34	37	26	22	28	24	29	26	29	27	23	100.0	28.7
DT2	Junction East & Maisondieu Rd-Elgin	30	30	36	24	27	32	27	28	29	27	30	11	100.0	27.6
DT3	99-101 Maisondieu Road-Elgin	21	21	23	15	11	15	11	14	12	17	11	25	100.0	16.3
DT4	26-28 Priory Place-Elgin	19	15	13	9	7	8	6	9	9	12	11	11	100.0	10.8
DT5	Main Street New Elgin	30	27	27		14	18	11	8	18	22	24	23	91.7	20.2
DT6	Queen Street Roundabout-Elgin	29	26	27	17	15	17	16	19	18	24	20	19	100.0	20.6
DT7	Hay Street-Elgin	19	15	21	12	10	11		9	9	13	9	9	91.7	12.5
DT8	Newmill Road-Elgin	25	22	20	13	11	11	10	15	14	21	20	17	100.0	16.6
DT9	37 Sandy Road	13	12	14	8	6	7	8	11	8	11	7	8	100.0	9.4
DT10	47 Wittet Drive	24	21	19	13	10	13	10	13	15	17	15	14	100.0	15.3
DT11	50A High Street-Fochabers	16	16	25	16	15					12	12	5	66.7*	14.6
DT12	Sunndach George Street-Fochabers	8	5	8		5	5	5	5	5	6	5	5	91.7	5.6

DT13	Tolbooth, High Street-Forres	25	21	19	14	10	6	12	13	14	18	16	16	100.0	15.3
DT14	106 Moss Street-Keith	33	41	35	32	24	29	28	31	34	30	22	34	100.0	31.1
DT15	87 Moss Street-Keith	32	34	37	31	19	25	22	23	24	28	41	18	100.0	27.8
DT16	1 Merryton Court-Lossiemouth	11	9	8	5	5	5	5	5	5	7	7	6	100.0	6.5
DT17	7 James Street-Lossiemouth	10	9	7	5	5	5	5	5	6		6	7	91.7	6.4
DT18	New Street-Rothes	24	22	20	18	15	17	14	18	20	24	23	23	100.0	19.8
DT19	New Street-Rothes	23	25	26	23	18	19	15	19	22	23	25	22	100.0	21.7

*low data capture due to lost/vandalised tubes

Table A.2 Short-Term to Long-Term Monitoring Data Adjustment

Site ID	Town	Location	Site Type	Annual Mean (Am) µg/m^3	Period Mean (Pm) µg/m^3	Ratio Am/Pm µg/m^3
DT1	Lamp Post West Park Court-Elgin	Elgin 1	Kerbside	28.7	29.6	0.97
DT2	Junction East & Maisondieu Rd-Elgin	Elgin 2	Kerbside	27.6	26.9	1.03
DT3	99-101 Maisondieu Road-Elgin	Elgin 3	Roadside	16.3	18.0	0.91
DT4	26-28 Priory Place-Elgin	Elgin 4	Urban Background	10.8	12.1	0.89
DT6	Queen Street Roundabout-Elgin	Elgin 6	Kerbside	20.6	22.1	0.93
DT8	Newmill Road-Elgin	Elgin 8	Roadside	16.6	18.6	0.89
DT9	37 Sandy Road	Elgin 9	Kerbside	9.4	9.9	0.95
DT10	47 Wittet Drive	Elgin 10	Kerbside	15.3	16.6	0.92
DT13	Tolbooth, High Street-Forres	Forres 1	Roadside	15.3	17.4	0.88
DT14	106 Moss Street-Keith	Keith 1	Kerbside	31.1	31.4	0.99
DT15	87 Moss Street-Keith	Keith 2	Kerbside	27.8	30.0	0.93
DT16	1 Merryton Court-Lossiemouth	Lossiemouth 1	Urban Background	6.5	7.3	0.90

DT18	New Street-Rothes	Rothes 1	Roadside	19.8	21.1	0.94
DT19	New Street-Rothes	Rothes 2	Roadside	21.7	23.1	0.94
					AVERAGE	**0.93**
					Pm	**Annualised Mean**
DT11	Fochabers 1	50A High Street	Kerbside		14.6	13.6
						Bias Adjusted Annualised Mean (0.83)
						11.3 µg/m^3

Diffusion Tube Bias Adjustment Factors

The national bias adjustment factor spreadsheet (http://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustmentv03-14..html) (Ref.22) was used to calculate the national bias adjustment factor for diffusion tubes analysed by Aberdeen Scientific Services during 2013. The laboratory uses the method 20% TEA in Acetone. The bias adjustment factor was found to be **0.83.**

QA/QC of Automatic Monitoring

The NO_2 diffusion tubes used by The Moray Council were prepared and analysed by the Aberdeen Scientific Services Laboratory (ASSL) The Laboratory is UKAS accredited and has good performance in both WASP and NPL QA schemes. The laboratory demonstrated satisfactory performance in the Workplace Analysis Scheme for Proficiency (WASP) over the past five rounds with Z scores between -2 and 0.6

WASP (4 tubes)

WASP Round	Tube 1	Tube 2	Tube 3	Tube 4
119	0	0.6	0.2	0.6
120	0.3	-0.5	-0.1	0.3
121	-2	0.3	0	0.1
122	0.01	0.26	-0.23	-0.04
123	0.2	0.25	0.41	-0.28

The general classification of a Z-Score is :

Z < ± 2	Satisfactory
Z > ± 2 and < ± 3	Warning
Z > ± 3	Unsatisfactory

The results of the NPL Intercomparison Study are shown below. The overall survey had good precision and data capture with a bias correction factor of 0.83.

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Automatic Method		Data Quality Check	
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	Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
1	02/01/2013	30/01/2013	103.7	106.6	108.5	106	2.4	2	6.0	84	96.7	Good	Good
2	30/01/2013	27/02/2013	87.4	80.9	79.9	83	4.1	5	10.1	74	94.1	Good	Good
3	27/02/2013	27/03/2013	87.1	89.0	82.4	86	3.4	4	8.5	74	97.7	Good	Good
4	27/03/2013	01/05/2013	88.7	90.2	92.9	91	2.1	2	5.3	77	97.6	Good	Good
5	01/05/2013	30/05/2013	92.0	86.3	91.9	90	3.3	4	8.1	83	97.6	Good	Good
6	30/05/2013	26/06/2013	89.5	95.9	91.0	92	3.3	4	8.2	73	97.6	Good	Good
7	26/06/2013	31/07/2013	91.5	98.1	103.3	98	5.9	6	14.6	89	94.3	Good	Good
8	31/07/2013	04/09/2013	103.4	110.6	96.3	103	7.2	7	17.8	84	92.0	Good	Good
9	04/09/2013	02/10/2013	95.6	118.2	105.9	107	11.3	11	28.1	84	97.7	Good	Good
10	02/10/2013	30/10/2013	100.1	104.4	95.0	100	4.7	5	11.7	89	97.5	Good	Good
11	30/10/2013	04/12/2013	80.3	110.4	102.7	98	15.6	16	38.8	77	97.3	Good	Good
12	04/12/2013	08/01/2014	113.4	106.0	124.9	115	9.5	8	23.7	80	97.6	Good	Good
13													
											Overall survey -->	Good precision	Good Overall DC

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

(Check average CV & DC from Accuracy calculations)

Site Name/ ID:	Marylebone Road

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 12 periods of data

Bias factor A: 0.83 (0.79 - 0.88)

Bias B: 21% (14% - 27%)

Diffusion Tubes Mean: 97 μgm^{-3}

Mean CV (Precision): 6

Automatic Mean: 81 μgm^{-3}

Data Capture for periods used: 96%

Adjusted Tubes Mean: 81 (77 - 86) μgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA

Bias calculated using 12 periods of data

Bias factor A: 0.83 (0.79 - 0.88)

Bias B: 21% (14% - 27%)

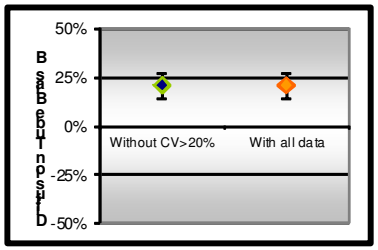
Diffusion Tubes Mean: 97 μgm^{-3}

Mean CV (Precision): 6

Automatic Mean: 81 μgm^{-3}

Data Capture for periods used: 96%

Adjusted Tubes Mean: 81 (77 - 86) μgm^{-3}



Jaume Targa, for AEA
Version 04 - February 2011

If you have any enquiries about this spreadsheet please contact the LAQM Helpdesk at: LAQMHelpdesk@uk.bureauveritas.com

Appendix B: Air Quality Impact Screening Calculations for Permitted Biomass Installations

Biomas Calculation		Ramnee Hotel - 13/00691/APP								
Date	04/07/2013	officer	GM							
	Data									
		Boiler type and wattage		80000	watts					
		Stack Height		9	m			Building Height	6	m
		Stack Diameter		0.6	m			Adjacent Building Height	8	m
		Efflux velocity		1.85	m/s					
		Emmision Rates		mg/m^3						
			NOx	215						
			Paricles	33						
		Grid Ref	East	North						
			304351	859407						
		Background Maps								
		Grid Ref	East	North		Year	Line			
			303500	858500		2014	518			
		http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps-info.php?year=2008								
		Background Concentrations								
		NOx	6.06	ug/m3						
		PM10	6.98	ug/m3						
		PM2,5	3.96	ug/m3						
		Calculate emmision rate								
		Area of Stack	0.282753	M^2						
		Discharge Rate	0.52309305	m^3 /sec						
		NOx emmission	0.11246501	g/s						
		Particles emmmision	0.01726207	g/s						
		Chimey Height using Unit Conversion tool								
		M:\Environmental Health\Air Quality\Biomass Workshop\Unit_Con_and_Screening_Tool.xls								
		Stack Height	8.145	m	So m satisfactory					
		http://laqm.defra.gov.uk/documents/biomass_calculator_tool6.xls								
		M:\Environmental Health\Air Quality\Biomass Workshop\biomass_calculator_tool6.xls								http://laqm.defra.gc
						Is target rate > actual emmisoon				
		Target Emmission Rates	NOx annual	0.1479	g/s	Satis				
			NOx Hourly	0.1956	g/s	Satis				
			PM10	0.048	g/s	Satis				
			PM2.5	0.035	g/s	Satis				

Biomass Calculation		Aberlour Primary School		13/01479/AF	13/02948/PLANAP					
Date	10/10/2013	officer		GM						
	Data									
		Boiler type and wattage			160	watts				
		Stack Height			6	m		Building Height	2.95	m
		Stack Diameter			0.25	m		Adjacent Building Height	5.5	m
		Efflux velocity			2.62	m/s				
		Emmision Rates			mg/m^3					
				NOx	114					
				Paricles	36					
		Grid Ref		East	North					
				326586	842772					
		Background Maps								
		Grid Ref		East	North		Year	Line		
				326500	842500		2014			
		http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps-info.php?year=2008								
		Background Concentrations								
		NOx		5.89	ug/m3					
		PM10		8.36						
		PM2,5		4.09	ug/m3					
		Calculate emmision rate								
		Area of Stack		0.04908906	M^2					
		Discharge Rate		0.12861334	m^3 /sec					
		NOx emmission		0.01466192	g/s					
		Particles emmmision		0.00463008	g/s					
		Chimey Height using Unit Conversion tool								
		M:\Environmental Health\Air Quality\Biomass Workshop\Unit_Con_and_Screening_Tool.xls								
		Stack Height		5.5	m	So m satisfactory				
		http://laqm.defra.gov.uk/documents/biomass_calculator_tool6.xls								
		M:\Environmental Health\Air Quality\Biomass Workshop\biomass_calculator_tool6.xls								http://laqm.defra.gc
							Is target rate > actual emmisoon			
		Target Emmission Rates		NOx annual	0.0454	g/s	Satis			
				NOx Hourly	0.0827	g/s	Satis			
				PM10	0.0128	g/s	Satis			
				PM2.5	0.0105	g/s	Satis			

Biomas Calculation		Wellhill Farm,Kintessack	13/01388/AF	13/03323/PLANAP						
Date	20/08/2013	officer	GM							
	Data									
		Boiler type and wattage		199200	watts					
		Stack Height		7	m			Building Height	3.2	m
		Stack Diameter		0.3	m			Adjacent Building Height	3	m
		Efflux velocity		0.07	m/s					
		Emmision Rates		mg/m^3						
			NOx	175						
			Paricles	63						
		Grid Ref	East	North						
			300151	861314						
		Background Maps								
		Grid Ref	East	North		Year	Line			
			299500	860500		2014	340			
		http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps-info.php?year=2008								
		Background Concentrations								
		NOx	2.06	ug/m3						
		PM10	6.48							
		PM2,5	3.46	ug/m3						
		Calculate emmision rate								
		Area of Stack	0.07068825	M^2						
		Discharge Rate	0.00494818	m^3 /sec						
		NOx emmission	0.00086593	g/s						
		Particles emmmision	0.00031174	g/s						
		Chimey Height using Unit Conversion tool								
		M:\Environmental Health\Air Quality\Biomass Workshop\Unit_Con_and_Screening_Tool.xls								
		Stack Height	3.51	m	So m satisfactory					
		http://laqm.defra.gov.uk/documents/biomass_calculator_tool6.xls								
		M:\Environmental Health\Air Quality\Biomass Workshop\biomass_calculator_tool6.xls								http://laqm.defra.gc
						Is target rate > actual emmisoon				
		Target Emmission Rates	NOx annual	0.2816	g/s	Satis				
			NOx Hourly	0.3277	g/s	Satis				
			PM10	0.0855	g/s	Satis				
			PM2.5	0.0634	g/s	Satis				