2010 Air Quality Progress Report for *The Moray Council*

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

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Report produced for The Moray Council by BMT Cordah Ltd

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Executive Summary

A review of new pollutant monitoring data and atmospheric emission sources within the Moray Council area has been undertaken. The assessment compared the available monitoring data to national air quality standards in order to identify any existing exceedences of the standards.

Data was gathered from various national and local sources with regard to atmospheric emissions from: road traffic; rail; aircraft; shipping; industrial processes; intensive farming operations; domestic properties; biomass plants; and dusty processes. The screening methods outlined in the technical guidance were used to determine the likelihood that a particular source would result in an exceedence of national air quality standards.

The review of new and changed emission sources identified no sources that were likely to result in an exceedence of the NAQS objectives.

The NO_2 concentrations measured by Moray Council during 2009 were below the NAQS annual mean objective for NO_2 at all monitoring locations.

It is concluded that Moray Council do not need 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 on the north-east coast of Scotland between Inverness and Aberdeen. The Council area is bordered to the south and east by the Aberdeenshire Council area and to the north and west by the Highland Council area. The northern border of the Moray Council area is the Moray Firth and the North Sea coast. A map of the Moray Council area is presented in Figure 1 in Appendix A.

The Strathspey divides the Council area in a south-west to north east direction. The southern half of the Council area is dominated by the glens of the Grampian mountain range and includes large areas of forest and moorland. The northern part of the Council area is relatively flat with large expanses of agricultural and coastal grassland.

As is the case for the majority of the UK there is a dominance of south-westerly winds, although there is a significant proportion of easterly winds and south-easterly winds indicating the influence of weather systems in the North Sea and Moray Firth. The mean temperature is approximately 8°C in the lowland areas but below 5°C in the upland areas to the south. The area has low to medium rainfall and hours of sunshine compared to the rest of the UK, however, there is a greater than average number of days when snow is on the ground (> 60 in upland areas and between 5 and 20 in coastal areas).

The population of the Moray Council area is approximately 88,000 with the majority residing in the towns of Elgin, Forres, Fochabers, Keith, Buckie, Aberlour, and Lossiemouth. A large proportion of the Moray population are still involved in the traditional industries of farming, forestry and fishing. The industrial and commercial areas are primarily located in the north of the Council area in Elgin, Keith, Fochabers, Buckie and Lossiemouth. Notable companies operating in the area are Walkers and Baxters both of which produce and package foodstuffs and the textile company Johnstons. The other notable operations in the area are the two RAF bases at Lossiemouth and Kinloss and the numerous distilleries operating in Rothes, Dufftown, Keith and the surrounding upland areas.

The transport network within Moray comprises a mainline passenger rail route passing east-west through the north of the Council area and the A96 trunk road linking Aberdeen, Elgin and Inverness. There are also several small harbours and ports located along the Moray Council coast which are used by small fishing boats and leisure craft.

1.2 Purpose of Progress Report

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

Progress Reports are not intended to be as detailed as U&SA 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, $\mu g/m^3$ (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 $\mu g/m^3$	Running annual mean	31.12.2003
	3.25 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	50 $\mu g/m^3$, not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	40 $\mu g/m^3$	Annual mean	31.12.2004
	18 $\mu g/m^3$	Annual mean	31.12.2010
Sulphur dioxide	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, 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 Moray Council have undertaken regular reviews of air quality; summary of the conclusions of the submitted reports are provided in Table 1.2.

Table 1.2 Details of local air quality reviews submitted by the Moray Council

Date submitted	Report	Conclusions
May 2003	Updating and Screening Assessment[1]	Additional information on domestic fuel burning and quarry emissions required. DMRB screening tool identified requirement for assessment of PM_{10} at 3 busy junctions
January 2004	Updating and Screening Assessment Supplementary Report[2]	No further assessment of domestic fuel burning or quarries required Relevant public exposure at 2 busy junctions only.
November 2004	Air Quality Study in the vicinity of RAF Kinloss and Lossiemouth[3]	No identified exceedences of NAQS
May 2005	Progress Report[4]	No predicted exceedences of NAQS
August 2005	Detailed Assessment of Road Traffic Particulate Emissions[5]	Assessment of short-term monitoring data and modelled road traffic emissions indicated it was unlikely there would be an exceedence of PM_{10} objectives
June 2006	Updating and Screening Assessment[6]	No predicted exceedences of NAQS
May 2007	Progress Report[7]	No predicted exceedences of NAQS
April 2008	Progress Report[8]	No predicted exceedences of NAQS
May 2009	Updating and Screening Assessment[9]	No predicted exceedences of NAQS and no outstanding data requirements

The Detailed Assessment of particulate emissions from road traffic in 2005 was carried out due to the identification of the potential for exceedence of the 2010 annual mean objective at two adjacent busy road junctions in Elgin. The monitoring and detailed modelling undertaken indicated that it was unlikely that the objective would be exceeded.

The air quality study in the vicinity of RAF Kinloss and RAF Lossiemouth was carried out due to concerns raised by local residents with regards to aircraft operations and air quality. Monitoring carried out over a 6 month period indicated that it was unlikely that any air quality standards would be exceeded.

No AQMAs have been declared within the Moray Council area and previous review and assessments have concluded that there is no potential for exceedence of the NAQS objectives for carbon monoxide (CO), benzene, 1,3-butadiene, lead, nitrogen dioxide (NO_2), sulphur dioxide (SO_2) or PM_{10} within the Moray Council area.

[1] Moray Council LAQM Updating and Screening Assessment 2003, BMT Cordah Ltd Report Ref: MOR_005, May 2003
[2] Supplementary Report to the Updating and Screening Assessment, BMT Cordah Ltd Report Ref: MOR_008, January 2004
[3] Air Quality study in the vicinity of RAF Lossiemouth and RAF Kinloss, BMT Cordah Ltd Report Ref: MOR_007, November 2004
[4] Moray Council LAQM Progress Report 2005, BMT Cordah Ltd Report Ref: E_MOR_010, May 2005
[5] Detailed Assessment of Road Traffic Particulate Emissions, BMT Cordah Ltd Report Ref: MOR_009, August 2005
[6] Moray Council LAQM Updating and Screening Assessment 2006, BMT Cordah Report Ref: E_MOR_011, April 2006
[7] Moray Council LAQM Progress Report 2007, BMT Cordah Report Ref: E_MOR_012, April 2007
[8] Moray Council LAQM Progress Report 2008, BMT Cordah Report Ref: G_MOR_013, May 2008
[9] Moray Council LAQM Updating and Screening Assessment 2009, BMT Cordah Report Ref: G_MOR_014, May 2009

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

During 2009 Moray Council monitored NO_2 at several locations throughout the council area using passive sampling methods. No other pollutant monitoring was undertaken by the Council.

Recorded NO_2 concentrations have been ratified for erroneous results with all spurious readings removed. Finally, the monitoring results have been corrected for laboratory bias using the appropriate correction factors. Details of the quality control and data correction processes carried out are reported in Appendix B.

Comparisons of measured NO_2 concentrations with relevant air quality standards are discussed in Sections 2.2.1.

2.1.1 Automatic Monitoring Sites

Moray Council do not currently operate any automatic monitoring sites

2.1.2 Non-Automatic Monitoring

Moray Council monitor NO_2 using a network of seventeen passive diffusion tubes located within six towns in the council area. The monitoring sites are at locations representative of public exposure and at areas of high pollution concentrations, including kerbside, roadside and urban background locations. Following completion of the U&SA in 2009 an additional four tubes were added to the network, two in Rothes and two in Elgin. The diffusion tubes in Rothes were sited to monitor the impact of the development of a new biomass CHP plant and the additional two locations in Elgin were selected to monitor NO_2 concentrations close to busy roads. Maps detailing the locations of the non-automatic monitoring sites are presented in Figures 2 and 3 in Appendix A.

The NO_2 concentrations recorded within Moray Council area since the last round of review and assessment are presented in Table 2.1.

The QA/QC procedures followed by the Council and the laboratory followed by details of the bias correction factors used are presented in Appendix B.

Table 2.1 Details of Non- Automatic Monitoring Sites

Site Name	Site Type	Location	OS Grid Reference	Pollutants Monitored	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location?
Elgin 1	Kerbside	West Park Crt	NJ212626	NO_2	N	Y (< 5m)	1m	Y
Elgin 2	Kerbside	Jctn of East & Maisondieu Rd	NJ224627	NO_2	N	Y (< 2m)	1m	Y
Elgin 3	Roadside	99-101 Maisondieu Rd	NJ223627	NO_2	N	Y (< 5m)	2m	Y
Elgin 4	Urban Background	26-28 Priory Pl	NJ223626	NO_2	N	Y (< 5m)	N / A	N
Elgin 5	Kerbside	Main St, New Elgin	NJ223618	NO_2	N	Y (< 5m)	1m	Y
Elgin 6	Kerbside	Queen St Roundabout	NJ221628	NO_2	N	Y (< 5m)	1m	Y
Elgin 7	Roadside	Hay St	NJ215623	NO_2	N	Y (< 5m)	2m	Y
Elgin 8	Roadside	Newmill Rd	NJ224632	NO_2	N	Y (< 5m)	2m	Y
Fochabers 1	Kerbside	50A High St	NJ345588	NO_2	N	Y (< 2m)	2m	Y
Fochabers 2	Urban Background	Sunndach George St	NJ343587	NO_2	N	Y (< 2m)	N / A	N
Forres	Roadside	Tolbooth, High St	NJ034587	NO_2	N	Y (< 5m)	2m	Y
Keith 1	Kerbside	106 Moss St	NJ433507	NO_2	N	Y (< 5m)	2m	Y
Keith 2	Kerbside	87 Moss St	NJ432507	NO_2	N	Y (< 5m)	2m	Y
Lossie 1	Urban Background	1 Merrayton Crt	NJ224702	NO_2	N	Y (< 2m)	N / A	N
Lossie 2	Kerbside	27 James St	NJ235709	NO_2	N	Y (< 2m)	1m	Y
Rothes 1	Roadside	New St	NJ277496	NO_2	N	Y (< 5m)	2m	Y
Rothes 2	Roadside	New St	NJ277492	NO_2	N	Y (< 5m)	2m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

During 2009, there were no recorded exceedences of the annual mean NO_2 NAQS objective within the Moray Council area.

The highest annual mean NO_2 concentrations in 2009 were measured at kerbside locations at West Park Court, Elgin and 50A High Street, Fochabers. Measured concentrations at both sites were less than 90% of the 2005 annual mean NAQS objective for NO_2.

Monitoring at Elgin 7, Elgin 8, Rothes 1 and Rothes 2 commenced in September 2009, therefore only four months data are available for these sites for 2009. Annualised mean concentrations were calculated using data from thirteen long term monitoring sites and the method provided in the technical guidance TG(09).

2.2.1 Nitrogen Dioxide

Concentrations of NO_2 measured in 2009 are presented in Table 2.2 and Historic concentrations of NO_2 measured within the Moray Council area since 2003 are annotated in Figure 2.1.

Diffusion Tube Monitoring Data

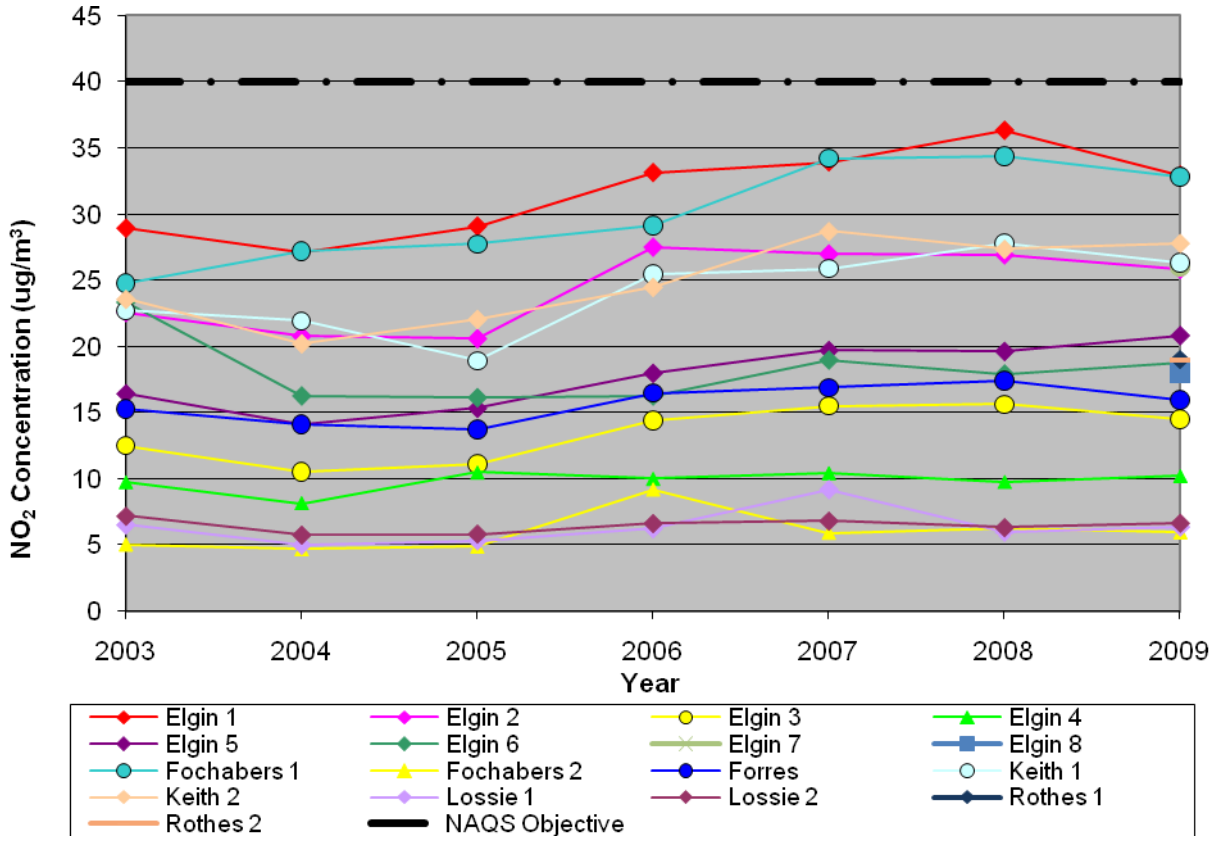
The monthly NO_2 monitoring results for 2009 are provided in Table B.3 in Appendix B.

Table 2.2 Results of Nitrogen Dioxide Diffusion Tubes

Site ID	Within AQMA?	Data Capture for monitoring period %	Data Capture for full calendar year 2009 %	Annual mean concentrations (μg/m^3)		
				2007 [b]	2008 [c]	2009 [d]
Elgin 1	N	83	83	34	36	33*
Elgin 2	N	100	100	27	27	26
Elgin 3	N	100	100	16	16	14
Elgin 4	N	100	100	10	10*	10
Elgin 5	N	92	92	20	20	21
Elgin 6	N	92	92	19	18	19
Elgin 7	N	100	33	-	-	26[a]
Elgin 8	N	100	33	-	-	18[a]
Fochabers 1	N	100	100	34	34	33
Fochabers 2	N	100	100	6*	6	6
Forres	N	100	100	17	17	16
Keith 1	N	92	92	26	28	26
Keith 2	N	75	75	29	27	28*
Lossie 1	N	100	100	9*	6*	6
Lossie 2	N	100	100	7	6	7
Rothes 1	N	100	33	-	-	19[a]
Rothes 2	N	100	33	-	-	19[a]

[a] annualised period mean
[b] bias correction factor 0.87
[c] bias correction factor 0.88
[d] bias correction factor 0.84
* Data capture rate less than 90%

Figure 2.1 Trends in Annual Mean Nitrogen Dioxide Concentration Measured at Diffusion Tube Monitoring Sites.



Typically, measured NO_2 concentrations within the Moray Council area have not followed national trends set out in the technical guidance, which implies a decrease in NO_2 concentrations. Since 2003, measured NO_2 concentrations have increased by approximately 10%, with one site, Fochabers 1, increasing by 33%.

The results indicate that seven of the seventeen sites show a significant positive (> 0.7) correlation between year and annual mean NO_2 concentrations since 2003. The sites showing a significant positive increase in NO_2 concentrations are kerbside or roadside locations. None of the urban background locations showed a significant increase and in two cases indicated a slight decrease in NO_2 concentrations. The increase in NO_2 concentrations at kerbside and roadside monitoring sites within the Moray Council area over the past seven years is likely to be due to increases in road traffic emissions and changes in emission composition from road vehicles.

2.2.2 Summary of Compliance with AQS Objectives

There were no exceedences of the 2005 annual mean NAQS objective for NO_2 recorded within 2009.

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

3 New Local Developments

Updated data on local emissions sources was collated from the planning and road sections of The Moray Council, The Scottish Environment Protection Agency (SEPA), Transport Scotland and local ports.

3.1 Road Traffic Sources

Road traffic data collected by Scotland Transport and The Moray Council roads section was reviewed to identify any significant changes to road traffic emissions since the 2009 U&SA. All but two trunk roads with AADT flows greater than 10,000 vehicles indicated a decrease in traffic volumes since 2008. The two sections of trunk road where an increase in traffic flows occurred indicated that the increases were less than 2% and not likely to result in a significant increase in pollutant concentrations.

Road traffic data for fixed counters along non-trunk roads, provided by Moray Council road section, indicated that traffic flows along five sections of road within Elgin increased by between 0.5% and 7.6% between 2008 and 2009. DMRB Assessments undertaken for the 2009 U&SA indicated that resultant pollutant concentrations for receptors along all five road sections were significantly below the relevant NAQS objectives. It is therefore concluded that the increases in road traffic volume will not result in potential exceedences of NAQS objectives at nearby receptors.

No new or significantly increased road traffic sources were identified.

3.2 Other Transport Sources

There have been no significant changes from rail, shipping or aircraft operations within the Moray Council area since the 2009 U&SA. It can be assumed, therefore, that the emissions from these sources have not changed.

3.3 Industrial Sources

SEPA were consulted in relation to any changed processes identified in the public registers. There was one new intensive pig farm process identified at Georgetown near Aberlour and one petrol station in Elgin which has ceased to operate.

3.4 Commercial and Domestic Sources

The planning section was consulted with regards to any new or changed commercial and domestic sources. No new areas of domestic fuel burning were identified.

There has been one new biomass boiler identified for which planning permission has been granted. The biomass plant is included in the development of the new NHS hospital and health centre in Forres. Assessment of the emissions was undertaken using the technical guidance and is presented in Appendix C.

There is no requirement to proceed to a detailed assessment for emissions from the biomass plant.

The 2009 U&SA identified a biomass boiler at a farm on the outskirts of Forres. The biomass plants are not within the same 500m by 500m square and therefore the combined impacts of the two biomass plants need not be considered in this instance.

3.5 New Developments with Fugitive or Uncontrolled Sources

SEPA were consulted in relation to any changed waste, landfill or quarry processes identified in the public registers. There have been no significant changes to existing process emissions and no new fugitive sources identified.

There was one planning application for a mineral processes identified by the planning section at Parkmore Lime Quarry in Dufftown. The site is an existing operational quarry and has previously been assessed. It is therefore concluded that emissions are unlikely to result in an exceedence of NAQS objectives.

The Moray 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.

4 Local / Regional Air Quality Strategy

The Moray Council does not have a local or regional air quality strategy.

5 Planning Applications

A review of planning applications submitted since the 2009 U&SA was carried out in order to identify any developments which may have a significant impact upon the local air quality.

The major developments identified by the planning section are listed in Table 5.1. Those applications with a potential to impact local air quality are highlighted.

Table 5.1 Details of planning applications with potential air quality impacts

Development Description	Location
Erect new freezer store	12 Chanonry Road South Elgin
Erect 12 detached and linked houses and a block of 12 flats	Corsemaul Drive Dufftown Banffshire
Erect 271 dwelling houses	Thornhill Road Elgin
Application for determination of mineral extraction licence	Parkmore Lime Quarry Dufftown Keith Banffshire
Outline to erect a Class 1 development extending to 9000 sq feet GIFA (837 sq m)	Caroline Street Forres
Form office accommodation within existing medical wards change of use and formation of staff car parking visitors and disabled parking area along with related access footpaths	Spynie Hospital Elgin
Demolish single storey garage block and store building and construct new apartment block of 11 units and 11 parking spaces (with commuted parking)	Site On High Street Lossiemouth
Extension to wind farm	Rothes Wind Farm Dallas
Convert existing cornmill to 4 flats and erect 28 new flats	Old Corn Mill Wards Road Elgin
Erect 46 dwelling houses and 48 flats with associated parking	Grantown Road Forres
Erect a retail convenience store	Land at Elgin Road Lossiemouth
Build 12 terraced houses	Former Filling Station Land, Seafield Road Cullen Buckie
Erect 11 houses	Archibald Motors Barhill Road Buckie
Erect retail unit, petrol filling station, car wash, tourist information point and creation of associated access, car parking and landscaping	High Street Buckie
Erect a residential development of 435 units comprising houses and flats with associated road network & landscaping	Spynie Elgin
Outline to erect new golf clubhouse training facilities 5 holiday chalets, green keepers shed, tennis courts and 18 dwelling houses	Kinloss Country Golf Club Kinloss Forres
MVPI3 - detailed application for 82 dwelling houses and 29 flats	Thornhill Forres (LONG)
Outline for residential development of up to 15 houses	Lintmill Nursery Cullen Buckie
Erection of new NHS hospital and health centre and associated site works	Grantown Road Forres
Demolition of existing filling station shop canopy and car wash and erect new filling station shop pump islands & tanks	Pinefield Service Station East Road Elgin
Change of use to convert existing distillery and bonded warehouse to hotel and multi purpose conference facility/music venue with spa and associated works new access parking and effluent treatment works	Coleburn Distillery Rothes Elgin
Demolish garage blocks and erect 2 blocks of flats (22 units in total)	Land at Shaw Place Elgin
Develop 128 dwellings including 73 council/affordable homes	R3 Linkwood East Elgin
Erection of new single storey medical centre	Seafield Road Cullen

In total there are plans for an additional 888 residential dwellings, flats and houses within Elgin which is a significant increase and could result in increased emissions from road traffic and domestic sources within the Elgin area. Consideration of the traffic emission impacts to local air quality from these developments needs to be made in the next U&SA.

There are 228 residential properties, a commercial space and a new hospital planned for development in Forres. Again this could result in increased emissions from road traffic and heating units. Consideration of the traffic emission impacts to local air quality from these developments needs to be made in the next U&SA.

The planning application for the new hospital in Forres included a transport assessment and a copy of NHS Grampian's operational travel plan. The supporting documentation indicated that as the new hospital is replacing existing facilities in Forres the impact from traffic will be minimal and that staff and patients are encouraged where practical to use sustainable methods of transport. A review of the biomass plant emissions is provided in Section 3.4.

One significant future development in the centre of Elgin, adjacent to the Queen Street Roundabout is the change of use of the land formerly occupied by a large supermarket. It is proposed that this site is used to expand the current Council Headquarters. The change of land use is, however, likely to result in a reduction of traffic accessing the site and thus a potential reduction in emissions from road traffic.

There were also five screening opinions sought for residential and commercial developments that could have an impact upon local air quality. The five developments are:

- A residential development at Mairs Street, Portknockie;
- A residential development at Morven Crescent, Findochty;
- Road access development at Barmuckity Business Park BP1, Elgin;
- A development at Upper Drakemyres, Keith; and
- A development at Knockando, Aberlour.

6 Air Quality Planning Policies

The Moray Council has several planning policies contained within various local plan, development plan and structure plan as well as supplementary planning guidance which relate to air quality and atmospheric pollution.

The Structure Plan[10] was finalised in April 2007 and contains six strategic aims one of which is to ***"safeguard and enhance the environment and mitigate any impacts caused by new Development".*** This strategic aim incorporates mitigation of any negative impacts on local air quality due to new development.

Priority actions identified in the Structure Plan include:

- Promotion of sustainable communities through the provision of levels of growth which respect the settlement hierarchy. The focus of major development will be on the primary (Elgin) and secondary centres (Buckie, Forres, Keith and Lossiemouth).
- Securing a modern sustainable transport and communications network.
- Protecting, conserving and enhancing the valued elements of the natural and built environment.
- Promotion of sustainable construction, siting and design principles
- Sustainable use of natural resources

Policy 2 of the Structure Plan relates to the environment and resources. It states that The Moray Structure Plan Strategy will be supported amongst other actions by:

- protecting the wider natural environment and local biodiversity from inappropriate development and promote opportunities for environmental enhancement and restoration where possible;
- restricting development within coastal areas outwith settlements to only that in which social and economic benefits outweigh environmental impact;
- providing protection from development to the countryside around the towns of Elgin, Buckie, Keith, Forres and Lossiemouth;
- supporting proposals aimed at regenerating the area's natural and built environment including good design; and
- safeguarding the area from pollution and contamination.

The Local Plan[11] was adopted in 2008. It contains several policies which will reflect the Council's contribution directly or indirectly to reducing atmospheric pollution. These include:

Policy EP12 – Air Quality. "*Development proposals which, individually or cumulatively, may adversely affect the air quality in an area to a level which could cause harm to human health and wellbeing or the natural environment must be accompanied by appropriate provisions (deemed satisfactory to the Local Authority and SEPA as appropriate) which demonstrate how such impacts will be mitigated. Some existing land uses may have a localised detrimental effect on air quality, any proposals to locate development in the vicinity of such uses and therefore introduce receptors to these areas (e.g. housing adjacent to busy roads) must consider whether this would result in conflict with the existing land use. Proposals which would result in an unacceptable conflict with the existing land use to air quality impacts will not be approved."*

[10] Moray Development Plan Moray Structure Plan, April 2007
[11] The Moray Council : Local Plan 2008, December 2008

Policy EP8 – Pollution. *"Planning applications that are subject to significant pollution such as noise, including RAF aircraft noise, air, water and light will only be approved where a detailed assessment report on the levels, character and transmission of the potential pollution is provided by the applicant to show how the pollution can be appropriately mitigated. Where the Council applies conditions to the consent to deal with pollution matters these may include subsequent independent monitoring of pollution levels."*

Policy ER2 – Energy reduction requirements in new developments. *"Proposals with a cumulative floorspace of 500 mÇ or more must include on site zero and low carbon equipment contributing at least an extra 15% reduction in CO_2 emissions beyond the 2007 Building Regulations carbon dioxide emissions. The location of the equipment should not significantly detract from the amenity, appearance or character of the site. Applications should only be exempt from the above targets where developers are able to demonstrate that technical constraints exist. In those cases, equivalent carbon savings elsewhere in the area would require to be secured from the applicant by agreement. PAN 84 will be used as guidance for the implementation of this policy."*

7 Local Transport Plans and Strategies

The Local Transport Strategy (LTS) was finalised in 2001 and contains two key objectives which include actions to improve local air quality. The objectives are:

Key Objective 1: to improve accessibility to jobs, services and facilities within Moray by:
a. maintaining and improving the existing road network.
b. improving road, rail, air and sea links to the rest of Scotland, the UK and Europe.
c. realising the potential for public transport, cycling and walking.
d. improving the linkages between different modes of transport.
e. improving the transport infrastructure related to recreation and tourism.

Key Objective 2: to promote sustainability and safety by:
a. reducing the need to travel generally.
b. using land use planning to reduce travel needs.
c. reducing pollution where necessary to meet Government requirements.
d. seeking to continually improve safety.
e. counteracting the additional costs and disbenefits of rurality.

Objectives 1b, 1c, 1d, and 1e have the potential to contribute towards reducing the reliance on private vehicles and thus reducing the volume of traffic emissions in the area. Objectives 2a, 2b and 2c have direct impacts upon reducing the contributions to local pollution from transport sources.

Specific actions detailed in the LTS which will have an impact upon local air pollution include:

- Maintaining and improving the existing bus service network.
- Upgrading public transport facilities by developing the Quality Partnership arrangement with Stagecoach (Bluebird) Buses.
- Tackling rural accessibility by investigating the potential for innovative transport provision.
- Increasing cycling and pedestrian travel within Moray by developing a comprehensive cycle/pedestrian network incorporating national, area wide and local routes and improved facilities.
- Increasing the number of pupils/students who walk or cycle to school/college by developing safe routes to education establishments.
- Improvement of traffic, cyclist and pedestrian environments.
- Promoting a reduction in car use through a series of transport demand management measures targeted initially at the work place.
- Promoting modern communications infrastructure by lobbying BT and other telecommunications providers to provide state of the art infrastructure.
- Ensuring the availability of high technology training by encouraging education providers to develop focused programmes related to high technology skills.
- Focusing development in accessible locations through implementation of the Moray Development Plan.
- Using developer contributions to assist in the provision of facilities for cycling, walking and public transport through implementation of developer contribution policies contained in the Moray Development Plan.

8 Climate Change Strategies

The Moray Council does not have a specific Climate change strategy but is in the process of developing a Renewable Energy Strategy which is likely to include commitments towards national targets relating to climate change.

9 Conclusions and Proposed Actions

9.1 Conclusions from New Monitoring Data

Additional monitoring sites were added to the network in 2009 to monitor NO_2 concentrations close to two busy roads in Elgin and within the vicinity of a large CHP plant in Rothes.

There were no exceedences of the 2005 NO_2 annual mean NAQS objective measured within the Moray Council area in 2009.

Analysis of historic NO_2 concentrations indicates that there has been a significant positive trend in concentrations recorded at kerbside and roadside locations since 2003.

Based upon available monitoring data it is concluded that there is no requirement for a Detailed Assessment of air quality within the Moray Council area.

9.2 Conclusions relating to New Local Developments

The review of new local developments did not identify any single development that required detailed assessment. However, the review highlighted a significant number of residential and commercial developments in Elgin and Rothes. Moray Council need to be aware of the possible cumulative impacts to local air quality from road traffic and heating emissions associated with the multiple developments.

9.3 Other Conclusions

The Moray Council does not currently have a Local Air Quality Strategy or Climate Change Strategy.

The updated Local Plan contains three specific policies aimed at improving air quality and reducing the impact of greenhouse gas emissions.

The updated Structure Plan also sets out aims and actions which include generic actions to safeguard the environment including quality of air.

The existing LTS contains actions to promote sustainable travel and reduce pollution from transport.

9.4 Proposed Actions

No additional requirements to the monitoring network were identified.

There is no requirement to proceed to a Detailed Assessment for any pollutant contained within the NAQS.

The next LAQM requirement for The Moray Council will be submission of a Progress Report to the Scottish Government by 30th April 2011.

Appendices

Appendix A: Figures

Appendix B: QA/QC Data

Appendix C: Biomass Screening Assessments

Appendix A: Figures

Figure 1: Moray Council area

Figure 2: NO_2 monitoring sites in Elgin

Figure 3: NO_2 monitoring sites in Fochabers

Figure 4: NO_2 monitoring sites in Forres

Figure 5: NO_2 monitoring sites in Keith

Figure 6: NO_2 monitoring sites in Lossiemouth

Figure 7: NO_2 monitoring sites in Rothes

Appendix B: QA:QC Data

Diffusion Tube Bias Adjustment Factors

The laboratory analysis of the passive diffusion tubes used by the Council is undertaken by Aberdeen City Council public analyst. Aberdeen City Council public analyst 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.

Aberdeen City Council public analyst participates in the AEA inter-comparison scheme, with bias correction factors calculated and applied annually. The laboratory analyses results from co-location studies at various locations throughout Aberdeen City and Aberdeenshire. The laboratory implemented the AEA Energy and Environment "Diffusion Tubes for Ambient NO2 Monitoring: Practical Guidance" in January start of 2009. There have been no changes to procedures since then.

The laboratory co-location factors are presented in Table B.1.

Table B.1 Details of the 2009 bias correction factors for NO_2 diffusion tubes

Site Name	Study duration	Tube precision	Bias correction factor
Overall factor from Aberdeen City Council public analyst co-location studies			0.84

Factor from Local Co-location Studies (if available)

Moray Council does not undertake any co-location studies and therefore uses the bias correction factor provided by Aberdeen City Council public analyst.

Discussion of Choice of Factor to Use

As Moray Council does not undertake its own co-location study the diffusion tube concentrations have been corrected using the laboratory bias. The 2008 laboratory bias correction factors provided by Aberdeen City Council public analyst are presented in Table B.2.

Short-term to Long-term Data adjustment

Moray Council installed four new diffusion tubes in September 2009 which require adjustment to calculate long-term mean concentrations. An adjustment factor of 0.89 was calculated using all other diffusion tube results for the Moray Council area where the data capture rate was greater than 90%.

QA/QC of diffusion tube monitoring

The laboratory results for co-location studies are presented in Table B.2.

Table B.2 Results of the AEA Technology Intercomparison Study

Method To undo your selection, choose (All) from the pop-up list	Year[5] To undo your selection, choose (All)	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m3)	Automatic Monitor Mean Conc. (Cm) (µg/m3)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
50% TEA in Acetone	2009	K	AEA Tech Intercomparison	9	125	106	18.5%	G	**0.84**

Table B.3 Monthly NO_2 concentrations - raw diffusion tube data ($\mu g/m^3$)

NO2 tube	January	February	March	April	May	June	July	August	September	October	November	December
Elgin 1	48	41	34	52	38	38	35	lost	lost	29	38	39
Elgin 2	32	37	32	34	12	36	30	23	34	28	34	37
Elgin 3	19	17	12	21	28	16	13	9	12	14	22	24
Elgin 4	17	15	12	13	8	8	6	6	9	12	20	20
Elgin 5	34	26	22	26	21	18	lost	18	21	23	34	30
Elgin 6	28	lost	20	24	17	18	16	16	22	23	32	30
Elgin 7									26	31	44	37
Elgin 8									17	20	29	32
Fochabers 1	34	35	27	39	47	47	34	31	57	31	43	44
Fochabers 2	8	8	< 5	7	< 5	< 5	< 5	< 5	7	8	9	13
Forres	20	25	15	21	15	15	13	16	16	20	28	24
Keith 1	37	47	6	29	25	26	28	28	35	27	41	47
Keith 2	lost	lost	lost	64	25	29	24	22	23	31	38	42
Lossie 1	11	9	6	7	< 5	< 5	< 5	< 5	< 5	9	12	12
Lossie 2	12	11	< 5	9	6	< 5	< 5	< 5	6	8	11	12
Rothes 1									22	24	31	22
Rothes 2									22	23	29	25

Appendix C: Biomass screening assessments

The available details of biomass plants installed or granted planning permission in Moray Council area since the 2009 U&SA are presented in Table C.1.

Table C.1 Biomass emissions screening assessment

Emission parameter	Forres NHS Hospital
Stack height (m)	12.3
Stack diameter (m)	0.2*
Combustion appliance	wood pellet
Thermal capacity (Kw)	950
nearest building height (m)	9.85
tallest building height within 5 stack heights (m)	n/a
effective stack height (m)	12.3
Estimated PM_{10} emissions (g/s)	0.00855#
Estimated NO_2 emissions (g/s)	0.0874#
Background PM_{10} concentration (μg/m3)	3
Background NO_2 concentration (μg/m3)	7.1
PM_{10} threshold emission rate (g/s)	0.0060
NO_2 threshold emission rate (am) (g/s)	0.0170
NO_2 threshold emission rate (1hr) (g/s)	0.0700
adjusted emission PM_{10}	0.0003
adjusted emission NO_2 (am)	0.0027
adjusted emission NO_2 (1hr)	0.0188

Emissions data were provided as total PM and total NO_X and are therefore overestimations of PM_{10} and NO_2.
* Estimated from site plans