



BALLYMONEY
BOROUGH COUNCIL

PROGRESS REPORT

BALLYMONEY BOROUGH COUNCIL

AUGUST 2007

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EXECUTIVE SUMMARY

The Environment (Northern Ireland) Order 2002 and subsequent Regulations introduced the Local Air Quality Management (LAQM) system which requires District Councils to undertake regular review and assessment of air quality, with respect to the standards and objectives set in the Air Quality Strategy. In areas where an air quality objective is predicted not to be met by the required date, District Councils are required to establish Air Quality Management Areas (AQMA's) and implement Action Plans to improve air quality. This document forms the Progress Report for Ballymoney Borough Council. In writing this report the Council has had regard to the Government's published guidance confirmed in Progress Report Guidance LAQM.PRGNI (04).

Ballymoney Borough Council completed Stage 4 Review & Assessment in January 2006.

This report provides the latest PM₁₀ monitoring results from the station located in the Glebeside estate, and the Nitrogen Dioxide diffusion tube monitoring carried out across the Borough. The Nitrogen Dioxide monitoring indicates that the Air Quality Objectives for these pollutants continue to be met and that exceedances are not anticipated.

INTRODUCTION

The Environment (Northern Ireland) Order 2002 and subsequent Regulations introduced the Local Air Quality Management (LAQM) system which requires District Councils to undertake regular review and assessment of air quality, with respect to the standards and objectives set in the Air Quality Strategy. In areas where an air quality objective is predicted not to be met by the required date, District Councils are required to establish Air Quality Management Areas (AQMA's) and implement Action Plans to improve air quality.

1.1 PURPOSE & ROLE OF PROGRESS REPORTS

The Progress report is intended to ensure continuity in the LAQM process. Its objective is to provide an annual review and update on Air Quality issues, including developments that might be significant to Air Quality. Any significant developments can then be acted on immediately, rather than waiting for the next full round of review and assessment. The benefits to District Councils are set out in Box 1.1 of the Progress Report Guidance LAQM.PRGNI(04), but these included the following: -

- ♦ To provide a readily accessible source of up to date information in Air Quality, which may be useful to District Council staff for dealing with enquiries from members of the public, developers carrying out environmental assessments and to assist in other areas such as transport and land use planning.
- ♦ To ensure continuity in maintaining resourcing, capability and staff skills for LAQM within the District Council.
- ♦ To help get maximum value from the monitoring carried out by the District Council.

This document forms the Progress Report for Ballymoney Borough Council. In writing this report the Council has had regard to the Government's published guidance confirmed in Progress Report Guidance LAQM.PRGNI(04).

1.2 AIR QUALITY STRATEGY OBJECTIVES

The Air Quality Strategy's standards and objectives are shown in Table 1. The table shows the standards in $\mu\text{g m}^{-3}$ (mg m^{-3} for CO) with the number of exceedances that are permitted (where applicable).

Table 1 Objectives included in the Air Quality Regulations (NI) 2003

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene All authorities	$16.25 \mu\text{g m}^{-3}$	running annual mean	31.12.2003
Authorities in England and Wales only	$5.00 \mu\text{g m}^{-3}$	annual mean	31.12.2010
Authorities in Scotland and Northern Ireland only	$3.25 \mu\text{g m}^{-3}$	running annual mean	31.12.2010
1,3-Butadiene	$2.25 \mu\text{g m}^{-3}$	running annual mean	31.12.2003
Carbon monoxide Authorities in England, Wales and Northern Ireland only	10.0 mg m^{-3}	maximum daily running 8-hour mean	31.12.2003
Authorities in Scotland only	10.0 mg m^{-3}	running 8-hour mean	31.12.2003
Lead	$0.5 \mu\text{g m}^{-3}$ $0.25 \mu\text{g m}^{-3}$	annual mean annual mean	31.12.2004 31.12.2008
Nitrogen dioxide ^a	$200 \mu\text{g m}^{-3}$ not to be exceeded more than 18 times a year $40 \mu\text{g m}^{-3}$	1 hour mean annual mean	31.12.2005 31.12.2005
Particles (PM ₁₀) (gravimetric) ^b All authorities	$50 \mu\text{g m}^{-3}$ not to be exceeded more than 35 times a year $40 \mu\text{g m}^{-3}$	24 hour mean annual mean	31.12.2004 31.12.2004
Sulphur dioxide	$350 \mu\text{g m}^{-3}$ not to be exceeded more than 24 times a year $125 \mu\text{g m}^{-3}$ not to be exceeded more than 3 times a year $266 \mu\text{g m}^{-3}$ not to be exceeded more than 35 times a year	1 hour mean 24 hour mean 15 minute mean	31.12.2004 31.12.2004 31.12.2005

a. These objectives are provisional.

b. Measured using the European gravimetric transfer sampler or equivalent.

1.3 Conclusions of Previous Review and Assessment

Ballymoney Borough Council completed Stage 4 Review and Assessment in April 2006. The report concluded from the monitored data and scenario modelling commissioned that an exceedance of the regulated objectives has not been predicted, subject to the implementation of the conversion of Northern Ireland Housing Executive dwellings to gas. It was recommended that the existing monitoring be continued in order to substantiate this conclusion and that Ballymoney Borough Council should maintain the Air Quality Management Area that has been declared in respect of PM₁₀.

2 NEW MONITORING DATA

This section provides a summary of air quality monitoring results available since the last review and assessment was completed.

2.1 AUTOMATIC MONITORING

A Met One BAM 1020 analyser located within the Glebeside residential development in Ballymoney carries out continuous monitoring of PM₁₀. Monitoring commenced at the station in December 2003. The analyser is housed within a secure air-conditioned unit.

QA/QC and data management was carried out by NPL from December 2003 – December 2004 and is currently carried out by NETCEN who validate and ratify the raw data and provide the Council with results on a quarterly basis. Data reports are also provided on a daily basis via e-mail, however this data is not validated.

2.2 PM₁₀ MONITORING

NETCEN have provided a data report for 2006 locally monitored data, which can be found in Appendix 1 to this report. This shows an annual average of 30 µg m⁻³ and 13 exceedance of the 50 µg m⁻³ daily mean objective. Data capture was 90.4% which is above the recommended 75%. This report therefore shows that both the annual average and daily mean air quality objectives were met for 2006 in Ballymoney Borough Council.

2.3 NO₂ DIFFUSION TUBE MONITORING

Ballymoney Borough Council carry out monitoring of NO₂ by diffusion tubes at eight sites within the Borough. Four of the sites are included within the UK NO₂ network.

Table 2 Diffusion Tube Monitoring Site Details in Ballymoney

Site Ref	Site Detail	Location
1N*	Kerbside	19 Linenhall St, Ballymoney
2N*	Kerbside	8 Ballybogey Road, Ballymoney
3N*	Urban Background	Opposite 16 Armour Ave, Ballymoney
4N*	Urban Background	2-4 Semicock Ave, Ballymoney
6N	Kerbside	31 Charles Street, Ballymoney
7N	Kerbside	Opposite 51 Queen Street, Ballymoney
8N	Kerbside	Meetinghouse Street, Ballymoney
9N	Kerbside	Castle Street, Ballymoney

* NO₂ Network Site

Kerbside = 1-5m from kerb, urban background = at least 50m from the kerb of any major road.

The diffusion tubes are analysed by Lambeth Scientific Services Limited (LSSL). They participate in the Analytical Laboratory Performance Testing Scheme, which is run by NETCEN at AEA Technology. The tubes are prepared by impregnating discs with triethanolamine/acetone before being placed in coloured caps. The tubes are completed by placing a white cap on one end of the tube and a coloured cap containing the impregnated discs on the other end. The tubes are analysed using uv/visible (uv/vis) spectrophotometer after complexing with N-1-naphthylethylenediamine dihydrochloride (NEDA) and sulphalinamide.

Diffusion tubes frequently exhibit bias (over- or under-read) relative to the chemiluminescence analyser (the reference technique for NO₂), and the Guidance states that it is necessary to correct for any such bias, when using diffusion tube results for review and assessment purposes. As Ballymoney Borough Council do not have any permanent automatic NO₂ monitoring sites, they are not able to carry out the necessary intercomparison locally. Instead, information can be obtained from other sources. Data are available from a summary spreadsheet of Local Authority co-location studies prepared by Air Quality Consultants and available via the Air Quality Review and Assessment website, at <http://www.uwe.ac.uk/aqm/review>.

Annual mean NO₂ concentrations at these sites for future years were estimated using the approach specified in the Guidance LAQM TG (03), and the adjustment factors in boxes 6.6 and 6.7 of the Guidance. A Table showing annual mean concentration from 2001 to 2006 can be found in Appendix 2, along with predicted annual mean concentrations for 2010.

Appendix 3 shows a graph charting annual mean Nitrogen Dioxide concentrations in $\mu\text{g}/\text{m}^3$. This demonstrates that in all locations, except one, concentrations have decreased.

3.0 NEW LOCAL DEVELOPMENTS

A Progress Report should address any local developments that might affect air quality. This includes new Part A, B or C industrial processes, of types specified in Appendix 2 (E) of LAQM.TG(03). It is also relevant to include any processes with substantially changed emissions. New landfill sites or quarries with relevant public exposure should also be included. It is only necessary to consider developments that have actually been granted planning permission.

3.1 New Industrial Processes

No new Part A or B industrial processes (as included in the list in Appendix 2 of the Technical Guidance LAQM.TG (03)) in Ballymoney have commenced or changed significantly. One application has been submitted for a Part C permit in relation to a powder coating process.

3.2 New Developments

There are no new developments granted planning permission (or which are awaiting consent) that are likely to have a significant impact on local air quality through increased traffic flow.

4.0 CONCLUSION

Ballymoney Borough Council has previously monitored exceedances of the PM₁₀ 2004 daily objective and has subsequently declared an Air Quality Management Area. Ballymoney will continue to monitor local levels of PM₁₀ in order to determine the improvements made by the Northern Ireland Housing Executive heating conversion scheme from solid fuel to gas. Such information will then be used in deciding to retain, modify or revoke the existing AQMA.

Nitrogen Dioxide concentrations throughout Ballymoney are predicted to be below the annual mean objectives in 2005 and 2010 and in the majority of cases the 2006 diffusion tube data shows a decrease on NO₂ concentrations.

5.0 RECOMMENDATIONS

The subsequent reporting required by Ballymoney Borough Council is therefore to progress the air quality action plan and continue further monitoring of particulate matter.

Appendix 1

Produced by AEA Energy & Environment on behalf of Ballymoney Borough Council

BALLYMONEY

01 January to 31 December 2006

These data have been fully ratified by AEA Energy & Environment

POLLUTANT	PM ₁₀	GR ₁₀
Number Very High	0	-
Number High	0	-
Number Moderate	242	-
Number Low	7661	-
Maximum 15-minute mean	-	-
Maximum hourly mean	230 µg m ⁻³	192 µg m ⁻³
Maximum running 8-hour mean	131 µg m ⁻³	109 µg m ⁻³
Maximum running 24-hour mean	85 µg m ⁻³	71 µg m ⁻³
Maximum daily mean	83 µg m ⁻³	69 µg m ⁻³
Average	30 µg m ⁻³	25 µg m ⁻³
Data capture	90.4 %	90.4 %

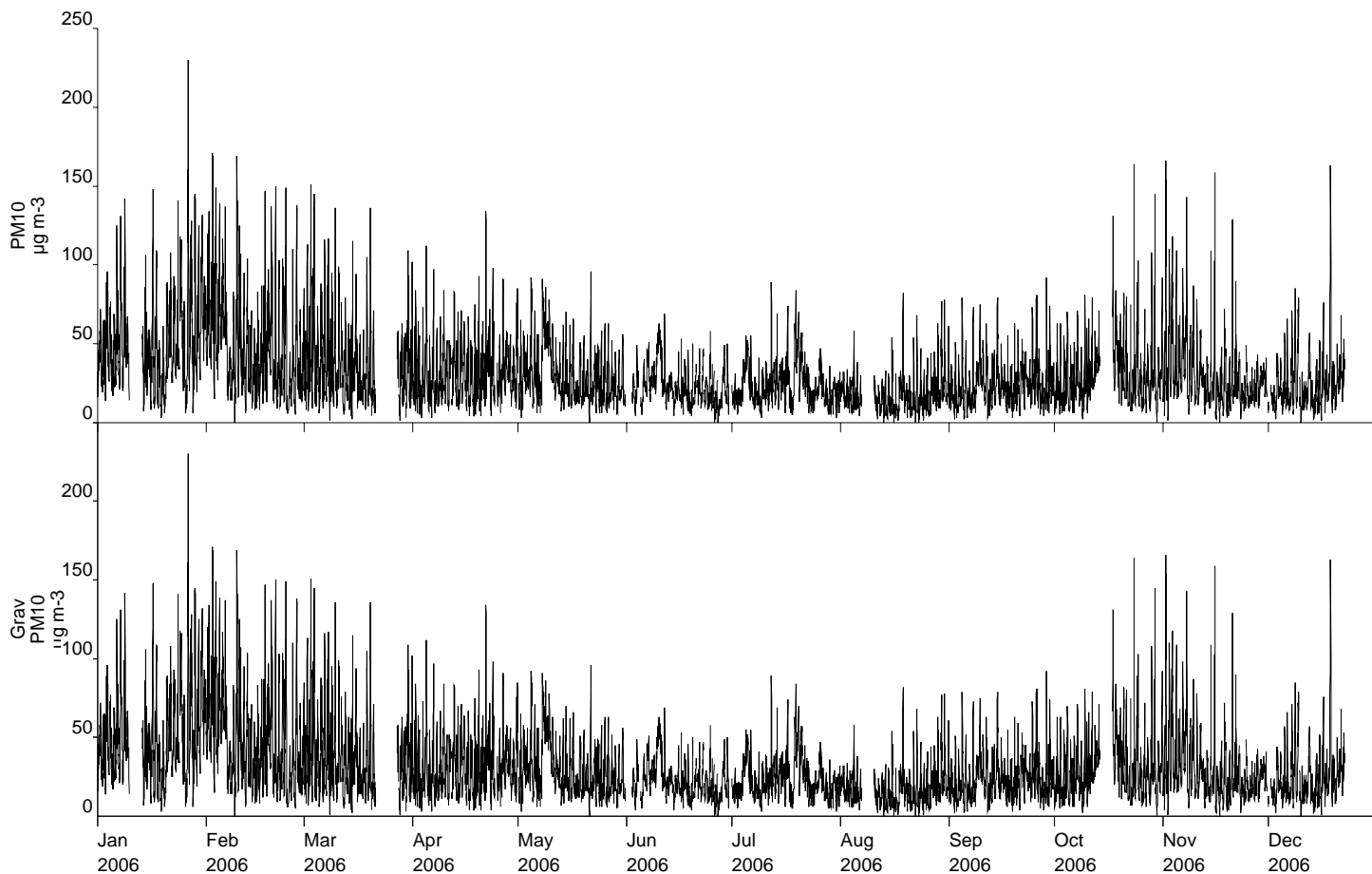
PM₁₀ is measured with a BAM1020 instrument without a heated inlet
 GR₁₀ is the PM₁₀ data converted to 'Indicative Gravimetric Equivalent' units using a conversion factor of 1/1.2

All mass units are at 20°C and 1013mb

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
PM ₁₀ Particulate Matter (Gravimetric)	Daily mean > 50 µg m ⁻³	13	13
PM ₁₀ Particulate Matter (Gravimetric)	Annual mean > 40 µg m ⁻³	0	-

Produced by AEA Energy & Environment on behalf of Ballymoney

**Ballymoney Air Monitoring
Hourly Mean Data for 01 January to 31 December 2006**



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Appendix 2

Nitrogen Dioxide Annual Mean Concentrations

			Bias Corrected						
Site	Site Type	Site Location	2001	2002	2003	2004	2005	2006	Predicted 2010
1N	Kerbside	19 Linenhall Street	23	31	30	28	21	24	17
2N	Kerbside	8 Ballybogey Road	n/a	22	20	17	18	15	15
3N	Urban Background	Opposite 16 Armour Avenue	19	13	16	15	16	9	14
4N	Urban Background	2-4 Semicock Avenue	19	14	13	17	15	9	13
6N	Kerbside	31 Charles Street	-	-	23	21	19	16	19
7N	Kerbside	Opposite 51 Queen Street	-	-	25	24	21	15	17
8N	Kerbside	Meeting House Street	-	-	-	-	25	23	21
9N	Kerbside	Castle Street	-	-	-	-	15	12	12

Appendix 3

