



BALLYMONEY
BOROUGH COUNCIL

AIR QUALITY

PROGRESS REPORT

BALLYMONEY BOROUGH COUNCIL

August 2008

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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 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, however, in all cases the 2007 diffusion tube data shows an increase in NO₂ concentrations.

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 twice-yearly 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 2007 locally monitored data, which can be found in Appendix 1 of this report. This shows an annual average of 20 $\mu\text{g m}^{-3}$ and 4 exceedances of the 50 $\mu\text{g m}^{-3}$ daily mean objective. Data capture was 91.2% which is above the recommended 75%. This report therefore shows that both the annual average and daily mean air quality objectives were met for 2007 in Ballymoney Borough Council.

Provisional data for the first six months of 2008 shows an annual average of 19 $\mu\text{g m}^{-3}$ and 8 exceedances of the 50 $\mu\text{g m}^{-3}$ daily mean objective. Data capture is so far 96.7% which is above the recommended 75%. This report, which can be found in Appendix 2 of this report, therefore shows that both the annual average and daily mean air quality objectives continue to be met in 2008 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.

Throughout 2007 the diffusion tubes were analysed by Lambeth Scientific Services Limited (LSSL). However, following guidance received by the Department diffusion tubes have been analysed by Gradko from February 2008. Difficulties with the accuracy of the data from the diffusion tube supplier necessitated a change in supplier contracts and therefore the 2007 may not be entirely reliable.

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 does not have any permanent automatic NO₂ monitoring sites, they are not able to carry out the necessary intercomparison locally. Instead, information was obtained 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>. A bias adjustment factor of 1.06 was taken from the spreadsheet of bias adjustment factors (v.04/08).

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 2007 can be found in Appendix 3, along with predicted annual mean concentrations for 2010.

2.4 PROPOSED NEW NO₂ MONITORING PROJECT

Ballymoney Borough Council are considering undertaking real time monitoring and/or dispersion modelling to address concerns that there may be a breach of NAQS objectives in relation to NO₂ at busy junction due to “school run” traffic. Currently there is a diffusion tube placed around 300m from the area of concern (6N Kerbside, 31 Charles Street) where the measured annual mean for 2007 was 21µg m⁻³ however, this would not give an indication if hourly objective were being breached due to around 2000 students attending three schools within 200m of each other. An application has been made for additional grant support to enable such a project.

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 ACTION PLAN PROGRESS

Action Plan measure/target	Original timescale	Progress with measure	Outcome to date	Comments
NIHE conversion scheme	To be completed by October 2007	Scheme completed February 2008	360 homes converted within AQMA	NIHE also installed solar panels on 30 homes within AQMA
Warm Homes Scheme Promotion	Ongoing	Scheme promoted throughout borough in 07/08	165 Insulation measures at a value of £101,541.71 51 Central Heating measures at a value of £181,229.84	Promotion of scheme ongoing in 08/09
Energy Efficiency Promotion	Ongoing	Dedicated energy efficiency officer employed by Ballymoney Borough Council	Talks given to local residents within AQMA.	Energy efficiency event planned for October 2008 however, dedicated officer post ends September 2008.
Bonfire Guidance and controls	Ongoing	Safer Bonfire Competition held July 2008	Four bonfire sites registered and four prizes were awarded	Judges noted improvement on suitability of materials burnt on bonfire.

5.0 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 2010 however, in all cases the 2007 diffusion tube data shows an increase on NO₂ concentrations from previous years.

6.0 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 2007

These data have been fully ratified by AEA Energy & Environment

POLLUTANT	PM ₁₀ ⁺
Number Very High	0
Number High	0
Number Moderate	58
Number Low	7911
Maximum 15-minute mean	222 µg m ⁻³
Maximum hourly mean	222 µg m ⁻³
Maximum running 8-hour mean	105 µg m ⁻³
Maximum running 24-hour mean	87 µg m ⁻³
Maximum daily mean	79 µg m ⁻³
Average	20 µg m ⁻³
Data capture	91.2 %

+ PM₁₀ as measured by a BAM using a factor of 0.83333 for Indicative Gravimetric Equivalence
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	4	4
PM ₁₀ Particulate Matter (Gravimetric)	Annual mean > 40 µg m ⁻³	0	0

Appendix 2

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

BALLYMONEY 01 January to 30 June 2008

These data are provisional and may be subject to further quality control

POLLUTANT	PM ₁₀ *+
Number Very High	0
Number High	0
Number Moderate	60
Number Low	4138
Maximum 15-minute mean	143 µg m ⁻³
Maximum hourly mean	143 µg m ⁻³
Maximum running 8-hour mean	98 µg m ⁻³
Maximum running 24-hour mean	82 µg m ⁻³
Maximum daily mean	66 µg m ⁻³
Average	19 µg m ⁻³
Data capture	96.7 %

+ PM₁₀ as measured by a BAM using a factor of 0.83333 for Indicative Gravimetric Equivalence
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	8	8
PM ₁₀ Particulate Matter (Gravimetric)	Annual mean > 40 µg m ⁻³	0	0

Appendix 3

Nitrogen Dioxide Annual Mean Concentrations

Site	Site Type	Site Location	Bias Corrected							2007	Predicted 2010
			2001	2002	2003	2004	2005	2006			
1N	Kerbside	19 Linenhall Street	23	31	30	28	21	24	26	23	
2N	Kerbside	8 Ballybogeey Road	n/a	22	20	17	18	15	17	15	
3N	Urban Background	Opposite 16 Armour Avenue	19	13	16	15	16	9	10	9	
4N	Urban Background	2-4 Semicock Avenue	19	14	13	17	15	9	11	10	
6N	Kerbside	31 Charles Street	-	-	23	21	19	16	21	19	
7N	Kerbside	Opposite 51 Queen Street	-	-	25	24	21	15	24	21	
8N	Kerbside	Meeting House Street	-	-	-	-	25	23	26	23	
9N	Kerbside	Castle Street	-	-	-	-	15	12	18	16	

Appendix 4

