

2012 Air Quality Updating and Screening Assessment for Ballymoney Borough Council

In fulfillment of Environment (Northern Ireland) Order 2002 Local Air Quality Management

May 2012

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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 Updating and Screening Assessment for Ballymoney Borough Council. In writing this report the Council has had regard to the Government's published guidance confirmed in Local Air Quality Management Technical Guidance LAQM.TG(09).

This report provides the latest NO₂ monitoring results from the diffusion tubes located in the Ballymoney Town area. This Nitrogen Dioxide diffusion tube monitoring carried out across the Borough indicates that the Air Quality Objectives for this pollutant continue to be met and that exceedances are not anticipated, however, Ballymoney Borough Council will continue to monitor through the use of diffusion tubes. The report notes that there have been no significant changes in relation to air quality within the Borough and that no need has been identified to progress to a detailed assessment for any pollutant.

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1 Introduction

1.1 Description of Local Authority Area



Figure 1: Map of Ballymoney Borough Council

Ballymoney Borough covers 161 sq miles (41,700 hectares) and is predominantly rural in character. The town of Ballymoney is its administrative, commercial and educational centre, and there are a number of small villages in the rural hinterland. The Borough lies within the Antrim Coast and Glens Area of Outstanding Natural Beauty and also the Lower Bann valley, which forms part of the Borough's western boundary. The area's population has grown from 26,894 in 2001 to an estimated 30,564 in June 2010 with one-third of the population of the borough living near or within the town of Ballymoney.

1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process as set out in the Environment (Northern Ireland) Order 2002, 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.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM **in Northern Ireland** are set out in the Air Quality Regulations (Northern Ireland) 2003, Statutory Rules of Northern Ireland 2003, no. 342, and are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre μ g/m³ (milligrammes per cubic metre, mg[/]m³ 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 f	or the purpose of
LAQM in Northern Ireland	

	Air Quality	Date to be	
Pollutant	Concentration	Measured as	achieved by
Bonzono	16.25 <i>µ</i> g/m³	Running annual mean	31.12.2003
Delizelle	3.25 <i>µ</i> g/m ³	Running annual mean	31.12.2010
1,3-Butadiene	2.25 <i>µ</i> g/m ³	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m ³	Running 8-hour mean	31.12.2003
	0.5 μg/m ³	Annual mean	31.12.2004
Lead	$0.25 \ \mu g/m^3$	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 <i>µ</i> g/m ³	Annual mean	31.12.2005
Particles (PM ₁₀) (gravimetric)	50 μg/m ³ , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 <i>µ</i> g/m ³	Annual mean	31.12.2004
	350 μg/m ³ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
Sulphur dioxide	125 μ g/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

Ballymoney Borough Council Progress Report dated June 2010 concluded that PM₁₀ monitoring carried out from December 2003 to December 2009 within the Glebeside Estate in Ballymoney town, showed that all national objective limits for this pollutant were now being met and sustained and the Air Quality Management Area declared in relation to this could now be revoked. This has been carried out and there is no longer an AQMA within Ballymoney Borough Council and monitoring for PM₁₀ has ceased.



Figure 2: Location of revoked Air Quality Management Area within Ballymoney Borough Council(* indicates location of PM10 monitor)

This progress report and the subsequent progress report dated November 2011 shows that Nitrogen Dioxide diffusion tube monitoring carried out across the Borough indicated that the Air Quality Objectives for this pollutant were being met and that exceedances were not anticipated, however, Ballymoney Borough Council would continue to monitor through the use of diffusion tubes.

The Progress Report dated November 2011 also concluded that there were no new local developments identified that would require more detailed consideration in the next Updating and Screening Assessment and that new monitoring data has not identified any likely breaches of the air quality objectives and that it was not necessary to proceed to a detailed assessment for any of the monitored pollutants

Stage	Recommendations or other actions	Report
Stage 1 (2000)	A stage 2 assessment was carried out.	Carried out by
		Ballymoney BC. HES
		Committee minute
		246.2.5.6 29 th August
		2000.
Stage 2 (2002)	A stage 3 assessment was not required for NO ₂ ,	
	SO_2 or PM_{10} for emissions from vehicular or	
	industrial sources.	
		Hobson (2002)
Stage 3 – Domestic	No further assessment is needed in the	
Fuel Combustion	Glebeside area. Monitoring data was from	
(2004)	Carrickfergus.	Grice (2004)
Stage 2/3 Assessment	It is not necessary to declare an Air Quality	
	Management Area (AQMA) with respect to either	
	PM_{10} particulates or sulphur dioxide, PM_{10} data	
	capture should continue for a further 12-month	
	period.	Ballymoney BC
		(2004)
Reverification report	Based on the measured exceedance of the daily	
(2005)	standard Ballymoney BC were recommended to	
	proceed to declare an AQMA for PM_{10} .	
		Haig (2005)

Table 1.2: Summary of previous review and assessments undertaken by Ballymoney Borough Council

Progress Report	Recommends that the Council declare an AQMA	
(2005)	in respect of PM_{10} and submit a draft action plan	
	to relevant authorities.	Ballymoney BC
		(2005)
Stage 4 (2006) –	PM ₁₀ concentrations in 2004 were corrected (by	
Domestic Fuel	dividing through by a factor of 1.2). Exceedance	
Combustion.	of PM_{10} concentrations. AQMA declaration was	
	recommended to continue.	Targa (2006)
Updating and	Indicates that the objective will not be met for the	
Screening Assessment	daily mean PM_{10} objective within the AQMA but	
(2006)	will be achieved elsewhere within the Borough.	
		Ballymoney BC
		(2006)
Progress Report (2007)	To progress the air quality action plan and	
	continue further monitoring of particulate matter.	
		Ballymoney BC
		(2007)
Progress Report (2008)	To monitor local levels of PM ₁₀ to determine the	
	improvements made by the NIHE solid fuel to	
	gas conversion scheme.	Ballymoney BC
		(2008)
Impact of heating	PM ₁₀ objectives have been met and are not likely	(2008)
Impact of heating conversion scheme on	PM_{10} objectives have been met and are not likely to be breached in the future. Recommends	(2008)
Impact of heating conversion scheme on AQMA report (2009)	PM ₁₀ objectives have been met and are not likely to be breached in the future. Recommends revocation of AQMA	(2008) AEA (2009)
Impact of heating conversion scheme on AQMA report (2009) Updating and	PM ₁₀ objectives have been met and are not likely to be breached in the future. Recommends revocation of AQMA PM ₁₀ objectives have been met and are not likely	(2008) AEA (2009)
Impact of heating conversion scheme on AQMA report (2009) Updating and Screening Assessment	PM ₁₀ objectives have been met and are not likely to be breached in the future. Recommends revocation of AQMA PM ₁₀ objectives have been met and are not likely to be breached in the future. Recommends	(2008) AEA (2009) Ballymoney
Impact of heating conversion scheme on AQMA report (2009) Updating and Screening Assessment (2009)	PM ₁₀ objectives have been met and are not likely to be breached in the future. Recommends revocation of AQMA PM ₁₀ objectives have been met and are not likely to be breached in the future. Recommends revocation of AQMA and to continue monitoring	(2008) AEA (2009) Ballymoney BC(2009)
Impact of heating conversion scheme on AQMA report (2009) Updating and Screening Assessment (2009)	PM10 objectives have been met and are not likelyto be breached in the future. Recommendsrevocation of AQMAPM10 objectives have been met and are not likelyto be breached in the future. Recommendsrevocation of AQMA and to continue monitoringNitrogen Dioxide by diffusion tubes although	(2008) AEA (2009) Ballymoney BC(2009)
Impact of heating conversion scheme on AQMA report (2009) Updating and Screening Assessment (2009)	PM10 objectives have been met and are not likelyto be breached in the future. Recommendsrevocation of AQMAPM10 objectives have been met and are not likelyto be breached in the future. Recommendsrevocation of AQMA and to continue monitoringNitrogen Dioxide by diffusion tubes althoughnational objectives are being met.	(2008) AEA (2009) Ballymoney BC(2009)
Impact of heating conversion scheme on AQMA report (2009) Updating and Screening Assessment (2009) Progress Report (2010)	PM_{10} objectives have been met and are not likely to be breached in the future. Recommends revocation of AQMA PM_{10} objectives have been met and are not likely to be breached in the future. Recommends revocation of AQMA and to continue monitoring Nitrogen Dioxide by diffusion tubes although national objectives are being met. Monitoring for PM_{10} ceased and the AQMA was	(2008) AEA (2009) Ballymoney BC(2009) Ballymoney
Impact of heating conversion scheme on AQMA report (2009) Updating and Screening Assessment (2009) Progress Report (2010)	PM10 objectives have been met and are not likelyto be breached in the future. Recommendsrevocation of AQMAPM10 objectives have been met and are not likelyto be breached in the future. Recommendsrevocation of AQMA and to continue monitoringNitrogen Dioxide by diffusion tubes althoughnational objectives are being met.Monitoring for PM10 ceased and the AQMA wasrevoked. Monitoring for NO2 continued.	(2008) AEA (2009) Ballymoney BC(2009) Ballymoney BC(2010)
Impact of heating conversion scheme on AQMA report (2009) Updating and Screening Assessment (2009) Progress Report (2010) Progress Report (2011)	PM10 objectives have been met and are not likelyto be breached in the future. Recommendsrevocation of AQMAPM10 objectives have been met and are not likelyto be breached in the future. Recommendsrevocation of AQMA and to continue monitoringNitrogen Dioxide by diffusion tubes althoughnational objectives are being met.Monitoring for PM10 ceased and the AQMA wasrevoked. Monitoring for NO2 continued.The report notes that there have been no	(2008) AEA (2009) Ballymoney BC(2009) Ballymoney BC(2010)
Impact of heating conversion scheme on AQMA report (2009) Updating and Screening Assessment (2009) Progress Report (2010) Progress Report (2011)	PM_{10} objectives have been met and are not likelyto be breached in the future. Recommendsrevocation of AQMA PM_{10} objectives have been met and are not likelyto be breached in the future. Recommendsrevocation of AQMA and to continue monitoringNitrogen Dioxide by diffusion tubes althoughnational objectives are being met.Monitoring for PM_{10} ceased and the AQMA wasrevoked. Monitoring for NO_2 continued.The report notes that there have been nosignificant changes in relation to air quality within	(2008) AEA (2009) Ballymoney BC(2009) Ballymoney BC(2010) Ballymoney
Impact of heating conversion scheme on AQMA report (2009) Updating and Screening Assessment (2009) Progress Report (2010) Progress Report (2011)	PM10 objectives have been met and are not likelyto be breached in the future. Recommendsrevocation of AQMAPM10 objectives have been met and are not likelyto be breached in the future. Recommendsrevocation of AQMA and to continue monitoringNitrogen Dioxide by diffusion tubes althoughnational objectives are being met.Monitoring for PM10 ceased and the AQMA wasrevoked. Monitoring for NO2 continued.The report notes that there have been nosignificant changes in relation to air quality withinthe Borough and that no need has been	(2008) AEA (2009) Ballymoney BC(2009) Ballymoney BC(2010) Ballymoney BC(2011)
Impact of heating conversion scheme on AQMA report (2009) Updating and Screening Assessment (2009) Progress Report (2010) Progress Report (2011)	PM_{10} objectives have been met and are not likelyto be breached in the future. Recommendsrevocation of AQMA PM_{10} objectives have been met and are not likelyto be breached in the future. Recommendsrevocation of AQMA and to continue monitoringNitrogen Dioxide by diffusion tubes althoughnational objectives are being met.Monitoring for PM_{10} ceased and the AQMA wasrevoked. Monitoring for NO_2 continued.The report notes that there have been nosignificant changes in relation to air quality withinthe Borough and that no need has beenidentified to progress to a detailed assessment	(2008) AEA (2009) Ballymoney BC(2009) Ballymoney BC(2010) Ballymoney BC(2011)
Impact of heating conversion scheme on AQMA report (2009) Updating and Screening Assessment (2009) Progress Report (2010) Progress Report (2011)	 PM₁₀ objectives have been met and are not likely to be breached in the future. Recommends revocation of AQMA PM₁₀ objectives have been met and are not likely to be breached in the future. Recommends revocation of AQMA and to continue monitoring Nitrogen Dioxide by diffusion tubes although national objectives are being met. Monitoring for PM₁₀ ceased and the AQMA was revoked. Monitoring for NO₂ continued. The report notes that there have been no significant changes in relation to air quality within the Borough and that no need has been identified to progress to a detailed assessment for any pollutant. 	(2008) AEA (2009) Ballymoney BC(2009) Ballymoney BC(2010) Ballymoney BC(2011)
Impact of heating conversion scheme on AQMA report (2009) Updating and Screening Assessment (2009) Progress Report (2010) Progress Report (2011)	 PM₁₀ objectives have been met and are not likely to be breached in the future. Recommends revocation of AQMA PM₁₀ objectives have been met and are not likely to be breached in the future. Recommends revocation of AQMA and to continue monitoring Nitrogen Dioxide by diffusion tubes although national objectives are being met. Monitoring for PM₁₀ ceased and the AQMA was revoked. Monitoring for NO₂ continued. The report notes that there have been no significant changes in relation to air quality within the Borough and that no need has been identified to progress to a detailed assessment for any pollutant. 	(2008) AEA (2009) Ballymoney BC(2009) Ballymoney BC(2010) Ballymoney BC(2011)

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

In January 2010 Ballymoney Borough Council decommissioned the Met One BAM 1020 analyser located within the Glebeside residential development. There is no longer any automatic monitoring conducted for any pollutants within the Ballymoney Borough Council area.

2.1.2 Non-Automatic Monitoring Sites

Nitrogen oxide (NO) and Nitrogen dioxide (NO₂) are both oxides of nitrogen collectively referred to as NOx. NO is oxidised to form NO₂. Combustion processes, including those in vehicle engines, give rise to this mixture of NOx gases. High concentrations of NO₂ can irritate the respiratory system and affect human health.

Ballymoney Borough Council is currently monitoring nitrogen dioxide at 8 sites throughout Ballymoney Town using passive diffusion tubes. Diffusion tubes provide a low cost means of indicatively monitoring the level of NO_2 in the air. The passive diffusion tube is a clear plastic tube open at one end with the closed end containing an absorbent for the gas and absorbs the pollutant direct from the surrounding air.

The tubes are exposed for either 4 or 5 weeks at a time. Results from analysis of the tubes can then be used to compare the level of NO_2 against the annual mean objective for NO_2 .

Diffusion tubes are analysed by Gradko who currently meet all relevant standards

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 0.89 was taken from the spreadsheet of bias adjustment factors (v.03_12). Further details with regard to the QA/QC procedures are available in Appendix 1.

A table of the 2011 nitrogen dioxide concentrations can be found in Appendix 2 which shows that Ballymoney Borough Council has not measured an annual mean concentration at any site greater than 40 μ g/m³



Figure 3 Maps of Non-Automatic Monitoring Sites

1N Kerbside 19 Linenhall Street





2N Kerbside 8 Ballybogey Road











4N Urban Background 2-4 Semicock Avenue





6N Kerbside 31 Charles Street









8N Kerbside Meetinghouse Street





9N Kerbside Castle Street



Table 2.1 Details of Non-Automatic Monitoring Sites

Site Name	Site Type	Address	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?
	Kerbside	19 Linenhall St	NOa	N	N	1m	V
1N	Reibside		1102				
2N	Kerbside	8 Ballybogey Road	NO ₂	N	Y (10m)	1m	Y
3N	Urban Background	Opp 16 Armour Ave	NO ₂	N	Y (20m)	N/A	Y
4N	Urban Background	Semicock Avenue	NO ₂	N	Y (5m)	N/A	Y
6N	Kerbside	31 Charles Street	NO ₂	N	Y (10m)	1m	Y
7N	Kerbside	Opp 51 Queen Street	NO ₂	Y	Y (15m)	1m	Y
8N	Kerbside	Meetinghouse Street	NO ₂	N	Y (15m)	1m	Y
9N	Kerbside	Castle Street	NO ₂	N	Y (10m)	1m	Y

2.2 Comparison of Monitoring Results with AQ Objectives

Ballymoney Borough Council ceased automatic monitoring of PM₁₀ in December 2010 and revoked the Ballymoney Town Air Quality Management Area. Monitoring is currently undertaken for Nitrogen Dioxide by use of diffusion tubes, results of which are detailed below.

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

Ballymoney Borough Council does not operate automatic monitoring equipment for Nitrogen Dioxide.

Diffusion Tube Monitoring Data

The NO₂ monthly diffusion tube data for 2011 is shown in Appendix 2. Annual mean concentrations are shown in Table 2.2 below. The annual mean air quality objective of 40 μ g/m³ was not exceeded at any of the monitoring sites.

Table 2.2 Results of Nitrogen Dioxide Diffusion Tubes in 2011

				Triplicate or	Data Capture 2011 (Number	Data with less than 9 months has been	Confirm if data has been distance	Annual mean concentration (Bias Adjustment factor = 0.89)
Site ID	Location	Site Type	Within AQMA?	Collocated Tube	of Months or %)	annualised (Y/N)	corrected (Y/N)	2011 (μg/m ³)
	19 Linenhall	, , , , , , , , , , , , , , , , , , ,			· · · · ·			
1N	Street	Kerbside	Ν	n/a	12 months	n/a	Ν	23.5
2N	8 Ballybogey Road	Kerbside	N	n/a	11 months	n/a	Ν	14.8
	Opposite 16	Urban						
3N	Armour Ave	Background	Ν	n/a	12 months	n/a	Ν	7.2
	2-4 Semicock	Urban						
4N	Avenue	Background	N	n/a	12 months	n/a	Ν	8.7
GN	31 Charles	Karbaida	NI	n/n	11 months		N	22.6
DIN		Kerbside	IN	n/a	TT MONINS	n/a	IN	23.6
7N	Queen St	Kerbside	Ν	n/a	12 months	n/a	Ν	21.4
	Meetinghouse							
8N	Street	Kerbside	N	n/a	12 months	n/a	N	25.7
9N	Castle Street	Kerbside	N	n/a	12 months	n/a	Ν	14.3

^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year. ^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

^c Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.

*Annual mean concentrations for previous years are optional.

			Annual mean concentration (adjusted for bias) μg/m ³							
Site ID	Site Type	Within AQMA?	2007* (Bias Adjustment Factor = 1.06)	2008* (Bias Adjustment Factor = 0.9)	2009* (Bias Adjustment Factor = 0.99)	2010* (Bias Adjustment Factor = 0.92)	2011 (Bias Adjustment Factor = 0.89)			
	19 Linenhall									
1N	Street	N	26	29	32	30	23			
	8 Ballybogey									
2N	Road	Ν	17	19	19	19	15			
	Opposite 16									
3N	Armour Ave	N	10	10	10	10	7			
	2-4 Semicock									
4N	Avenue	Ν	11	11	11	12	9			
	31 Charles									
6N	Street	Ν	21	21	21	22	24			
	Opposite 51									
7N	Queen St	Ν	24	26	25	22	21			
	Meetinghouse									
8N	Street	N	26	30	33	35	26			
9N	Castle Street	N	18	20	17	18	14			

Table 2.3 Results of Nitrogen Dioxide Diffusion Tubes (2007 to 2011)



Figure 4 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites

2.2.2 PM₁₀

Ballymoney Borough Council has ceased monitoring for PM10 and revoked the Air Quality Management Area declared in Ballymoney Town following the conclusions and recommendations of previous reports.

2.2.3 Sulphur Dioxide

Ballymoney Borough Council does not undertake monitoring for Sulphur Dioxide.

2.2.4 Benzene

Ballymoney Borough Council does not undertake monitoring for Benzene.

2.2.5 Other pollutants monitored

Ballymoney Borough Council does not undertake monitoring for any other pollutants.

2.2.6 Summary of Compliance with AQS Objectives

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

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Ballymoney Borough Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

Ballymoney Borough Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

3.3 Roads with a High Flow of Buses and/or HGVs.

Ballymoney Borough Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

Ballymoney Borough Council confirms that there are no new/newly identified busy junctions/busy roads.

3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

Ballymoney Borough Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

Ballymoney Borough Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

Ballymoney Borough Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

Ballymoney Borough Council confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

Ballymoney Borough Council confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

4.2.2 Moving Trains

Ballymoney Borough Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

4.3 **Ports (Shipping)**

Ballymoney Borough Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

5.1.1 New or Proposed Installations for which an Air Quality Assessment has been Carried Out

Ballymoney Borough Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced

Ballymoney Borough Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

Ballymoney Borough Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.2 Major Fuel (Petrol) Storage Depots

There are no major fuel (petrol) storage depots within the Local Authority area.

5.3 Petrol Stations

Ballymoney Borough Council confirms that there are no petrol stations meeting the specified criteria.

5.4 Poultry Farms

Ballymoney Borough Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 **Biomass Combustion – Individual Installations**

Ballymoney Borough Council confirms that there are no biomass combustion plants in the Local Authority area.

6.2 **Biomass Combustion – Combined Impacts**

Ballymoney Borough Council confirms that there are no biomass combustion plants in the Local Authority area.

6.3 Domestic Solid-Fuel Burning

Ballymoney Borough Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

Ballymoney Borough Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

Ballymoney Borough Council monitored for nitrogen dioxide at eight sites throughout 2011. No exceedances of the annual mean air quality objective were identified at any of the sites and no significant trends have been noted in the data.

8.2 Conclusions from Assessment of Sources

Assessment of sources has indicated that there are no new local developments that will require a more detailed assessment.

8.3 Proposed Actions

New monitoring data has not identified any likely breaches of the air quality objectives and it is not necessary to proceed to a detailed assessment for any pollutants. Monitoring of nitrogen dioxide with diffusion tubes will continue at the current eight sites.

Ballymoney Borough Councils next air quality report will be the 2012 progress report.

9 References

Part IV of the Environment Act 1995

Environment (Northern Ireland) Order 2002 Part III

Local Air Quality Management Guidance Technical Guidance, (LAQM.TG(09)) defra 2009.

DOE Northern Ireland Air website http://www.airqualityni.co.uk/

Defra Local Air Quality Management (LAQM) Support website

http://laqm.defra.gov.uk/

The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2000)

Air Quality Regulations (Northern Ireland) 2003

Ballymoney Borough Council Review and Assessment of Air Quality Stage 1 Report 2001

Ballymoney Borough Council Review and Assessment of Air Quality Stage 2 & 3 Report 2004

Ballymoney Borough Council Progress Report 2005

Ballymoney Borough Council Update and Screening Assessment 2006

Ballymoney Borough Council Progress Report 2007

Ballymoney Borough Council Progress Report 2008

Ballymoney Borough Council Update and Screening Assessment 2009

Ballymoney Borough Council Progress Report 2010

Ballymoney Borough Council Progress Report 2011

Appendices

Appendix 1: QA/QC Data

Appendix 2: NO₂ Diffusion Tube Monthly Data for 2011

Appendix 3: Summary of precision data by laboratory 2008 - 2011

Appendix 1 QA/QC Data

Nitrogen Dioxide diffusion tubes were supplied and analysed by Gradko Environmental Ltd., St Martins, 77 Wales Street, Winchester, Hampshire, SO23 ORH from mid 2008 onwards. The preparation method is 20% TEA in water. Gradko Environmental Ltd is a UKAS accredited laboratory and follows Laboratory Quality Procedures. Analysis is carried out in accordance with documented in-house laboratory method GLM7.

Gradko Environmental Ltd has a bias adjustment factor of 0.89 for 2011. The corrected NO2 concentration is obtained by multiplying the measured annual mean NO2 concentration by the correction factor.

Factor from Local Co-location Studies (if applicable)

Not applicable for Ballymoney Borough Council

Discussion of Choice of Factor to Use

The Council does not operate a continuous analyser and therefore a co-location study has not been undertaken to determine a specific local bias adjustment factor. The national bias adjustment factor was therefore used. This is available on the Defra website (<u>www.laqm.defra.gov.uk</u>) spreadsheet version 03/12 and based on 29 studies for the preparation method 20% TEA in water during 2011 the overall correction factor was determined to be 0.89.

QA/QC of diffusion tube monitoring

Gradko Environmental analytical laboratory is assessed annually by UKAS to establish conformance of the Laboratory Quality Procedures to the requirements of ISO/IEC 17025 Standard and have demonstrated good precision results for 2011 as detailed in the summary of precision results for the individual laboratories performance on the Defra website. A summary of precision results for nitrogen dioxide for 2008 – 2011 by laboratory is shown in appendix 3.

Gradko Environmental also demonstrated good performance in the WASP scheme for analysis of nitrogen dioxide diffusion tubes for April 2009 – September 2011.

Ballymoney Borough Council's QA/QC procedure is to ensure that diffusion tubes are handled and stored in accordance with the manufacturer's instructions. When a tube batch is received they are immediately placed in a refrigerator in the bag in which they are received. So far as is possible the Council conforms to the calendar of exposure periods. On the day of sampling they are removed from the fridge and installed. Laboratory blanks are retained in the fridge and are taken out only when the exposed tubes are being returned to the laboratory. When tubes are collected from sampling sites they are immediately packaged and sent to the laboratory for analysis.

Selection of Monitoring Sites

Monitoring sites are chosen to provide data on locations that appear to be representative of likely residential exposure and, where possible, are close to the nearest receptor to the busy road or road junction of interest. Where sites do not represent actual relevant public exposure they are located closer to the source than the nearest receptor. The sites are subject to periodic review and where sufficient data has been gathered, some of the diffusion tubes are relocated to new locations

	Average NO2 Concentration												
	Location												
Month 1N		2N	3N	4N	6N	7N	8N	9N					
January	22.99		9.56	9.54		18.61	21.81	13.62					
February	27.84	17.65	9.23	10.92	23.91	22.47	25.34	16.15					
March	31.85	18.01	11.31	13.31	26.85	27.05	34.38	15.17					
April	27.20	16.46	7.81	10.87	22.37	25.07	36.32	17.97					
Мау	21.01	10.97	4.67	6.02	25.19	23.58	14.28	32.64					
June	30.37	21.38	7.90	8.27	27.8	27.84	36.92	17.27					
July	23.77	19.39	6.23	7.95	19.79	20.26	23.29	9.95					
August	28.19 19.85 6.8		6.88	8.83	23.15	23.03	31.12	15.52					
September	22.28	10.06 5.52		6.73	25.46	21.74	25.33	12.63					
October	26.92	15.89	7.16	9.38	30.37	25.67	35.30	8.60					
November	29.42	18.53	11.24	13.69	40.85	30.76	34.12	16.68					
December	24.67	14.29	9.66	11.83	25.41	22.93	28.49	16.55					
Annual	26.38	16.59	8.10	9.78	26.49	24.08	28.89	16.06					
Mean													
Annual	23.47	14.76	7.21	8.70	23.56	21.43	25.71	14.30					
Mean bias													
adjusted													
% Data	100	92	100	100	92	100	100	100					
Capture													

Appendix 2 NO₂ Diffusion Tube Monthly Data for 2011

Annendix 3	Summary of	of precision	results by	/ laboratory	/ 2008	-2011
	Summary v		i couito by			-2011

Harwell S Services, TEA in A	Harwell Scientific Services, 50% Services, 20% TEA in Acetone TEA in Water		Gradko, 50% Gradko, 20% TEA in Acetone TEA in Water		South Yorkshire Labs		Staffor Scientific	Staffordshire Scientific Services		West Yorkshire Analytical Services		Environmental Scientific Groups, 50% TEA in Acetone		Environmental Scientific Groups, 20% TEA in Water		
2008	G	2010 G	2008	G	2008	G	2008	G	2008	P	2008	G	2010	G	2009	G
2008	G	2011 G	2008	G	2008	P	2008	G	2008	G	2008	G	2010	G	2009	G
2008	G		2008	G	2008	G	2008	P	2008	G	2008	P	2010	G	2009	P
2008	G		2008	G	2008	G	2008	G	2008	G	2008	G	2011	G	2009	G
2008	G		2008	G	2008	G	2008	G	2008	G	2008	G	2011	G	2009	G
2008	G		2008	G	2008	P	2008	G	2009	G	2008	G	2011	G	2009	G
2008	G		2008	G	2008	G	2008	G	2009	G	2009	G	2011	G	2009	P
2008	G		2008	G	2008	G	2009	G	2009	G	2009	G	2011	G	2010	Р
2008	G		2008	G	2008	G	2009	G	2009	G	2009	G	2011	G	2010	G
2008	G		2008	G	2008	G	2009	G	2009	G	2009	G	2011	G	2010	G
2009	G		2008	P	2008	G	2009	G	2009	G	2009	G	2011	G	2010	P
2009	G		2008	G	2008	G	2009	G	2010	G	2010	G	2011	G	2010	P
2009	G		2009	G	2008	G	2009	G	2010	G	2010	G	2011	G	2010	G
2009	G		2009	G	2008	G	2010	G	2010	G	2010	G	2011	G	2011	G
2009	G		2009	G	2000	G	2010	G	2010	G	2010	G	2011	G	2011	G
2009	G		2009	G	2009	G	2010	P	2010	G	2010	P	2011	G	2011	G
2009	G		2009	G	2009	G	2010	G	2010	G	2010	G	2011	P	2011	9
2009	G		2009	G	2009	G	2011	G	2011	G	2011	G	2011	Р	l	
2009	Р G		2009	G	2009	G	2011 2011	G P	2011 2011	G	2011 2011	G				
2009	P		2009	P	2009	G			2011	G	2011	G				
2009	G		2009	G	2009	G P			2011 2011	G	2011 2011	G				
2009	P		2009	G	2009	G			2011	G	2011	G				
2009 2009	G		2010	G	2009 2009	G			2011 2011	G	2011 2011	G				
2009	G		2010	G	2009	G			2011	G	2011	G				
2009	G		2010	G	2009	G					2011	P	1			
2009	G		2010	G	2009	P										
2009 2009	G		2010	G	2009	G P										
2009	G		2010	G	2009	Р										
2010	G P		2010	G	2009	G										
2010	Р		2010	G	2009	G										
2010 2010	G		2010	G	2009 2009	G										
2010	G		2011	G	2009	G										
2010	G		2011 2011	G	2009	G										
2010	G		2011	G	2009	G										
2010	G		2011	G	2009	G										
2010	G		2011	G	2010	G										
2010	G		2011 2011	G	2010	G										
2010	G		2011	G	2010	G										
2010	G		2011 2011	G	2010 2010	G										
2010	G		2011	G	2010	G										
2010	G		2011	G	2010	G										
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2011	G		2011	Р	2010	P										
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2011	G				2010	Р										
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2011 2011	G				2010	G										
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