Banbridge District Council

Local Air Quality Progress Report

May 2005

Executive Summary

A Stage 2/3 Local Air Quality Management Review & Assessment Report for Banbridge District was appraised by the University of the West of England (UWE) on behalf of the Environment & Heritage Service. This report was accepted by the Environment & Heritage Service, with the condition that a supplementary document highlighting the impact of SO_2 emissions from domestic coal burning in Banbridge and PM_{10} emissions from RMC Catherwood Quarry should be submitted. The conclusions reached in the Stage 2/3 Review and Assessment and the subsequent supplementary document, were that no further detailed assessments were required at this time for any of the pollutants reviewed and that there was currently no requirement for any statutory Air Quality Management Areas (AQMAs) to be declared.

Preparation of this Progress Report is the final activity prescribed in the timetable for the First Round of reviews and assessments as set out in LAQM Policy Guidance (LAQM.PGNI(03)). The report has been produced in accordance with guidance detailed in Progress Report Guidance LAQM.PRGNI(04), and summarises the findings of the LAQM activities undertaken by the Council including the currently available air quality monitoring results for 2003/2004.

The conclusion of this report confirms that for all the prescribed air pollutants, concentrations in the district are well within the statutory limits. However, it is fully acknowledged that this favourable position is based upon a somewhat limited pool of currently available information. The Council will continue to participate fully in the ongoing LAQM Review & Assessment process, to ensure that local air quality across all parts of the district is managed in a way that effects compliance with health-based, statutory pollutant limits. In this context, the development of a local air quality management strategy for the district is currently in progress.

Contents

1.0 Introduction

1.1 Purpose and Role of Progress Reports

In 1995 the UK Government published its strategic framework for air quality management and established national strategies and policies on air quality. The Northern Ireland Environment Order came into force in January 2003 and implements the European Air Framework Directive 96/62EC and the UK Air Quality Strategy here in Northern Ireland.

Under the Local Air Quality Management (LAQM) regime, councils are required to review present local air quality, make projections on future trends and assess whether the nationally prescribed objectives are likely to be achieved. Progress reports are required to be produced in the years when the authority is not carrying out updating and screening assessments or detailed assessments of air quality.

This progress report has been prepared as part of Banbridge District Council's responsibilities under the Environment (Northern Ireland) Order 2002 to "fill the gap" between three yearly rounds of review and assessment of local air quality. The progress report has been introduced into the local air quality management system, as a means of combating the 'stop-start' approach to environmental reporting and integrate the concepts of local air quality management into the routine of local authority operations.

It is intended that progress reports can assist the district councils by:

- helping to retain a profile for LAQM within the council, including the retention of staff with knowledge of air quality issues.
- providing a means for communicating air quality information to members and the public.
- maximising the value of the investment in monitoring equipment.
- facilitating the next round of review and assessment as there will be a readily available up-to-date source of information.
- helping district councils respond to requests for up-to-date information on air quality.
- providing information to assist in other policy areas, such as transport and land use planning.
- providing a ready source of information on air quality for developers carrying out environmental assessments for new schemes.
- demonstrating progress with implementation of air quality Action Plans and/or air quality strategies.
- providing a timely indication of the need for further measures to improve air quality, rather than delaying until the next full round of review and assessment.

The overall aims of this progress report are to:

- Report progress on implementing local air quality management.
- Report progress in achieving and maintaining concentrations of prescribed pollutants below the air quality objectives.

This report has therefore been prepared in accordance with the Environment & Heritage Service guidelines as published in Progress Report Guidance LAQM.PRGNI(04), November 2004.

1.2 Air Quality Strategy Objectives

The following air quality objectives set out in the Air Quality Regulations (NI) 2003 provide the statutory basis for the system of Local Air Quality Management.

Table 1: Air Quality Strategy Objectives

Pollutant	Objective	Measured as	To be achieved by
Benzene	3.25 µg/m^3	Running Annual Mean	31/12/2010
1,3-Butadiene	2.25 µg/m^3	Running Annual Mean	31/12/2003
Carbon monoxide	10.0 mg/m^3	Maximum daily running 8 Hour Mean	31/12/2003
Lead	0.5 µg/m^3	Annual Mean	31/12/2004
	0.25 µg/m^3	Annual Mean	31/12/2008
Nitrogen dioxide	200 µg/m^3 Not to be exceeded more than 18 times per year	1 Hour Mean	31/12/2005
	40 µg/m^3	Annual Mean	31/12/2005
Particles (PM_{10}) (gravimetric)[d]	50 µg/m^3 Not to be exceeded more than 35 times per year	24 Hour Mean	31/12/2004
	40 µg/m^3	Annual Mean	31/12/2004
Sulphur Dioxide	266 µg/m^3 Not to be exceeded more than 35 times per year	15 Minute Mean	31/12/2005
	350 µg/m^3 Not to be exceeded more than 24 times per year	1 Hour Mean	31/12/2004
	125 µg/m^3 Not to be exceeded more than 3 times per year	24 Hour Mean	31/12/2004

1.3 Conclusions of Previous Review and Assessment

PM_{10}

The Stage 1 review and assessment completed in 2001, concluded that PM_{10} emissions required a further Stage 2 assessment on the basis that it was not possible to rule out the risk of exceedences at that time. This was partially due to the potential impact of road traffic emissions, domestic coal burning and industrial processes at quarries within the Banbridge area.

Banbridge District Council submitted a copy of the Stage 2/3 review and assessment report, prepared with the assistance of modelling by Netcen (AEA Technology Plc), in 2003. The report was accepted and approved by the Environment & Heritage Service following an appraisal by the University of the West of England (Bristol), the national appraisal service. This report concluded that a further assessment of PM_{10} emissions was not required at this time. However, a further supplementary document was required to assess the impact of RMC Catherwood Quarry (located on the outskirts of Banbridge) on fugitive PM_{10} emissions. This supplementary document was submitted to the Environment and Heritage Service in January 2005. The results of the supplementary document concluded that there was no significant impact of PM_{10} fugitive emissions from RMC Catherwood Quarry. This conclusion was based on the following assertions:

1. No recent history of complaints from local residence regarding dust deposition
2. Visual assessments undertaken in the vicinity of the quarry concluded that dust deposition was minimal.
3. RMC Catherwood is working towards minimising fugitive emissions by employing BATNEEC techniques, under mitigation measures outlined in an Environmental Impact Statement prepared by their consultants Kirk McClure Morton.

SO_2

The Stage 1 review and assessment completed in 2001, concluded that SO_2 emissions required a further Stage 2 assessment on the basis that it was not possible to rule out the risk of exceedences of the prescribed objective limits at that time. This was partially due to domestic coal burning and a small combustion plant at Armaghdown Creamery.

Banbridge District Council submitted a copy of the Stage 2/3 Review and Assessment report prepared by Netcen (AEA Technology Plc), in 2003. The report was accepted and approved by the Environment & Heritage Service following an appraisal by the University of the West of England (Bristol). As part of the Stage 2/3 Review & Assessment, a nomogram and the Environment Agency GSS (Guidance on Stationary Sources) model were used to determine the impact of the boiler at Armaghdown Creamery on the levels of SO_2 in the Banbridge area. The outcome of the review and assessment, with regard to SO_2 emissions, was that no further study is required as the predicted emission limits were well within the prescribed objective limits. Sources of SO_2 pollution from domestic sources could not be ruled out due to the lack of automatic monitoring data. A further supplementary document was required to assess the impact of domestic coal burning in Banbridge. This supplementary document was submitted to the Environment and Heritage Service in January 2005. The results of the document concluded that due to the upgrading of central heating systems from coal to oil fired heating in a significant

number of local authority housing estates, SO_2 emissions from coal burning would be greatly reduced throughout Banbridge.

NO_2

The Stage 1 Review and Assessment completed in 2001, concluded that a further Stage 2 assessment of NO_2 emissions was required, on the basis that it was not possible to rule out the risk of exceedences at that time. This was due to the potential impact on local air quality from road traffic emissions on the A1 dual carriageway.

Banbridge District Council recently submitted a copy of the Stage 2/3 Review and Assessment report prepared with the assistance of modelling by Netcen (AEA Technology Plc. The report was accepted and approved by the Environment & Heritage Service following an appraisal by the University of the West of England (Bristol). The outcome of that review and assessment with regard to NO_2 emissions is that no further study is required and that a progression to a more detailed Stage 3 assessment was not necessary at this time. Road traffic modelling using DMRB (the Design Manual for Roads and Bridges model) predicted no exceedences of the NO_2 objectives. Domestic fuel combustion was also ruled out at this stage as a significant source of NO_2 emissions.

2.0 New Monitoring Data

2.1 Summary of Monitoring Undertaken

Banbridge District Council undertakes ambient monitoring of the following pollutants in its area:

- **NO_2** (by Diffusion Tube).

Table 2.1: Air Quality Monitoring In Banbridge

Pollutant	Equipment	Location	Eastings	Northings	Site Type
NO2	Nitrogen Dioxide diffusion tubes	17 Springfields, Banbridge BT32 3LT	312010	344249	Background
		7 Hillview Terrace, Dromore Street, Banbridge BT32 4BS	312845	346275	Kerbside
		9 Fortfield, Maypole Hill, Dromore BT25 1DD	319800	353508	Background
		A1 Dromore By-Pass	319803	353635	Kerbside

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

No other pollutants covered in the air quality strategy objectives are monitored in the area covered by Banbridge District Council.

2.1.1 Automatic Monitoring Stations

There are no automatic monitoring sites within Banbridge District Council area.

2.1.2 NO_2 Diffusion Tube Monitoring Sites

Banbridge District Council carries out monitoring of NO_2 by diffusion tubes at four sites within the District. The NO_2 diffusion tubes are prepared and analysed by Lambeth Scientific Services Limited. This laboratory takes part in the NO_2 Network QA/QC Field Intercomparison. The tubes are prepared by coating the grids in a 50% v/v solution of the absorbent, triethanolamine (TEA) in water. Analysis is carried out using a colorimetric technique

Four of the sites are included in the UK NO_2 Network, but none of the sites were co-located with an automatic NO_2 analyser. Details are given in Table 2.1 and maps in Appendix A.

Table 2.1.2: Diffusion Tube Monitoring Site Details in Banbridge

Pollutant	Equipment	Location	Eastings	Northings	Site No.	Site Ref.
NO2	Nitrogen Dioxide diffusion tubes	17 Springfields, Banbridge BT32 3LT	312010	344249	8	82760 K
		7 Hillview Terrace, Dromore Street, Banbridge BT32 4BS	312845	346275	10	82979 K
		9 Fortfield, Maypole Hill, Dromore BT25 1DD	319800	353508	7	82762 B
		A1 Dromore By-Pass	319803	353635	11	82763 B

2.1.3 SO_2 Diffusion Tube Monitoring Sites

Banbridge District Council no longer carries out monitoring of SO_2 by diffusion tubes

2.2 NEW MONITORING

No new monitoring sites have been set up or discontinued, since the previous Updating and Screening Assessment.

2.3 MONITORING RESULTS AND COMPARISON WITH AQS OBJECTIVES

2.3.1 (Automatic Monitoring Station)

There is no automatic monitoring equipment currently located within the Banbridge District Council area.

2.3.2 NO_2 (Diffusion Tube Monitoring)

NO_2 diffusion tube monitoring results have been bias corrected for 2001 to 2004.

Nitrogen Dioxide concentrations recorded by the diffusion tubes indicate that Nitrogen Dioxide concentrations currently comply with the annual mean Air Quality Strategy objective at all measurement locations. Guidance provided by DEFRA (Review and Assessment: Pollutant-Specific Guidance, LAQM. TG(03), indicates that NO_2 concentrations will reduce by the target date of 31st December 2005.

Tables 1 to 4 in Appendix B, list the results for NO_2 diffusion tubes from 2001 to 2004.

2.3.4 SO_2 (Diffusion Tube Monitoring)

Banbridge District Council no longer carries out monitoring of SO_2 by diffusion tubes

3.0 New Developments – Since the First Stage Review & Assessment

3.1 Industrial Processes

3.1.1 Part A Industrial Processes

No new Part A processes were authorised for operation.
None of the existing Part A processes underwent significant changes likely to increase their emissions by 30% or more.

3.1.2 Part B Industrial Processes

No new Part B industrial processes were authorised in Banbridge. No previously existing Part B processes underwent significant changes likely to increase their emissions by 30% or more.

3.1.3 Other Industrial Processes

3.1.3.1 New landfill, Quarrying and Mineral Processes

No landfill, quarrying or mineral processes have started operation or significantly changed.

3.1.3.2 New Fuel Storage Depots

No new major fuel storage depots, either in or close to the Banbridge District, have been identified.

3.1.3.3 Small Boilers

Banbridge District Council are not aware of any significant changes to >5MW$_{(thermal)}$ fuel plants and processes.

3.1.4 Industrial Process Closures

Banbridge District Council has not identified any process closures within the district.

3.2 Transport

3.2.1 New Road Developments

See section 3.2.*2 Significant Changes to Existing Roads* below.

3.2.2 Significant Changes to Existing Roads

The A1 Belfast to Dublin road is currently undergoing extensive renovation and upgrading between Loughbrickland and Sheepsbridge. The works include the upgrading of the existing single lane carriageway to a dual carriageway standard. Associated works include the construction of brand new sections of the road which incorporates the engineering of cuts and fills in the local landscape. An Environmental Impact Statement was prepared by Babtie Group, Belfast and a copy has been made available to the Council. The construction works is not considered as contentious and will only have a short term impact on local air quality.

3.2.3 Newly Identified Public Exposure to Vehicle Emissions

No roads have been identified with annual average daily traffic flow (AADT) greater than 10,000 vehicles per day, which have experienced large increases (25% or more) in traffic flow, since the previous Updating and Screening Report. Local Authorities are required to consider whether there are any of the following in their area, either new since the last report, or newly identified:

1. Narrow congested streets meeting the following criteria:
   - Residential properties are within 5m of the kerb.
   - Average traffic speeds are 50kph or less.
   - The carriageway is less than 10m wide, and
   - AADT is greater than 10,000.

2. Busy streets where people may spend 1 hour or more close to traffic (most likely in streets of shops, bars, cafes etc.), meeting the following criteria:
   - Public exposure for 1 hour or more within 5m of the kerb
   - AADT > 10,000 vehicles per day.

The Updating and Screening Assessment of March 2004 identified no roads in Banbridge meeting these criteria. There are no new or newly identified streets meeting these criteria since the previous report.

3.2.4 Other Transport Sources

As well as road vehicles, public exposure to emissions from planes, buses, trains, ships etc. must also be considered.

3.2.4.1 Trains

There are no new, or newly identified, locations where diesel locomotives are regularly stationary for five minutes or more and -

- There is potential for public exposure within 15m of the locomotives
- There are more than two occasions a day when diesel locomotives are stationary with engines running for more than 15 minutes.

3.2.4.2 Airports

There are no airports in Banbridge or neighbouring authorities that have a throughput of 5 million passengers per year and/or 500,000 tonnes of freight.

3.2.4.3 Bus Stations

The main bus stations within the Banbridge District Council area have less than 1000 bus movements per day. There are no newly identified bus stations with more than 1000 bus movements per day, and no bus stations where movements have increased to more than 1000 per day since the previous Updating and Screening Report.

3.2.4.4 Shipping

Banbridge is inland and has no ports with more than 5,000 shipping movements per year

3.3 Residential, Commercial and Public

3.3.1 New Housing Developments

There are no new housing developments proposed for the Banbridge District Council area that have full planning permission granted.

3.3.2 New Commercial Developments

There are no new commercial developments (e.g. retail parks, office blocks, leisure centres).

3.3.3 New Public Developments

New public developments such as schools, hospitals, stations, major car parks require consideration as they may impact on local traffic flow.

No new public developments have been confirmed since the previous Updating and Screening Assessment.

4.0 Conclusions and Recommendations

4.1 Conclusions from New Monitoring Data

Since preparation of the Stage 2/3 Report of May 2003, ongoing assessment indicates that concentrations of the most significant of the prescribed pollutants, PM_{10}, NO_2, & SO_2 are unlikely to exceed the statutory limits.

This Progress Report has not identified any sources that require further assessment. Therefore at this stage it is not necessary for Banbridge District Council to proceed to a detailed assessment for any of the pollutants.

4.2 Recommendations

Passive sampling by diffusion tubes are a simple cost effective method of monitoring and checking air quality in an area. It is recommended that the NO_2 monitoring should be continued, targeting likely problem areas. The diffusion tube survey will comply with the objectives and sampling methods as set out in LAQM TG(03). It is recommended that the NO_2 diffusion tube network be extended where necessary in light of future screening.

Banbridge District Council is considering the future management of Local Air Quality by developing a Local Air Quality Strategy. The Strategy is currently at the development stage and it is envisaged that this will be launched in Autumn 2005. Since local air quality management work by the Council has to date indicated that the District enjoys a relatively good standard of air quality, it is anticipated that the strategy will focus on protecting this position for the future.

APPENDIX A

BANBRIDGE DISTRICT COUNCIL

Local Air Quality Monitoring Maps

Insert Map 1

Insert Map 2

Insert Map 3

APPENDIX B

NO_2 DIFFUSION TUBE DATA

BANBRIDGE DISTRICT COUNCIL
2001 to 2004

Table 1: NO2 Diffusion Tube Results 2004

BANBRIDGE DISTRICT COUNCIL. BIAS ADJUSTED NO_2 RESULTS JANUARY 2004 - DECEMBER 2004

Site no.	7	8	10	11
	ug/m3	ug/m3	ug/m3	ug/m3
Month				
January	14	16	45	38
February	19	NS	39	30
March	11	NS	27	22
April	15	10	NS	33
May	17	22	31	57
June	22	NS	11	14
July	6	8	29	41
August	12	17	19	42
September	10	9	28	11
October	15	13	26	28
November	13	16	32	6
December	14	11	12	23
Mean	14	13	27	29

Site no.	Site Description
7	Rural Background
8	Urban Background
10	Kerbside
11	Kerbside

NS - No Sample

BIAS FACTOR 2004 - 1.08 (Cm/Dm)

Table 2: NO2 Diffusion Tube Results 2003

BANBRIDGE DISTRICT COUNCIL. BIAS ADJUSTED NO_2 RESULTS JANUARY 2003 - DECEMBER 2003

Site no.	7	8	10	11
	ug/m3	ug/m3	ug/m3	ug/m3
Month				
January	37	NS	62	51
February	11	NS	37	25
March	8	15	37	12
April	14	15	32	33
May	5	NS	26	21
June	11	NS	NS	44
July	6	NS	32	43
August	8	5.3	16	35
September	11	13.7	37	35
October	15	NS	26	22
November	19	22	50	54
December	24	25	43	39
Mean	14	16	36	34

Site no.	Site Description
7	Rural Background
8	Urban Background
10	Kerbside
11	Kerbside

No Sample

BIAS CORRECTION 2003 - 1.05 (Cm/Dm)

Table 3: NO2 Diffusion Tube Results 2002

BANBRIDGE DISTRICT COUNCIL. BIAS ADJUSTED NO_2 RESULTS JANUARY 2002 - DECEMBER 2002

Site no.	7	8	10	11
	ug/m3	ug/m3	ug/m3	ug/m3
Month				
January	22	28	NS	43
February	17	15	45	44
March	3	13	40	21
April	15	23	20	31
May	5	NS	31	39
June	17	17	25	10
July	31	23	66	30
August	NS	NS	NS	NS
September	31	NS	52	17
October	33	21	25	49
November	13	20	NS	36
December	15	NS	47	60
Mean	18	20	39	35

Site no.	Site Description
7	Rural Background
8	Urban Background
10	Kerbside
11	Kerbside

No Sample

BIAS CORRECTION 2002 - 1.15 (Cm/Dm)

Table 4: NO2 Diffusion Tube Results 2001

BANBRIDGE DISTRICT COUNCIL. BIAS ADJUSTED NO_2 RESULTS JANUARY 2001 - DECEMBER 2001

Site no.	7	8	10	11
	ug/m3	ug/m3	ug/m3	ug/m3
Month				
January	22	3	28	29
February	15	17	21	33
March	15	17	21	33
April	45	47	37	26
May	19	17	43	46
June	9	15	23	24
July	13	5	35	39
August	12	15	19	33
September	14	13	32	37
October	26	17	37	56
November	12	8	20	23
December	20	16	22	45
Mean	18	16	28	35

BIAS CORRECTION 2001 - 1.09 (Cm/Dm)

Site no.	Site Description
7	Rural Background
8	Urban Background
10	Kerbside
11	Kerbside

No Sample