

1. INTRODUCTION.

The local air quality management (LAQM) system was introduced by the Environment (Northern Ireland) Order 2002 and subsequent Regulations. Under this legislation District councils are required to review the present quality of air and the likely future quality of air and assess whether the nationally prescribed objectives are likely to be achieved.

This Progress Report follows on from the Updating and Screening Assessment (USA), submitted in 2006 as part of the second round of review and assessment.

The objective of the Progress Report is to provide continuity in the Local Air Quality Management process by reporting any potential changes in air quality that may occur between the three yearly review and assessment of air quality whilst reporting on progress of local air quality management and achieving concentrations below the air quality objectives.

This report takes into account EHS guidance LAQM.PRGNI(04) and Development Control: Planning for Air Quality Guidance published by NSCA, November 2004.

2. SUMMARY OF FINDINGS FROM PREVIOUS REVIEW AND ASSESSMENT WORK.

The cornerstone of the LAQM process is the review and assessment of air quality. This is a statutorily required process whereby local air quality monitoring and modelling results are compared to the national air quality standards and objectives (see Appendix 2). Where objectives are breached or are predicted to be breached, an Air Quality Management Area (AQMA) is declared. An Action Plan must then be produced stating how the district council will drive air quality towards the objective.

The first round of review and assessment which was completed in 2004 concluded that:

1. The risk of the objectives for the following pollutants being exceeded was negligible:

Carbon Monoxide, Benzene, 1,3 butadiene, Lead, Nitrogen Dioxide, PM10

2. As the result of the prevalence of the use of solid fuel for domestic heating, the 15 minute mean objective for sulphur dioxide is likely to be breached in the Greystone and Ballycraig housing estates.

The first round of the Review and Assessment process resulted in the following measures:

1. The declaration of an AQMA (see Appendix 3)

2. The installation of a continuous real-time sulphur dioxide analyser within the AQMA.

The second round of air quality review and assessment commenced with the USA which was completed in June 2006. This updated the review and assessments previously undertaken for all the pollutants identified in the Air Quality Regulations. The USA concluded that, other than within the Air Quality Management Area declared after the first round of review and assessment, there is no risk of exceeding any of the air quality objectives and that a detailed assessment is not required for the current round of review and assessment.

The following actions were recommended:

1. The production of an action plan for the AQMA setting out the measures to be introduced in pursuit of the air quality objectives.
2. Continued monitoring of the road networks for nitrogen dioxide with passive diffusion tubes.
3. Monitoring with diffusion tubes the vicinity of Belfast International Airport to assess the contribution of air traffic to ambient nitrogen dioxide concentrations.

3. POLLUTANTS

3.1 Progress on Benzene emissions

Objective: Annual Mean – 3.25µg/m³ by 2010

Benzene is a known carcinogen which also contributes to ground-level ozone. The main sources of benzene in the UK are petrol vehicle exhausts, petrol refining and fuel distribution from filling stations without vapour recovery systems. Nationally benzene emissions are reducing. The use of cleaner fuels with reduced benzene content and increasing use of vapour recovery systems in the petroleum industry will continue to drive levels down.

Antrim Borough Council currently regulates these recovery systems through permits issued under the Pollution Prevention and Control Regulations (NI) 2003. Permits are in force at 10 sites throughout the district. In June 2006 a permit was issued for a new installation at the Junction One complex.

Estimates of annual mean background concentrations for the Antrim Borough Council area, based on 1 kilometre grid squares, are available on the internet at www.airquality.co.uk. The highest estimated background concentrations for the Antrim area are 0.597 µg/m³ for 2003 and 0.531µg/m³ for 2010.

Where background levels are low, exceedences of current and future air quality objectives are only likely to occur where local circumstances have a major impact i.e. industrial processes handling, storing or emitting benzene, very busy roads in high background areas, petrol stations with large

throughputs and major fuel storage depots. There are no existing or planned sites of this nature in the Antrim area.

3.2 Progress on 1,3-Butadiene emissions

Objective: Annual Mean – 2.25µg/m³ by 2010.

1,3-Butadiene is a suspected human carcinogen. The major source of 1,3-butadiene nationally is motor vehicle emissions, with other significant sources being industrial processes (such as petrochemical and rubber processes). As with benzene, emissions are continually decreasing. With the main source being vehicle exhausts, the gradual reduction in vehicle emissions due to more environmentally friendly vehicles and cleaner fuels will maintain this trend.

Estimates of annual mean background concentrations for the Antrim Borough Council area, based on 1 kilometre grid squares, are available on the internet at www.airquality.co.uk. The highest estimated background concentration for the Antrim area is 0.121µg/m³ for 2003.

Where background levels are low, exceedences of current and future air quality objectives are only likely to occur where local circumstances have a major impact i.e. industrial processes handling, storing or emitting 1.3-Butadiene. There are no existing or planned sites of this nature in the Antrim area.

3.3 Progress on Carbon Monoxide emissions

Objective: Maximum Daily Running 8 Hour Mean – 10mg/m³ by 2003

Road transport is the main source of carbon monoxide in the UK and the highest outdoor concentrations occur near busy roads. Annual emissions of CO have been falling steadily since the 1970s and are expected to continue to do so.

Estimates of annual mean background concentrations for the Antrim Borough Council area, based on 1 kilometre grid squares, for the year 2001 are available on the internet at www.airquality.co.uk. Background levels for the Antrim area range from 0.147mg/m³ to 0.302mg/m³. Adjusting the maximum concentration for the year 2003, using the methodology set out in Technical Guidance LAQM.TG(03) gives a maximum corrected background level = 0.302 x 0.826 = 0.249mg/m³.

Technical Guidance LAQM.TG(03) advises that where the 2003 background concentration is below 1mg/m³ and there are no “very busy” roads or junctions then the maximum 8 hour running mean is very unlikely to be exceeded in this year or in future years. “Very busy” roads are single carriageways with an AADT >80,000 vehicles and dual carriageways with an AADT > 120,000 vehicles. Within the Antrim Borough Council area there are no roads or

junctions that fall into this category and no roads or junctions with the potential to become very busy.

3.4 Progress on Nitrogen Dioxide emissions

Objective: Annual Mean – 40µg/m³ by 2010.

1 Hour Mean - 200µg/m³ <18 exceedences per annum by 2005

Nitrogen dioxide (NO₂) and nitric oxide (NO) are both oxides of nitrogen, and are collectively referred to as nitrogen oxides (NO_x). All combustion processes produce NO_x emissions, largely in the form of NO, which is then converted to NO₂ mainly as a result of reactions with ozone in the atmosphere. Exposure to high concentrations of nitrogen dioxide is reported to sensitise asthmatics to allergens such as irritant chemicals, house dust mites and pollen.

The principal source of NO_x emissions is road transport, which accounted for 49% of total UK emissions in 2000. The contribution of road transport to NO_x emissions has declined significantly in recent years as a result of various national policy measures, and further reductions are expected up until 2010 and beyond.

Nationally, a large proportion of the detailed assessments performed by local authorities were due to potential exceedences of the annual mean objective citing road transport as the predominant source.

3.4.1 Monitoring sites for 2006

While real time monitoring does not occur locally Antrim Borough Council is currently monitoring nitrogen dioxide at 8 sites around the district using passive diffusion tubes. The diffusion tube are supplied and analysed by Bureau Veritas, formerly Casella CRE Air.

Diffusion tubes represent a simple and cost-effective method of monitoring air quality in an area, to give a good general indication of average pollution concentrations. They are particularly useful for assessment against annual mean objectives.

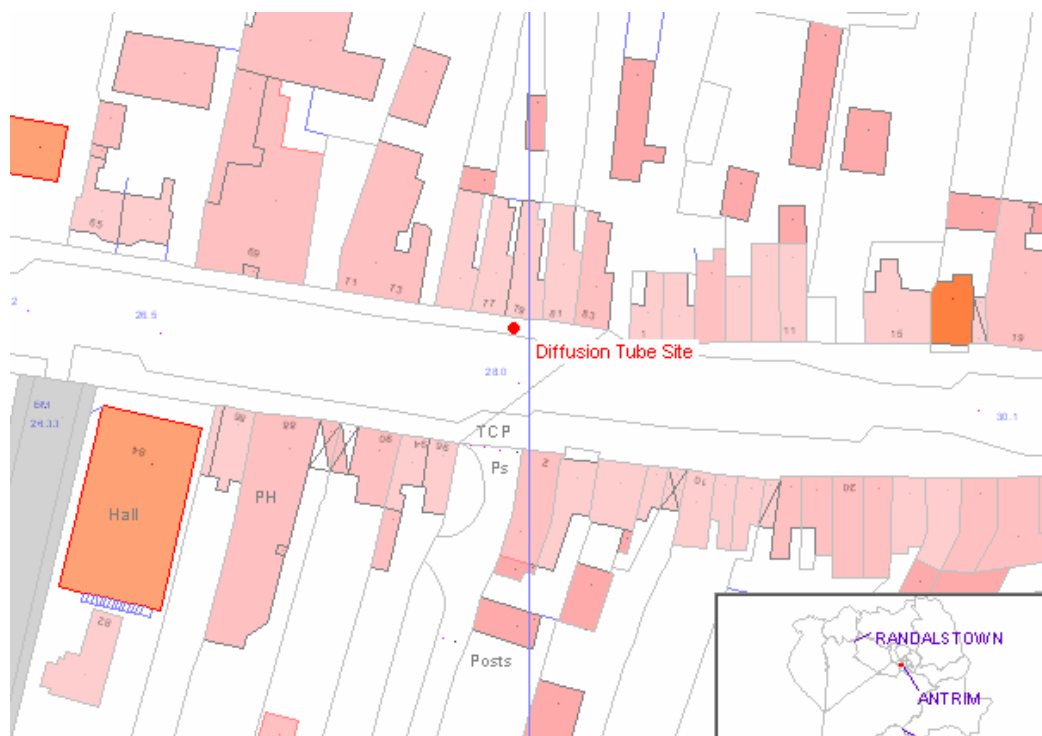
Monitoring sites are chosen to provide data on locations that appear to be representative of likely residential exposure and, where possible, are close to the nearest receptor to the busy road or road junction of interest. The sites are subject to periodic review and where sufficient data has been gathered, some of the diffusion tubes are relocated to new locations.

Results obtained from diffusion tubes need to be corrected for possible over or under reading. Deriving a correction factor by comparing the diffusion tube results with those obtained from a continuous real time analyser can do this. 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. However, AEA Energy & Environment as part of the Nitrogen Dioxide Diffusion Tube Field Intercomparison carried out a co-location for the supplier's diffusion tubes throughout 2006. This produced a correction factor of 0.99 for the year 2006 and this value has been used in this report. The bias corrected nitrogen dioxide concentration is obtained by multiplying the measured concentration by the correction factor.

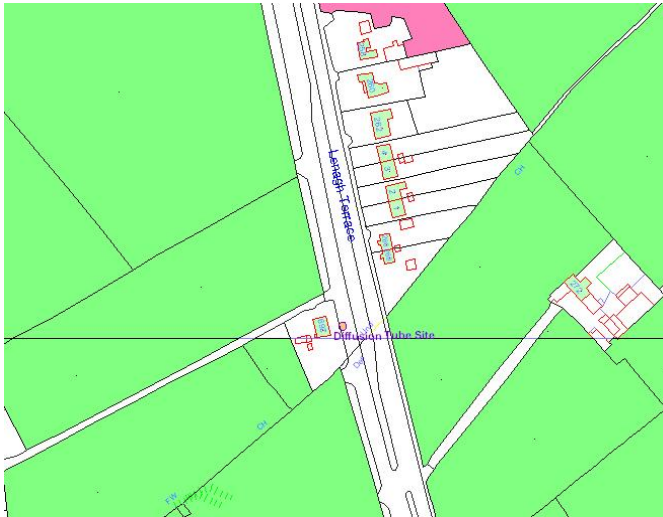
The monitoring sites referred to in this report are shown in the following maps. Details are also shown in Appendix 4. All maps are subject to Ordinance Survey copyright.

Fig 1. Fountain Street Site



Fountain Street is the main traffic route through Antrim town and has fairly high traffic flows. The site monitors the nearest dwelling to traffic lights.

Fig 2. A26 Lisnevenagh Road Site



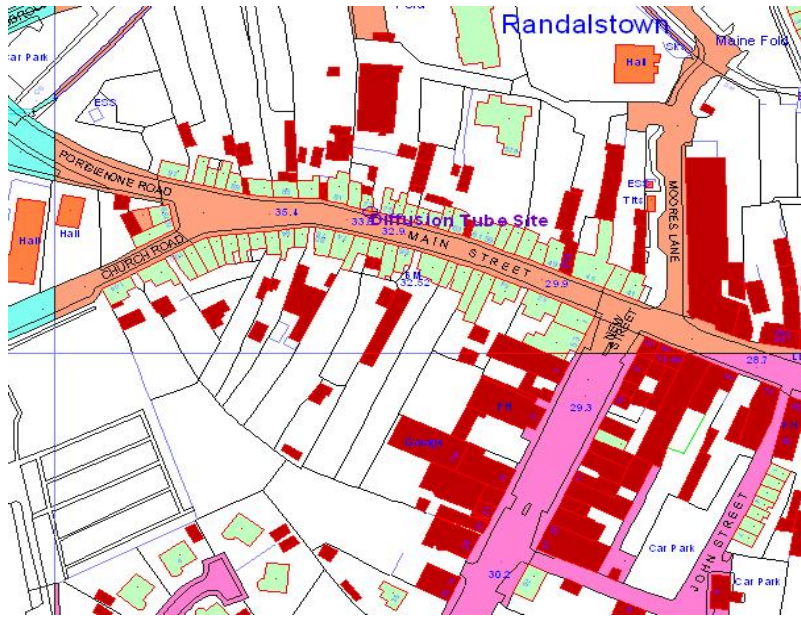
This site is located outside 267 Lisnevenagh Road. The Lisnevenagh Road is to the North of the Dunsilly roundabout and is a dual carriageway connecting Antrim with Ballymena. This site was set up to monitor concentrations close to the nearest dwelling to this busy road after Design Manual for Roads and Bridges (DMBR) modelling carried out for the Second Stage Review and Assessment predicted an exceedence of the objective at this property.

Fig 3. Templepatrick Site



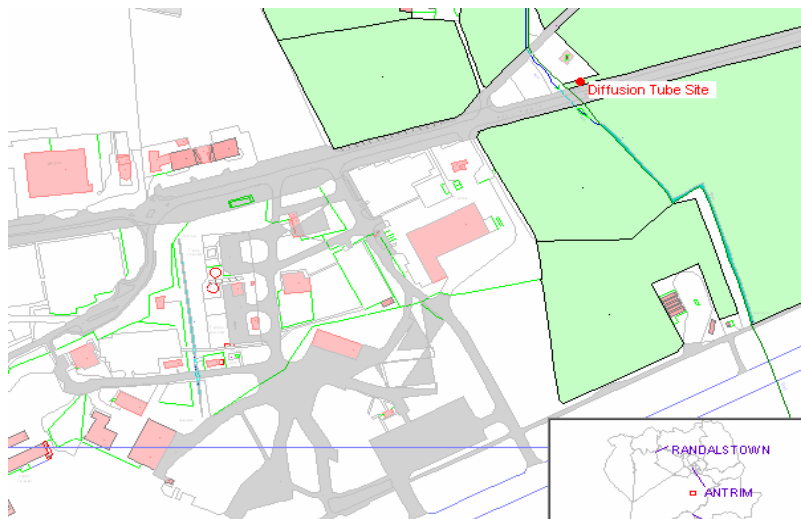
The site in Templepatrick is located on a lamppost in front of the Templeton Hotel. The site is very close to the facade of a residential property. Templepatrick is on the main route between the M2 motorway and Belfast International Airport and experiences high traffic flows. This site has been in operation for four years.

Fig 4. Randalstown Site



This site is located in front of a residential property on Main Street. The street is narrow at this location and traffic can be slow moving during periods of the day. This site has been operational for three years. The narrow street and high buildings here could give rise to raised concentrations because of the canyon effect.

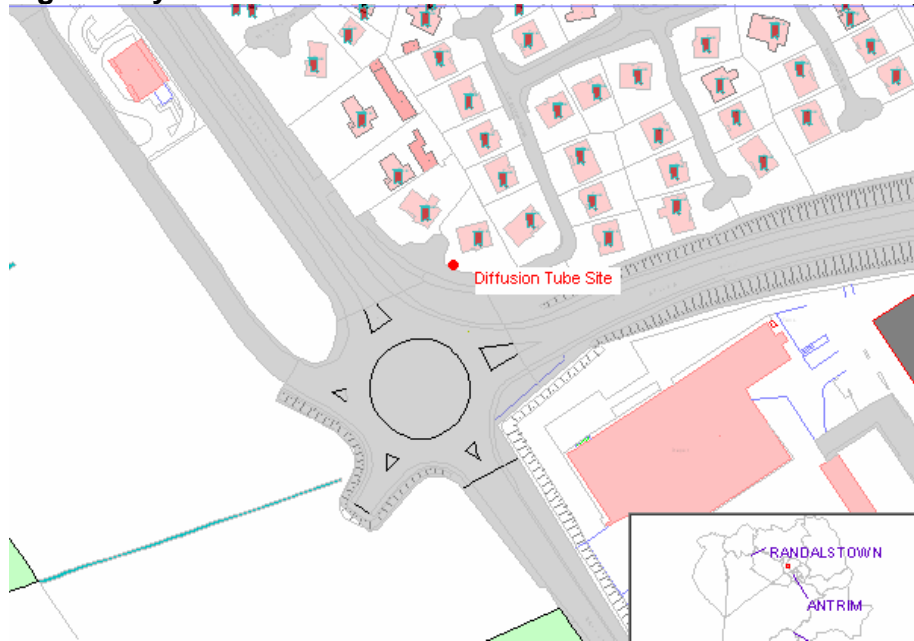
Fig 5. Ballyrobin Road Site



The USA found that passenger numbers at Belfast International Airport had crossed the 5mppa screening threshold set out in LAQM. TG(03). Although it was concluded that the objective was unlikely to be exceeded it was proposed that monitoring should be carried out to establish a greater picture of the

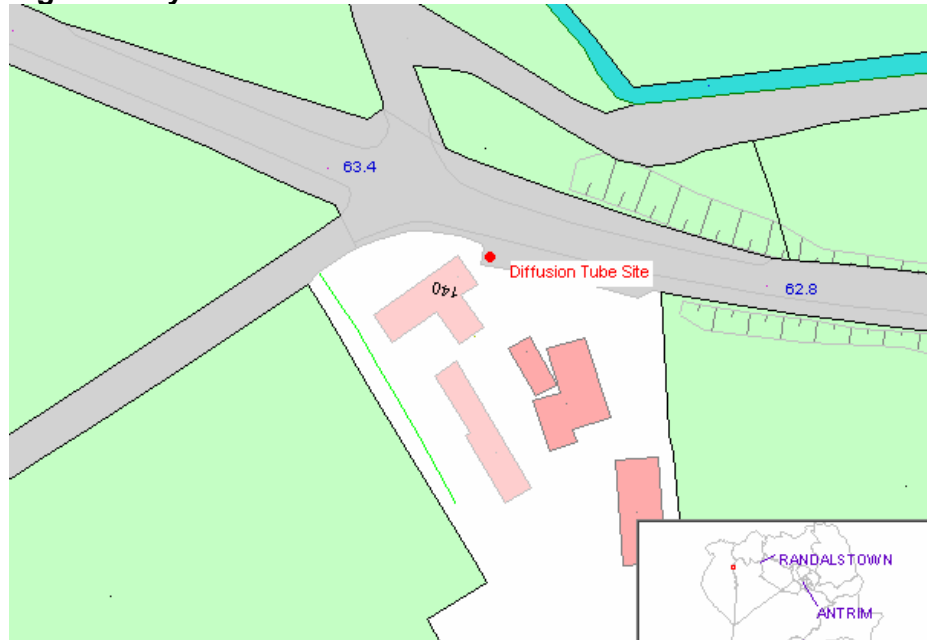
concentrations in this area. This site is near to the nearest property to the airport.

Fig 6. Ballymena Road Site



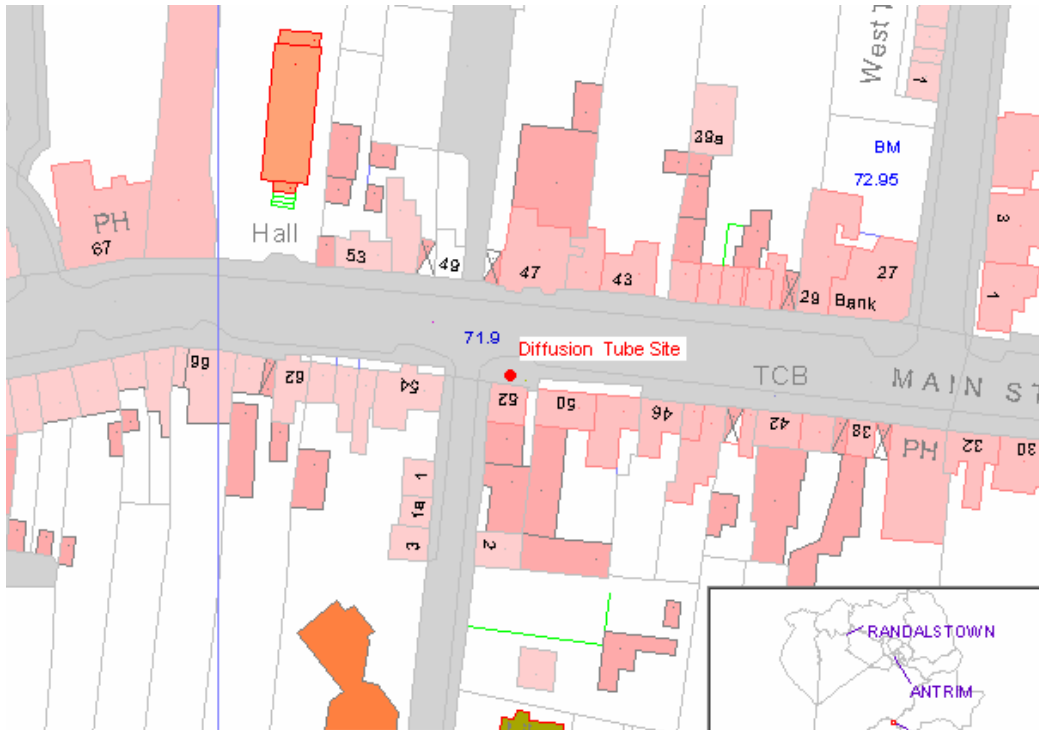
This site is on a busy mixed residential and commercial road, leading to the Junction One retail development.

Fig 7 Moneynick Road site



This site is close to a busy single carriageway road with over 18000 AADT.

Fig 8 Crumlin Site



This site monitors the impact of traffic in Crumlin village.

3.4.2 Discontinued Monitoring Sites

Belfast Road/Oldstone Road Junction

The site at the junction of the Belfast Road and Oldstone Road was chosen to monitor close to a dwelling at a busy road junction. Traffic at this junction is controlled by traffic lights. Because of the traffic lights and the narrowing of the road at the railway bridge, traffic at this junction can often be stationary or slow moving. This location was monitored throughout 2005; the annual bias corrected mean being $31.4\mu\text{g}/\text{m}^3$. This was significantly below the objective of $40\mu\text{g}/\text{m}^3$ and therefore the site was discontinued and the tube relocated.

Oldstone Road/Ballyrobin Road Junction

This site is on the Oldstone Road at the Ballyrobin roundabout and is in front of a residential property. An estimation of concentrations at this location carried out in the first round of Review and Assessment using the Design Manual for Roads and Bridges (DMRB) forecast concentrations near to the national objective. This site was monitored throughout 2005 and the bias corrected annual mean was $24.5\mu\text{g}/\text{m}^3$. As this was well under the objective this site was discontinued and the tube relocated.

3.4.3 QA/QC for nitrogen dioxide diffusion tubes

The nitrogen dioxide diffusion tubes used in this study were supplied and analysed by Bureau Veritas and the preparation method is 10% TEA in water.

Bureau Veritas has a defined quality system, which forms part of the UKAS accreditation that the laboratory holds. All accredited methods are fully documented. UKAS assessors visit on an annual basis and review all aspects of the analysis, from sample handling to analysis and reporting. As a condition of accreditation, the laboratory is required to participate in any suitable proficiency schemes in operation.

Antrim Borough Council QA/QC.

Our QA/QC procedure is to ensure that when a tube batch is received they are stored in a refrigerator. 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.

3.4.4 Monitoring Results for 2006

Table 1 Nitrogen Dioxide Monitoring Results 2006

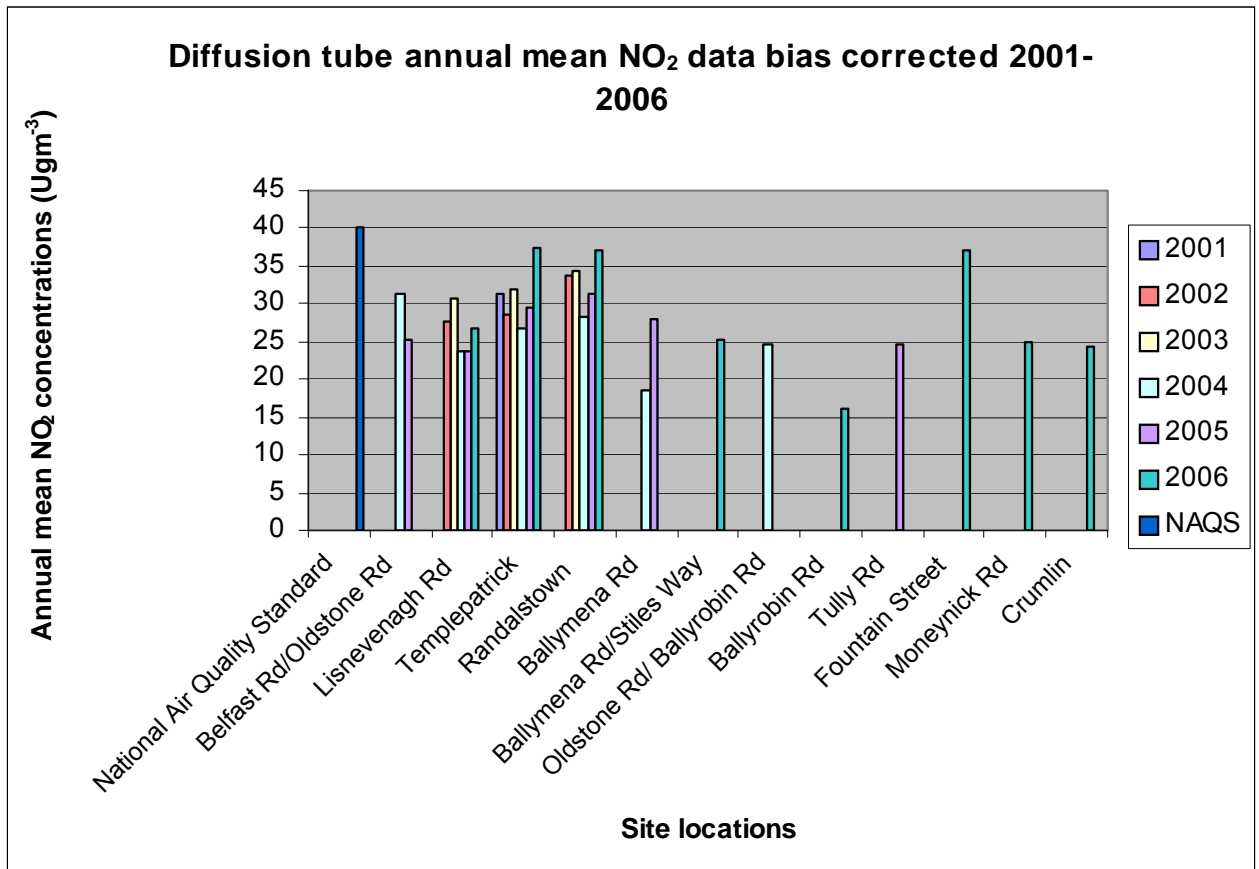
Location	Measured annual mean Concentration ($\mu\text{g}/\text{m}^3$)	Corrected annual mean Concentration ($\mu\text{g}/\text{m}^3$)
Fountain Street	37.36	36.99
Lisnevenagh Rd	27.00	26.73
Templepatrick Village	37.83	37.45
Randalstown, Main St	37.50	37.13
Ballyrobin Road	16.13	15.97
Ballymena Rd/Stiles Way	25.58	25.32
Moneynick Road	25.17	24.92
Main Street, Crumlin	24.64	24.39

Annual mean concentration trends

Of the nitrogen dioxide diffusion tube monitoring locations on Antrim, 3 have been in operation for 5 or more years. These are as follows

- Lisnevenagh Road
- Templepatrick Village
- Randalstown, Main Street

Annual mean concentrations for 2006 and, where they are available, for preceding years are shown in the graph below. It should be noted that historical data is limited and is insufficient to indicate any definite trends. It can be seen that annual mean concentrations for 2006 are generally higher than for 2005 and although none exceed the national objective, results from the Fountain Street, Templepatrick and Randalstown sites are close to it. Monitoring will continue at these three sites and although some of the other sites will be discontinued the findings have highlighted the need to continue monitoring the roads networks at key locations.



3.5 Progress on Fine Particles (PM10) Emissions

Objective: Annual Mean - 40µg/m³ by 2010.

24 Hour Mean - 50µg/m³ <35 exceedences per annum by 2005

There is a variety of emission sources that contribute to PM10 concentrations grouped into three areas. Primary emissions directly from combustion processes, secondary particles formed by chemical reactions in the atmosphere and coarse particles from a variety of sources such as quarries, wind blown and traffic dusts and construction activities.

The expected reduction in national particle emissions in future years is different for each source type. For example, emissions from road transport will

be governed by legislation on vehicle emission standards; emissions of secondary particles will be largely governed by controls on power generation, industrial and transport SO₂ and NO_x emissions, both in the UK and in Europe; emissions of coarse particles are largely uncontrolled, and in general are not expected to decline in future years

The council does not monitor PM10 concentrations however estimates of annual mean background concentrations for the Antrim Borough Council area are available on the internet. These are:

- 2005 annual mean background range 9.6 – 16.2 µg/m³.
- 2010 annual mean background range 9.1 – 15.2 µg/m³.

For exceedences to occur within the Antrim Borough Council area the impact of any local source will have to be significant. No new large industrial processes are planned for the district and none of the district's roads are described as "very busy" now or with the potential to become so. Other local emission sources include landfill sites and construction sites. No significant local sources have come on stream since the completion of the Updating and Screening Assessment and there have been no complaints about dust in relation to these sites within the last year.

3.6 Progress on Lead emissions

**Objectives: Annual Mean – 0.5µg/m³ by 2004.
Annual Mean – 0.25µg/m³ by 2008.**

Lead has been identified as causing acute and chronic damage to the nervous system, effects on the kidneys, joints and reproductive system. Historically, the major source of lead has been motor vehicle emissions, with other major sources being metal industries and power generation. The agreement reached between the European Parliament and the Environment Council on the Directive on the Quality of Petrol and Diesel Fuels has led to the ban on sales of leaded petrol in the United Kingdom with effect from 1 January 2000.

Since the ban on sales of leaded petrol, the major sources of lead emissions are restricted to specific industrial sources such as foundries or other non-ferrous metal production sites. Only areas in the vicinity of these types of industrial sites are deemed to be at risk. There are no current or planned sites that emit significant quantities of lead within the Antrim Borough Council area.

3.7 Progress on Sulphur Dioxide emissions

**Objectives: 15 minute mean – 265µg/m³ < 35 exceedences by 2005.
1-hour mean – 350µg/m³, < 24 exceedences by 2004.
24-hour mean – 125µg/m³ <3 exceedences by 2004.**

Sulphur dioxide is an acute respiratory irritant, hence the short averaging time for its objective. The main source of sulphur dioxide in the UK is power generation, which accounted for more than 71% of emissions in 2000. There are also significant emissions from other industrial combustion sources. Road transport currently accounts for less than 1% of emissions.

Nationally, domestic sources now only account for 4% of emissions, but can be locally much more significant. Antrim, like many other areas of Northern Ireland has historically been highly dependent on solid fuel for domestic heating and the first round of review and assessment identified two housing estates in Antrim town where significant solid fuel burning takes place and where there was a significant risk of the 15 minute mean objective being exceeded. As a result of the review and assessment process an Air Quality Management Area (AQMA) taking in the two estates was declared in October 2004.

Antrim Borough Council has been monitoring levels of SO₂ using a real time analyser since December 2004. The monitoring station is located in the Greystone housing (see map) which is within the AQMA.

Fig 7. Sulphur Dioxide Real Time Analyser Site



Monitoring data from the Greystone monitoring station for year 2006 is shown overleaf.

ANTRIM GREYSTONE ESTATE

01 January to 31 December 2006

These data are provisional from 01/10/2006 and may be subject to further quality control

POLLUTANT	SO ₂
Number Very High	0
Number High	0
Number Moderate	7
Number Low	34667
Maximum 15-minute mean	476 µg m ⁻³
Maximum hourly mean	213 µg m ⁻³
Maximum running 8-hour mean	146 µg m ⁻³
Maximum running 24-hour mean	94 µg m ⁻³
Maximum daily mean	82 µg m ⁻³
Average	14 µg m ⁻³
Data capture	98.9 %

All mass units are at 20°C and 1013mb

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
Sulphur Dioxide	15-minute mean > 266 µg m ⁻³	7	6
Sulphur Dioxide	Hourly mean > 350 µg m ⁻³	0	0
Sulphur Dioxide	Daily mean > 125 µg m ⁻³	0	0

These data are also shown in the form of a graph in Appendix 5.

Data capture at the site is good at 98.9% and although the station is located within an AQMA, albeit not within the area of projected highest concentration, results are promising and well within the objectives to be achieved.

There have been no new developments in the Antrim Borough or in the surrounding area that might affect local air quality with respect to sulphur dioxide. It is therefore concluded that the findings of the Updating and Screening assessment are still valid and that outside the AQMA the sulphur dioxide objectives are unlikely to be exceeded.

3.7.1 Progress within the AQMA

Antrim Borough Council declared an AQMA in October 2006 because of projected exceedences of the 15 minute mean objective as a result of high levels of solid fuel burning in two housing estates in Antrim town. In October 2006 Antrim Borough Council submitted a draft Air Quality Action Plan to the Environment and Heritage Service (EHS). The draft plan set out the measures that are proposed to be taken in pursuit of achieving the air quality standards for sulphur dioxide within the AQMA and the timescale for implementing such measures.

The EHS made a number of recommendations in relation to the draft plan amongst which was a recommendation that further air quality dispersion

modelling should be conducted to evaluate the effect of the planned actions. Environmental Consultants, AEA Energy & Environment (formerly netcen) have been commissioned to carry out the recommended study and on receipt of their report the plan will be revised and re-submitted.

It is proposed that progress towards implementation of the action plan will be reported in future Progress Reports and although the plan is still in draft and has not as yet received EHS approval process to date is set out below

Action Plan measure	Timescale	Progress with measure	Outcome to date	Comments
Conversion of NIHE owned solid fuel burning properties to natural gas	2007/2008	Natural gas infrastructure is being put in place	No outcome to date	NIHE has confirmed that first scheme in Ballycraigy estate will commence in September 2007
Promotion of Warm Homes Scheme and other energy efficiency schemes	2006/2007	The first phase which targeted Ballycraigy estate is almost complete.	14 houses referred to the Warmer Ways to Better Health scheme for conversion to oil + insulation 7 referred to Warm Homes Plus scheme for conversion to oil + insulation 58 referred to Warm Homes Scheme for insulation measures.	Phase 2 which will target the Greystone estate is due to begin
Demolition of 33 solid fuel burning flats at Chain Court	2007/2008	On schedule	No outcome to date	Most of the flats are now vacant
Introducing guidance relating to bonfires	2006/2007	The Bonfires Committee has been set up and has met on a number of occasions.	No Outcome to date	Agreement is being sought on a number of issues relating to traditional bonfires. These will include agreement on the types of materials that can be burnt

Include Air Quality considerations in responses to Planning service	2006	Recommendations in the NSCA document Development Control: Planning for Air Quality are considered when responding to Planning Service consultations	N/A	No applications likely to impact upon the AQMA have been received to date
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There have been no new developments in the Antrim Borough or in the surrounding area that might affect local air quality with respect to sulphur dioxide. It is therefore concluded that the findings of the Updating and Screening Assessment are still valid and that outside the AQMA the sulphur dioxide objectives are unlikely to be exceeded.

4. NEW LOCAL DEVELOPMENTS.

4.1 New industrial developments

No industrial processes (Part A, B or C) commenced operation or changed significantly during the period under review

No new landfill, quarrying and mineral processes have commenced in the last year and there have been no complaints about existing processes.

4.2 New residential and commercial developments

All planning applications are considered by the Environmental Health Section and, where necessary, air quality is reviewed as part of that consultation process.

a) Residential and commercial developments with a significant risk of impacting on air quality (planning approval containing air quality related conditions):

None Identified.

b) Residential and commercial developments with a lower risk of impacting on air quality (planning approval not containing air quality related conditions although locations near to existing busy roads or sensitive locations):

Identified in the table overleaf.

Location	Description	Relevant Pollutants	Source of Information	Comments
Lands at Magheralane Rd, Randalstown	130 Dwellings	NO ₂ PM10	Planning Application T/2003/0206	Potential for increased traffic in Randalstown village
Former Lamont Mill, Riverside, Antrim	77 Houses	NO ₂ PM10	Planning Application T/2005/0938	Potential for increased traffic
Fountain Hill, Antrim	Mixed commercial development incorporating health centre health club and petrol station	NO ₂ PM10 Benzene	Planning Application T/2005/0612	
Main Street, Crumlin	46 Houses	NO ₂ PM10	Planning Application T/2004/1338	Potential for increased traffic through Crumlin Village

4.3 New Transport Developments

No new roads have been agreed for 2006 and there were no significant changes to the existing road systems.

5. SUMMARY OF KEY POINTS AND FUTURE ACTIONS

This progress report indicates:

- The conclusions of the 2005 Updating and Screening Assessment continue to be valid.
- There have not been any significant changes in local circumstances to indicate possible exceedences of the air quality standards and objectives.
- The main sources of pollutants in the Antrim Borough Council area continue to be nitrogen dioxide from road traffic and sulphur dioxide from domestic sources.
- Nitrogen dioxide and sulphur dioxide need to continue to be monitored in key locations, with particular reference to the objectives.
- Sulphur dioxide remains a significant concern within the two housing estates that make up the Council's AQMA and work has begun with the drafting of an action plan. Further modelling work has been commissioned and it is expected that the plan will be re-submitted in its final form in May 2007.
- Progress in implementation of the action plan will be included in future Progress Reports

■ The next air quality report will be an updating and screening assessment which is due in April 2008.

Further information concerning this report or local air quality issues in general may be obtained from Trevor Stewart, Lead Environmental Health Officer (Environmental Protection) on 028 94436 3113 or e-mail trevor.stewart@antrim.gov.uk

Appendix 1 Timetable for Progress Reports within Review and Assessment System

LAQM Activity	Completion Date	Which Authorities ?
Progress Report	April 2005	All District Councils
Updating and screening assessment	April 2006	All District Councils
Detailed assessment	April 2007	Those District Councils which have identified the need for one in their April 2006 updating and screening assessment
Progress Report	April 2007	Those District Councils which identified that there was no need for a detailed assessment in their April 2006 updating and screening assessment
Progress Report	April 2008	All District Councils
Updating and screening assessment	April 2009	All District Councils
Detailed assessment	April 2010	Those District Councils which have identified the need for one in their April 2009 updating and screening assessment
Progress report	April 2010	Those District Councils which have identified that there was no need for a detailed assessment in their April 2009 updating and screening assessment

Appendix 2. Proposed Objectives included in the Air Quality Regulations (NI) 2003 for the purpose of Local Air Quality Management.

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 μgm^{-3}	Running annual mean	31.12.2003
	3.25 μgm^{-3}	Running annual mean	31.12.2010
1,3 Butadiene	2.25 μgm^{-3}	Running annual mean	31.12.2003
Carbon Monoxide	10.0 mgm^3	Maximum daily running 8-hour mean	31.12.2003
Lead	0.5 μgm^{-3}	Annual mean	31.12.2003
	0.25 mgm^3	Annual mean	31.12.2008
Nitrogen Dioxide ¹	200 μgm^{-3} no to be exceeded more than 18 times a year	1 hour mean	31.12.2005
	40 μgm^{-3}	annual mean	31.12.2005
Particles (PM₁₀) ² Gravimetric ³	50 μgm^{-3} not to be exceeded more than 35 times a year	24 hour mean	31.12.2004
	40 μgm^{-3}	annual mean	31.12.2004
Sulphur Dioxide	350 μgm^{-3} not to be exceeded more than 24 times per year	1 hour mean	31.12.2004
	125 μgm^{-3} not to be exceeded more than 3 times per year	24 hour mean	31.12.2004
	266 μgm^{-3} not to be exceeded more than 35 times per year	15 minute mean	31.12.2005

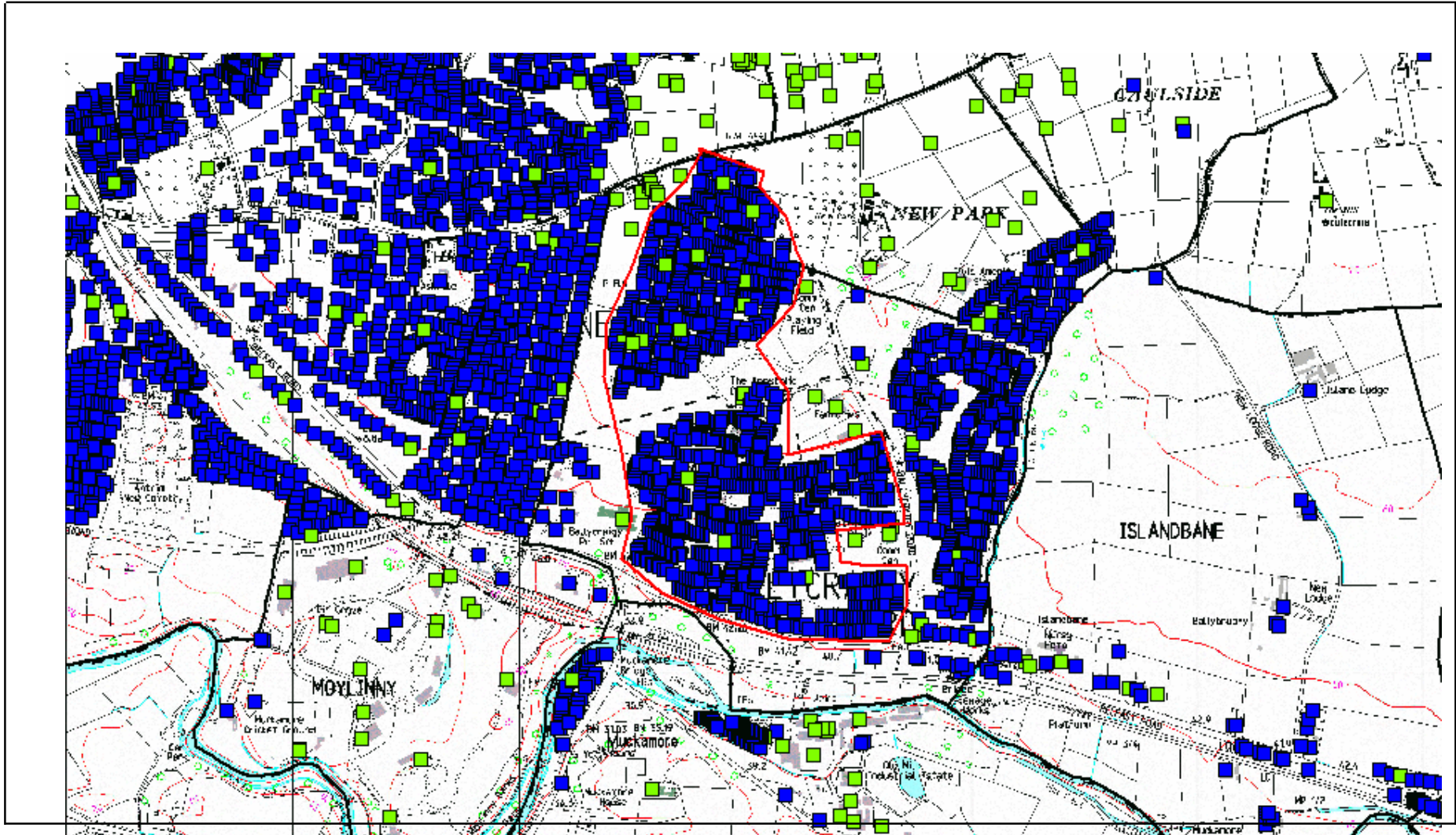
Notes

1. The objectives for nitrogen dioxide are provisional.
2. There are likely to be new particles objectives for 2010, not in regulation at present, expected after the review of the EU's first Air Quality Daughter Directive (2004).
3. Measured using the European gravimetric transfer standard or equivalent.

Appendix 3

Title: ANTRIM AIR QUALITY MANAGEMENT AREA

Scale: 1:24,500



Description:
AIR QUALITY AREA SHOWN IN RED

Appendix 4 Nitrogen Dioxide Diffusion Tube Sites

Address	Grid Ref	Description	Dist. To Road (m)	Dist. To nearest Dwelling (m)
Fountain Street, Antrim	315197 386539	Lamp post close to house	1.5	0.3
Lisnevenagh Road	313254 391205	Telegraph pole outside dwelling	3	4
Templepatrick Village	322992 385675	Lamp post at house facade	1.5	1.5
Randalstown Main Street	308113 390461	Lamp post in front of dwelling	1.5	0.3
Ballymena Road	314670 387541	Lamp post outside residential property	3	8
Ballyrobin Road at airport	315786 381225	Street furniture at side of road	3	15
Moneynick Road	302863 389504	Road sign in front of dwelling	1	7
Main Street, Crumlin	315256 376160	On lamp post at street junction	1.5	0.5

Appendix 5: Data from Sulphur dioxide monitoring station 2006

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

ANTRIM GREYSTONE ESTATE 01 January to 31 December 2006

These data are provisional from 01/10/2006 and may be subject to further quality control

POLLUTANT	SO ₂
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All mass units are at 20°C and 1013mb

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
Sulphur Dioxide	15-minute mean > 266 µg m ⁻³	7	6
Sulphur Dioxide	Hourly mean > 350 µg m ⁻³	0	0
Sulphur Dioxide	Daily mean > 125 µg m ⁻³	0	0

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

**Antrim Greystone Estate Air Monitoring
Hourly Mean Data for 01 January to 31 December 2006**

