Armagh City and District Council

Local Air Quality Progress Report

May 2005

Executive Summary

Under the Local Air Quality Management (LAQM) regime, introduced by the Environment (NI) Order 2002, Armagh City and District Council has a duty to review and assess local air quality against health-based, statutorily prescribed pollutant limits and to undertake measures aimed at reducing pollutant levels where appropriate.

The Council's Stage 2/3 LAQM Review and Assessment report was recently appraised by the University of West England (UWE) on behalf of the Department of Environment's Environment and Heritage Service (EHS), and accepted with the condition that a supplementary document highlighting the impact of SO_2 emissions from domestic coal burning in Armagh and PM_{10} emissions from road traffic 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.

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1.0 Introduction

1.1 Purpose and Role of Progress Reports

The local air quality management (LAQM) system was introduced in the Environment Act 1995 and subsequent regulations. Local authorities have 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. Progress reports are required to be undertaken in the years when the authority is not carrying out Updating and Screening Assessments or a Detailed Assessment of air quality.

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.

This progress report has been prepared as part of Armagh City & District Council's responsibilities under the Environment (Northern Ireland) Order 2002. The 'progress report' has been introduced into the local air quality 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 in the following ways;

- By helping to retain a profile for LAQM within the council, including the retention of staff with knowledge of air quality issues.
- By providing a means for communicating air quality information to members and the public.
- By maximising the value of the investment in monitoring equipment.
- By making the next round of review and assessment that much easier, as there will be a readily available up-to-date source of information.
- By helping district councils respond to requests for up-to-date information on air quality.
- By providing information to assist in other policy areas, such as transport and land use planning.
- By providing a ready source of information on air quality for developers carrying out environmental assessments for new schemes.
- By demonstrating progress with implementation of air quality Action Plans and/or air quality strategies.
- By 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 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 Authorities in Scotland and Northern Ireland only	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 Authorities in England, Wales and Northern Ireland only	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] All authorities	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}

Stage 1 of the first round of review and assessment completed in 2002, 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 of prescribed standards at that time

Armagh City and District Council recently submitted a copy of the Stage 2/3 review and assessment report prepared by Netcen Limited. The report was accepted and approved by the Environment & Heritage Service following an appraisal by the University of West England (Bristol). However a further supplementary document was required on PM_{10} emissions due to the fact that at that stage not enough QA/QC ratified data had been collected from the SO_2 real time analyser for domestic fuel emissions. This subsequent supplementary document was submitted to the Environment and Heritage Service in January 2005. The results of the supplementary document concluded that there was no exceedences and that a progression to a more detailed Stage 3 assessment was not necessary at this time.

SO_2

Stage 1 of the first round of review and assessment completed in 2002, 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 prescribed standards at that time. It was considered during the assessment of the property density combined with a fuel use survey in Armagh, that domestic solid fuel combustion may be a significant source of SO_2 emissions in the area. On this basis a further Stage 2 assessment was instigated.

Armagh City and District Council recently submitted a copy of the Stage 2/3 review and assessment report prepared by Netcen Limited. The report was accepted and approved by the Environment & Heritage Service following an appraisal by the University of West England (Bristol). SO_2 concerntrations were modelled for the $1km^2$ grids covering what was considered to represent the worst case scenario in terms of domestic coal burning. The modelling exercise concluded that it was not possible to conclude that SO_2 emissions arising from domestic fuel combustion, were not likely to exceed the prescribed air quality objective limits within Armagh. This was due to a lack of QA/QC monitoring data required to verify the modelling results for SO_2 emissions. Therefore a supplementary document was required by the EHS in order to verify that a further assessment was not required for SO_2 emissions.
Ratified data was collected for the period October 2003 to January 2004 and a number of QA/QC calibration tests were completed on the automatic monitoring equipment. The equipment had been indicating extremely low levels of SO_2 in the Armagh City area. A subsequent investigation into the reliability of the monitoring equipment identified no technical faults with the equipment or calibration gases. The supplementary document was submitted to the Environment and Heritage Service in January 2005, it was concluded that a progression to a Stage 3 assessment for SO_2 was not necessary at this time.

NO_2

The Stage 1 review and assessment completed in 2002, concluded that NO_2 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. Following on from the recommendations stated in the Stage 1 Review, Armagh City &District Council, has undertaken monitoring of NO_2 emissions as part of the Stage 2/3 Review & Assessment process.

Armagh City and District Council recently submitted a copy of the Stage 2/3 review and assessment report. The report was accepted and approved by the Environment & Heritage Service following an appraisal by the University of West 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.

2.0 New Monitoring Data

2.1 Summary of Monitoring Undertaken

Armagh City and District Council undertakes ambient monitoring of the following pollutants in their area:

- **PM_{10}** (by Automatic Air Monitoring Equipment)
- **NO_2** (by Automatic Air Monitoring Equipment & Diffusion Tube)
- **SO_2** (by Automatic Air Monitoring Equipment)

Table 2.1 : Air Quality Monitoring In Armagh

Pollutant	Equipment	Location	Coordinates
PM_{10}	TEOM series 1400a	Lonsdale Road, Aramgh	H 876 458
SO2	Fluorescent Real-Time Analyser 100A	Dobbin Street, Armagh	H 877 450
NOx & NO2	Chemiluminesence Real-Time Analyser Model 200A	Lonsdale Road, Armagh	H 876 458
NO2	Nitrogen Dioxide Network of diffusion tubes managed by AEA Technology	25 Railway Street, Armagh	H 875 458
		Bridge House, Armagh	H 879 450
		7 Desert Lane, Armagh	H 865 457
		17, Folly Lane, Armagh	H 882 458
NO2	Diffusion Tube	St Patricks Fold Scotch Street, Armagh	H 877 450
		7 Mallview Terrace, Mall West, Armagh	H 879 452
		80 Lower Irish Street, Armagh	H 873 447
		19 Portadown Road, Armagh	H 887 459

No other pollutants covered in the air quality strategy objectives are monitored or required to be monitored in the area covered by Armagh City and District Council.

2.1.1 Automatic Monitoring Stations

PM_{10}

PM_{10} is the fraction of airborne particles less than 10μm in diameter. These particles can be breathed deeply into the lungs and can carry elements hazardous to human health. PM_{10} is considered as one of the main pollutants included in the air quality objectives and is responsible for approximately 10,000 premature deaths per year in the UK. Significantly the major sources of PM10 in the UK are considered as Road Transport (25%), Power Stations (15%), Industry (13%) and Mining and Quarrying Activities (10%). Particles may also be transported from other parts of the UK and continental Europe.

There are two Air Quality Objectives associated with PM_{10} concentrations which have been derived from the EU Stage 1 limit values in the first Air Quality Daughter Directive. These limits are currently referenced in the Local Air Quality Management, Technical Guidance Document TG(03) as 40μg/m^3 annual mean and 50μg/m^3 as the 24 hour mean not to be exceeded more than 35 days per year (also see Table 1).

Changes to the current limit values are scheduled for implementation in 2010. These limit values have been set by the Department of the Environment Northern Ireland as provisional targets to be achieved by the end of 2010 and are in line with EU Stage 2 limit values to be implemented at the same time. These are 20μg/m^3 as the annual mean and 50μg/m^3 as the 24 hour mean not to be exceeded more than 7 days per year. However, since these are provisional targets they have not yet been introduced as LAQM regulations. Therefore all emissions data collected is referenced to the current Air Quality Objectives.

Armagh City and District Council has a Rupprecht & Patashnick Continuous Analyser (TEOM series 1400a) located at Lonsdale Road, Armagh City (see Appendix 1). This is considered a kerbside site and is close to a number of residential housing estates and surrounding transport links, including road and bus. The R&P TEOM 1400a, measures particulate matter with a diameter of less than 10μm using a gravimetric air sampling method and can determine mean hourly concentrations. The analyser is housed in an air conditioned and secure cabin. Wind speed and direction are also monitored.

The daily variances of PM_{10} emissions data can be accessed remotely by both Armagh City and District Council and the Environment & Heritage Service in Belfast via a PC modem/telephone line link up. This system allow exceedences of the objective limits to be identified quickly. It also allows technical errors and equipment malfunctions to be quickly rectified as well as providing a back up data base of results.

SO_2

SO_2 is considered as one of the main air quality objectives and is an associated by-product of combustion processes. Significantly a major source of SO_2 is from Power Stations. Which contribute up to 71% of all the SO_2 emissions in the UK. Domestic fuel usage now only contributes up to 4% of the total SO_2 emissions, while road transport only accounts for 1% of the total emissions.

There are two Air Quality Objectives associated with SO_2 concentrations which are equivalent to the EU limit values in the first Air Quality Daughter Directive. These limits are currently referenced in the Local Air Quality Management, Technical Guidance Document TG(03) as a 1 hour mean of 350μg/m^3, not to be exceeded more than 24 times per year and 125μg/m^3 as the 24 hour mean not to be exceeded more than 3 times per year (see Table 1). These objectives were expected to have been reached by the end of 2004.

Armagh City and District Council has a continuous SO_2 analyser (Fluorescent Real-Time Analyser Model 100A) located at Dobbin Street Community Centre in Armagh City centre (see Appendix 1) which is owned and maintained by the Council. This is considered as an urban background site and is close to number of residential housing estates and city centre traffic.

NO_2

NO_2 is an oxide of nitrogen and is considered as one of the main air quality objectives and is a direct by-product of all combustion processes, mostly in the form of nitric oxide. Road transport is the most significant source of NO_2 in the UK comprising 40% of the total UK emissions in 2000. Areas close to motorways, major highways and city centres are therefore more likely to have higher NO_2 concentrations than in any other area.

There are two Air Quality Objectives associated with NO_2 concentrations in Northern Ireland which are, an annual mean of 40μg/m^3 and a 1 hour mean of 200μg/m^3 not to be exceeded more than 18 times per year. These limits are currently referenced in the Local Air Quality Management, Technical Guidance Document TG(03). It is expected that these objectives are reached by the end of 2005. These limits are similar to the objectives set out in the first Air Quality Daughter Directive by the EU. These regulations have also been adopted into UK legislation and the limits specified are expected to be achieved by 2010.

Armagh City and District Council has a continuous NO_2 analyser (Chemiluminesence Real-Time Analyser Model 200A) located at Lonsdale Road,. The location is a public street in the town centre. This location is close to a number of commercial properties, car parks, busy town centre roadways and surrounding transport links, including the bus station. This is considered as a kerbside site. The continuous analyser, measures nitrogen dioxide levels and can determine mean hourly concentrations. The analyser is housed in an air conditioned and secure cabin. Wind speed and direction are also monitored

QA / QC

Armagh City and District Council currently has a no QA/QC and Data Management contract. However an application for QA/QC funding was submitted to the Environment and Heritage Service on 13th May 2005. It is envisaged that the council will have a QA/QC contract in place by the end of June 2005.

2.1.2 NO_2 Diffusion Tube Monitoring Sites

Armagh City and District Council carries out monitoring of NO_2 by diffusion tubes at 8 sites within their District. The NO_2 diffusion tubes are prepared and analysed by Harwell Scientifics 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 2.1.2

Table 2.1.2: Diffusion Tube Monitoring Site Details in Armagh City

Pollutant	Equipment	Location	Coordinates	Site Ref.
NO_2	Nitrogen Dioxide Network of diffusion tubes managed by AEA Technology	25 Railway Street, Armagh	H 875 458	1K
		Bridge House, Armagh	H 879 450	2K
		7 Desert Lane, Armagh	H 865 457	3B
		17, Folly Lane, Armagh	H 882 458	4B
NO_2	Diffusion Tube	St Patricks Fold Scotch Street, Armagh	H 877 450	5K
		7 Mallview Terrace, Mall West, Armagh	H 879 452	6K
		80 Lower Irish Street, Armagh	H 873 447	7K
		19 Portadown Road, Armagh	H 887 459	8K

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

2.1.3 SO_2 Diffusion Tube Monitoring Sites

Armagh City and District Council no longer carries out monitoring of SO_2 by diffusion tubes within their District. SO_2 Diffusion tube monitoring was completed for several months during 2002 and 2003. However, the results were considered as insignificant and this method of air quality monitoring was discontinued.

2.2 NEW MONITORING

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

2.3 MONITORING RESULTS AND COMPARISON WITH AQS OBJECTIVES

It has not been possible at this time to generate trend graphs for the data that has been monitored. This is due to the fact that automatic monitoring in the Armagh District Council area only began in July 2002 and consequently there is insufficient data to complete trend data analysis.

2.3.1 PM_{10} (Automatic Monitoring Station)

Data Summary – Lonsdale Road 1st January 2003 to 31st December 2003

Ratified data capture of 100% for PM_{10} was reported over the period 1st January to 31st December 2003. Data capture during this monitoring period met the review and assessment target of 90% for ratified data set.

PM_{10} concentrations were recorded in the DoE Northern Ireland MODERATE band on 39 occasions on 3 days in December 2003. The DoE Northern Ireland objective value of 50 µg/m^3 based on daily gravimetric equivalent data was exceeded on 46 occasions during the period. The objective allows up to 35 exceedences in a year. The mean concentration of 33µg/m^3 gravimetric equivalent was below the DoE Northern Ireland annual mean objective value of 40 µg/m^3.

Table 2.3.1 PM_{10} exceedences at Lonsdale Road, Armagh - 1st January 2003 to 31st December 2003

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
PM_{10} Particulate Matter (Gravimetric)	Daily Mean > 50 µg/m3	46	46
PM_{10} Particulate Matter (Gravimetric)	Annual mean > 40 µg/m3	0	-

Data Summary – Lonsdale Road 1st January 2004 to 31st December 2004

Ratified data capture of 99.4% for PM_{10} was reported over the period 1st January to 31st December 2004. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. There was no significant data losses across the period.

PM_{10} concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The DoE Northern Ireland objective value of 50 µg/m^3 based on daily gravimetric

equivalent data was not exceeded during the period. The mean TEOM concentration of 33 µg/m^3 gravimetric equivalent was below the DoE Northern Ireland annual mean objective value of 40 µg/m^3.

Table 2.3.2: PM_{10} exceedences at Lonsdale Road, Armagh - 1st January 2004 to 31st December 2004

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
PM_{10} Particulate Matter (Gravimetric)	Daily Mean > 50 µg/m3	15	15
PM_{10} Particulate Matter (Gravimetric)	Annual mean > 40 µg/m3	0	-

2.3.2 SO_2 (Automatic Monitoring Station)

Data Summary – Dobbin Street, Armagh 18th February 2003 to 31st December 2003

Ratified data capture of 41% for SO_2 was reported over the period 18th February 2003 to 31st December 2003. Data capture during this monitoring period did not meet the review and assessment target of 90% for ratified data sets. There was no significant data loss across the period. However where the data capture target is not met, the results should be treated with caution.

SO_2 concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The maximum 15 minute mean of 154 µg/m^3 was below the DoE Northern Ireland 15 minute objective value of 266 µg/m^3. The maximum hourly mean of 82 µg/m^3 was below the DoE Northern Ireland hourly objective value of 350 µg/m^3 . The maximum daily mean of 14 µg/m^3 was below the DoE Northern Ireland daily objective of 125 µg/m^3.

Table 2.3.3: SO_2 exceedences at Dobbin Street, Aarmagh - 18th February 2003 to 31st December 2003

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
Sulphur Dioxide	15-Minute Mean > 266 µg/m^3	0	0
Sulphur Dioxide	Hourly Mean > 350 µg/m^3	0	0
Sulphur Dioxide	Daily Mean > 125 µg/m^3	0	0

Data Summary – Dobbin Street, Armagh 1st January 2004 to 31st December 2004

Ratified data capture of 97% for SO_2 was reported over the period 1st January 2004 to 31st December 2004. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. There was no significant data loss across the period.

SO_2 concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The maximum 15 minute mean of 43 µg/m^3 was below the DoE Northern Ireland 15 minute objective value of 266 µg/m^3 . The maximum hourly mean of 32 µg/m^3 was below the DoE Northern Ireland hourly objective value of 350 µg/m^3. The maximum daily mean of 9 µg/m^3 was below the DoE Northern Ireland daily objective of 125 µg/m^3.

Table 2.3.4: SO_2 exceedences at Dobbin Street. Armagh - 1st January 2004 to 31st December 2004

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
Sulphur Dioxide	15-Minute Mean > 266 µg/m^3	0	0
Sulphur Dioxide	Hourly Mean > 350 µg/m^3	0	0
Sulphur Dioxide	Daily Mean > 125 µg/m^3	0	0

2.3.3 NO_2 (Automatic Monitoring Station)

Data Summary – Lonsdale Road 1st January 2003 to 31st December 2003

Ratified data capture of 98% for NO_2 was reported over the period 1st January 2003 to 31st December 2003. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. There was no significant data loss across the period.

NO_2 concentrations were recorded in the Defra LOW band throughout the period. The maximum hourly mean of 374 µg/m^3 was above the DoE Northern Ireland hourly objective value of 200 µg/m^3. The mean concentration of 34µg/m^3 was below the DoE Northern Ireland annual objective of 40 µg/m^3.

Table 2.3.5: NO_2 exceedences at Lonsdale Road, Armagh – 1st January 2003 to 31st December 2003

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
Nitrogen Dioxide	Annual Mean > 40 µg/m^3	0	-
Nitrogen Dioxide	Hourly Mean > 200 µg/m^3	11	11

Data Summary – Lonsdale Road 1st Janaury 2004 to 31st December 2004

Ratified data capture of 91% for NO_2 was reported over the period 1st Jaunary 2004 to 31st December 2004. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. Significant data loss during the period were:

• 16 days of NOx data deleted between 20th July and 4th August 2004 due to analyser fault.

NO_2 concentrations were recorded in the Defra LOW band throughout the period. The maximum hourly mean concentration of 118 µg/m^3 was below the DoE Northern Ireland hourly objective value of 200 µg/m^3. The annual mean concentration of 32 µg/m^3 was below the DoE Northern Ireland daily objective of 40 µg/m3.

Table 2.3.6: NO_2 exceedences at Lonsdale Road, Armagh - 1st May 2004 to 31st October 2004

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
Nitrogen Dioxide	Annual Mean > 40 µg/m^3	0	-
Nitrogen Dioxide	Hourly Mean > 200 µg/m^3	0	0

2.4.1 NO_2 (Diffusion Tube Monitoring)

NO_2 diffusion tube monitoring results have been bias corrected for 2003 and 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 except Site 6 at Mall West, Armagh City. With regard to this site the sample tube is located on a street lamp post actually at the kerb. Whereas the façade of the residential properties is 5 metres back from the kerb. With regard to paragraph 1.21 'Public Exposure' and box 1.4 of TG(03) this result may not be accurately reflective with reference to the objectives. 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 & 2 in Appendix B, list the results for NO_2 diffusion tubes during 2003 and 2004.

2.5.1 SO_2 (Diffusion Tube Monitoring)

There is currently no SO_2 diffusion tube monitoring being completed in Armagh at this time.

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.

3.1.2 Part B Industrial Processes

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

3.1.3 Part C Industrial Processes

Armagh City and District Council have issued a number of Part C authorisations between 1st January 2003 and 31st December 2004. These permits are listed below.

ARM/CP/02/2003 – Mr Brendan Gribben, 157 Keady Road, Co. Armagh, BT60 3AE. Operation of a coating process (respraying of road vehicles) utilising a spray booth, a SAICO spray booth, two vehicle preparation sheds and a paint mixing room.

3.1.4 Other Industrial Processes

3.1.4.1 New landfill, Quarrying and Mineral Processes

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

3.1.4.2 New Fuel Storage Depots

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

3.1.4.3 Small Boilers

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

3.1.4.4 IPPC Permits

The Environment and Heritage Service have issued a number of IPPC permits between 1st January 2003 and 31st December 2004 within the Armagh City and District Council area. These permits are listed below.

P0033/03A Mark & Lynn Lewis – 224 Markethill Road, Ahorey, Co.Armagh BT52 3SN. Poultry Unit with a stocking capacity of 70,000 birds.

P0017/03A Brendan Daly – Ballybrockey, 106 Battleford Road, Co. Armagh, BT61 8BS. Poultry Unit with a stocking capacity of 100,000 birds.

P0008/03A Joan Murphy – 15 Ballindarragh Road, Markethill, Co. Armagh, BT60 1QB. Poultry Unit with a stocking capacity of 204,000 birds.

3.1.4 Industrial Process Closures

Armagh City and District Council have not identified any process closures within the District.

3.2 Transport

3.2.1 New Road Developments

No new roads have been constructed or proposed since the previous Updating and Screening Report in February 2004.

3.2.2 Significant Changes to Existing Roads

Armagh City and District Council identified no significant road layout changes or roadwork's.

3.2.3 Newly Identified Public Exposure to Vehicle Emissions

No roads have been identified with annual average daily traffic flow (AADTF) 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
   - AADTF 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 Armagh meeting these criteria. There are no new, or newly identified streets meeting these criteria since the previous report.

3.2.4Other 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 Armagh 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 Armagh district 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

Armagh 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 significant housing developments proposed for the Armagh City and District Council area.

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 the 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} & SO_2 are unlikely to exceed the statutory limits. NO_2 levels meet the prescribed objectives based on the automatic monitoring data. However, although the diffusion tube results are mostly within the limits, one site at Mall West in Armagh City was above the 40μg/m^3 for 2003 and 2004. Results from this site are still inconclusive due to a disparity between the tube location and the receptor.

This Progress Report has not identified any sources that require further assessment. Therefore at this stage it is not necessary for Armagh City & District Council to proceed to a further 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 & PM_{10} 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). That the NO_2 diffusion tube network be extended where necessary in light of future screening to the following sites;

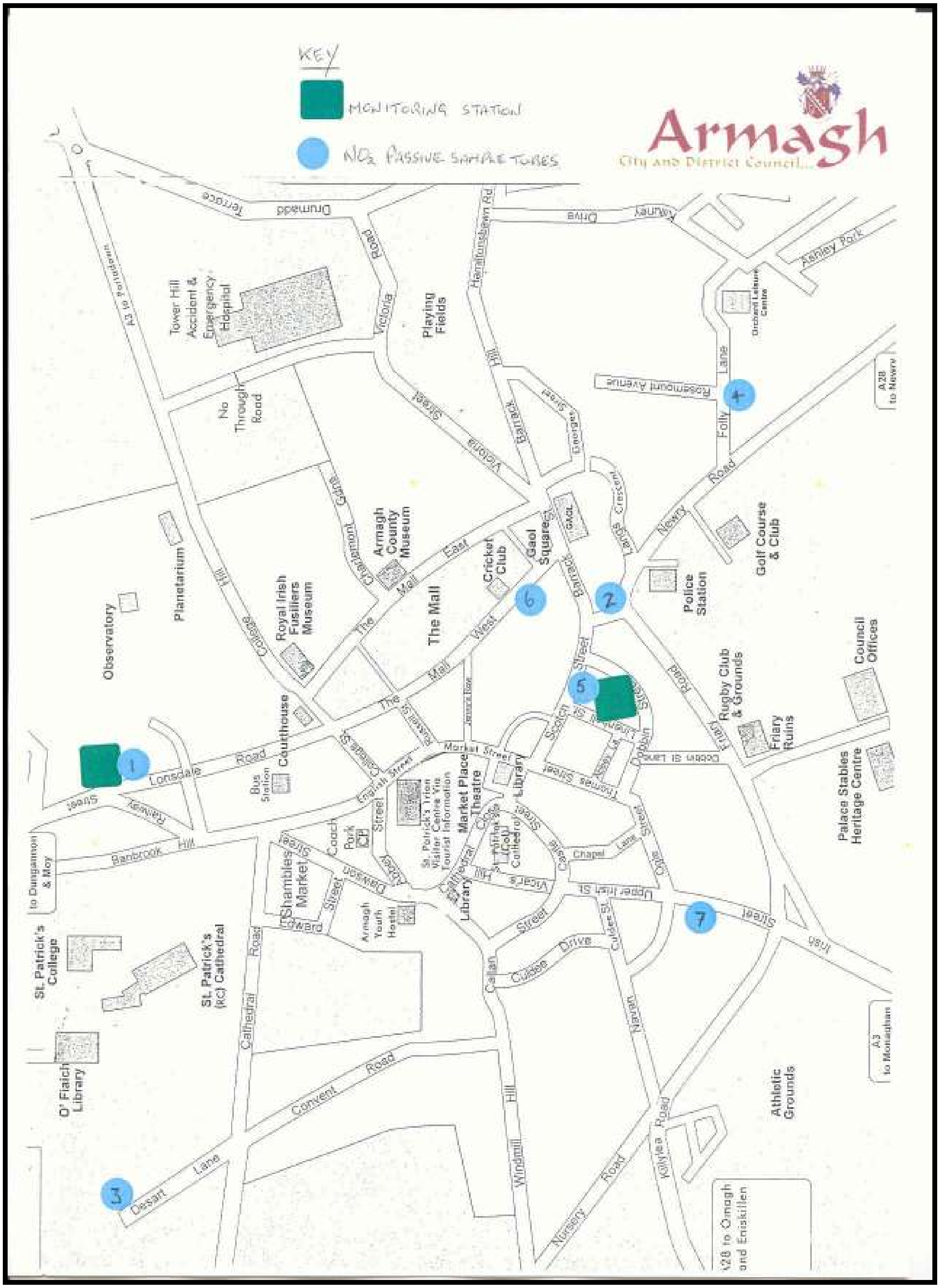
- Co-location of two further NO2 tubes on the building facades at Mall West.
- Co-location of a further tube at the real time analyser intake at Lonsdale Road.
- Two additional tubes on the building facades at Lonsdale Road

Armagh City & 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

ARMAGH CITY AND DISTRICT COUNCIL

Local Air Quality Monitoring Map


KEY
MONITORING STATION
NO_2 PASSIVE SAMPLE TUBES
Armagh
City and District Council...
Observatory
Planetarium
Royal Irish Fusiliers Museum
Armagh County Museum
The Mall
Cricket Club
Gaol Square
Police Station
Golf Course & Club
Rugby Club & Grounds
Friary Ruins
Council Offices
Palace Stables Heritage Centre
Courthouse
Bus Station
Market Place Theatre
Library
St. Patrick's Trian Visitor Centre Via Tourist Information
Shambles Market
Armagh Youth Hostel
St. Patrick's College
St. Patrick's (RC) Cathedral
O' Fiaich Library
Athletic Grounds
Tower Hill Accident & Emergency Hospital
Playing Fields
Orchard Leisure Centre
No Through Road
Lonsdale Road
College Hill
Victoria Street
Barrack Street
Newry Road
Folly Lane
Rosemount Avenue
Ashley Park
Drumadd Terrace
Hamiltonsbawn Rd
Convent Road
Dessart Lane
Cathedral Road
Windmill Hill
Callan Street
Culdee Drive
Navan Street
Upper Irish St
Irish Street
Nursery Road
Killylea Road
Thomas Street
Dobbin St Lane
Scotch Street
Market Street
English Street
Banbrook Hill
Railway Street
Edward Street
Dawson Street
A3 to Portadown
A28 to Newry
A3 to Monaghan
to Dungannon & Moy
A28 to Omagh and Enniskillen
1
2
3
4
5
6
7

APPENDIX B

NOx DATA

ARMAGH CITY AND DISTRICT COUNCIL
2003 & 2004

Table 1: Armagh City and District Council NO_2 Diffusion Tube Results 2003

NO_2 DIFFUSION TUBE RESULTS 2003 µg/m^3								
Month	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	SITE 6	SITE 7	SITE 8
JANUARY	51	36	32	25	23	44	49	57
FEBRUARY	35	39	30	26	23	30	30	25
MARCH	15	23	18	10	12	21	27	28
APRIL	9	23	NR	11	11	26	16	27
MAY	17	39	11	15	6	33	37	32
JUNE	32	40	13	3	17	25	26	27
JULY	25	37	10	14	15	47	27	32
AUGUST	25	39	12	15	18	46	33	42
SEPTEMBER	35	42	13	22	20	63	38	33
OCTOBER	38	39	20	28	27	67	27	50
NOVEMBER	36	46	20	21	24	73	31	30
DECEMBER	54	53	28	35	38	78	49	41
Mean	31	38	19	19	19	46	33	35

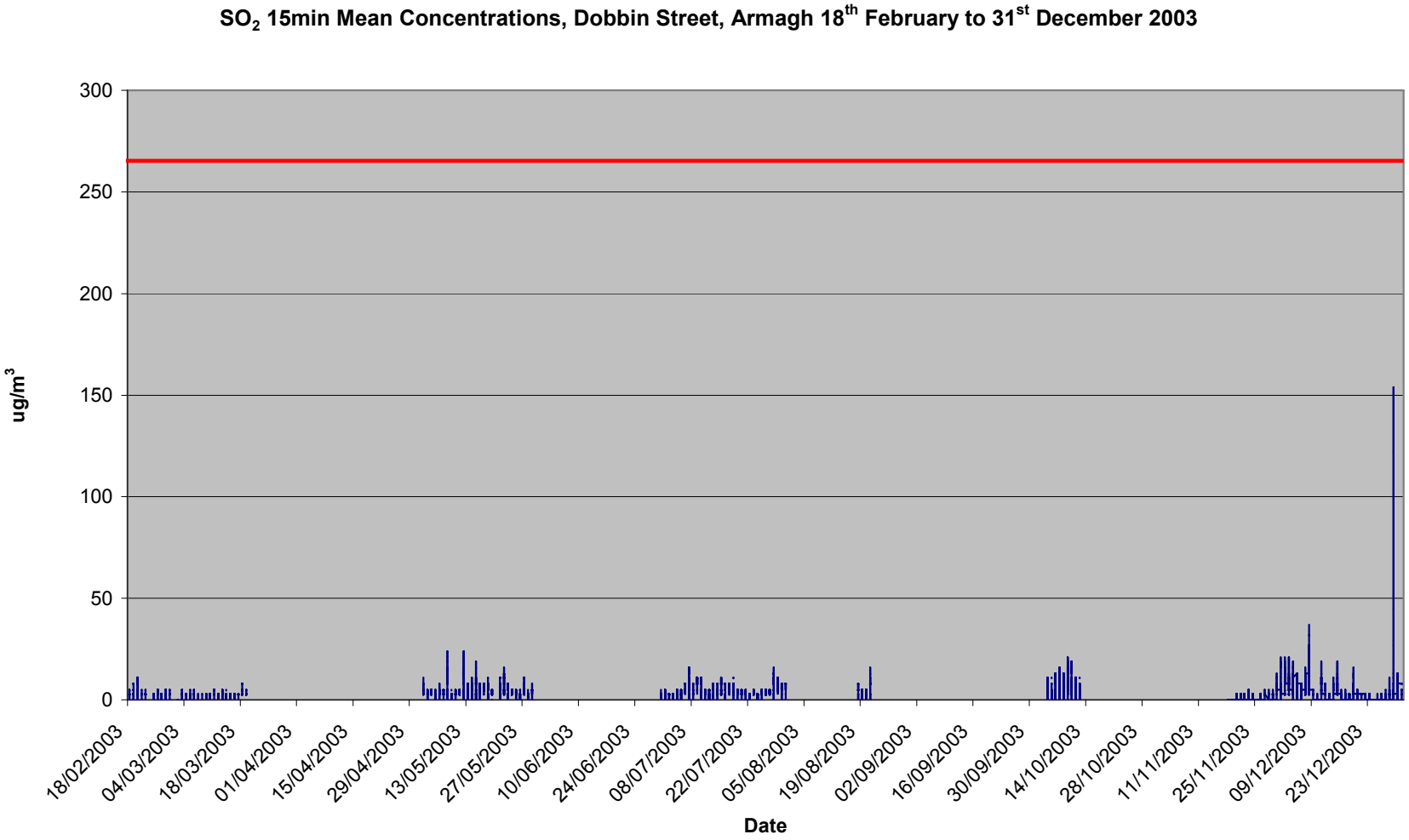
Table 2: Armagh City and District Council NO_2 Diffusion Tube Results 2004

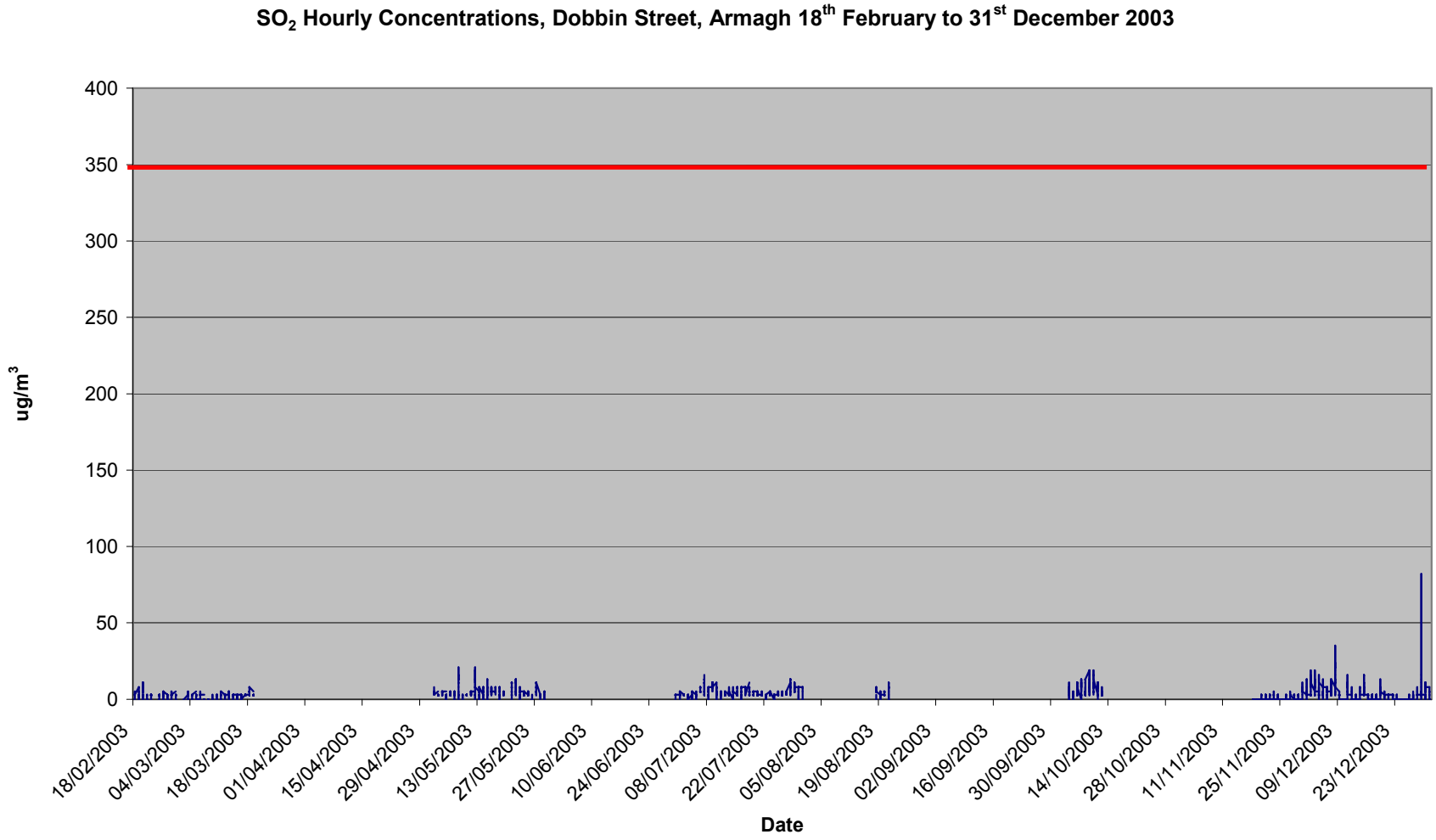
NO2 DIFFUSION TUBE RESULTS 2004 µg/m^3								
	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	SITE 6	SITE 7	SITE 8
JANUARY	45	35	17	25	25	68	39	20
FEBRUARY	40	44	19	27	19	69	36	NS
MARCH	37	41	15	32	22	67	36	31
APRIL	33	42	12	18	20	57	31	NS
MAY	30	41	13	18	17	NS	36	40
JUNE	21	28	9	10	8	34	18	21
JULY	18	29	7	14	11	40	29	26
AUGUST	21	35	11	15	13	34	30	25
SEPTEMBER	28	34	10	14	16	55	32	33
OCTOBER	37	44	18	24	NS	55	40	42
NOVEMBER	40	43	14	23	22	55	42	46
DECEMBER	40	39	15	20	23	69	34	31
Mean	32	38	13	20	18	55	33	32

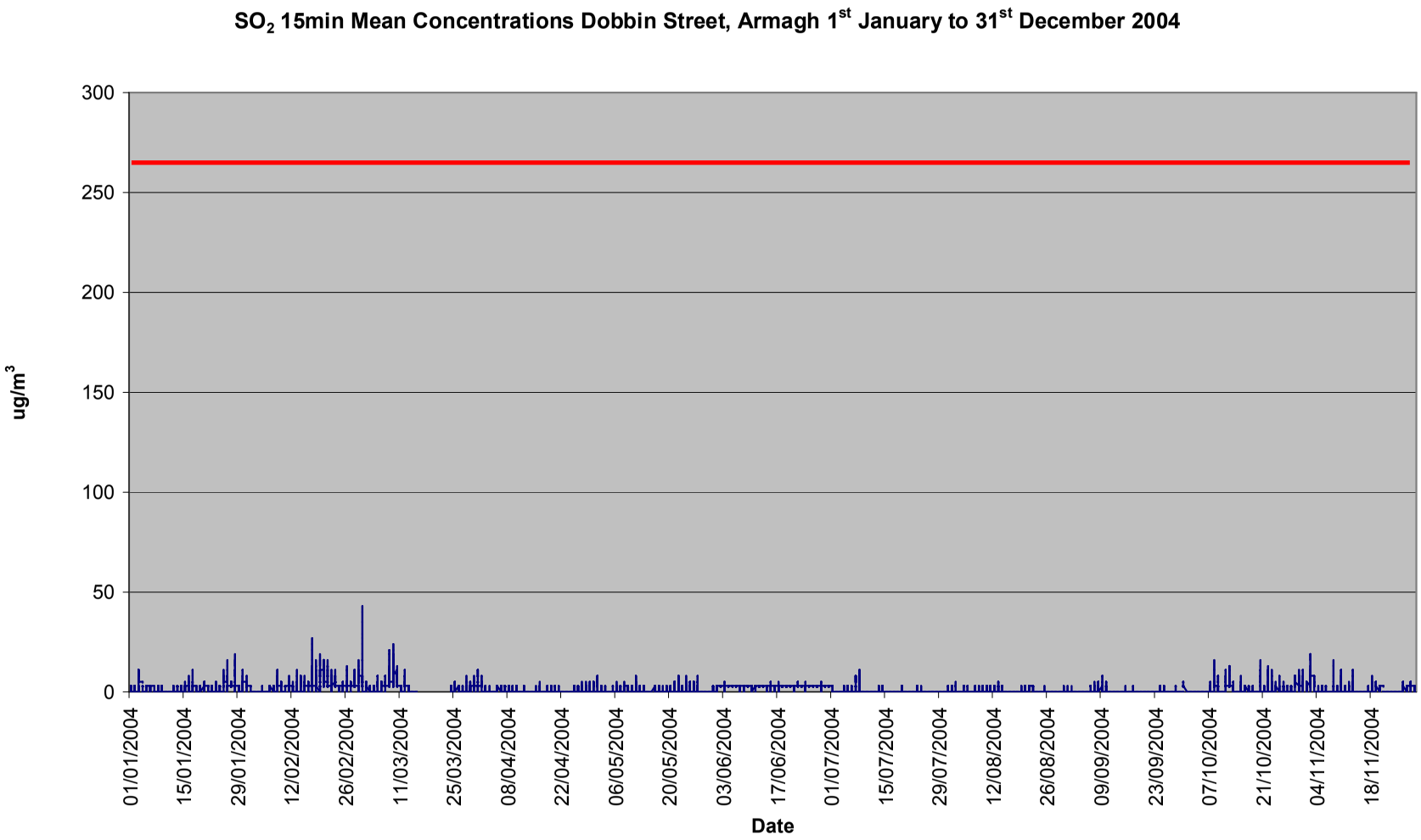
APPENDIX C

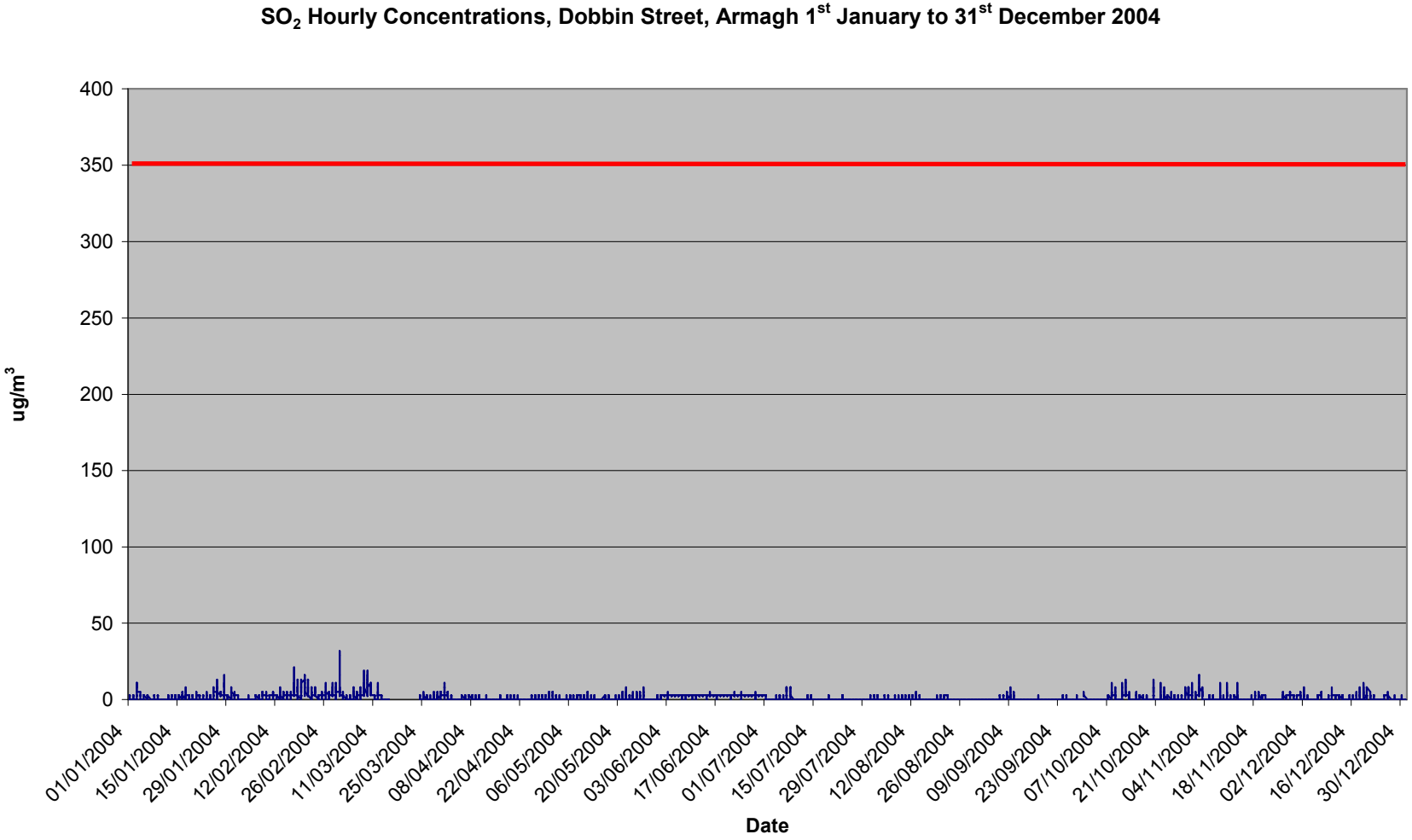
SO_2 Graphs

ARMAGH CITY & DISTRICT COUNCIL
2003 & 2004


SO2 15min Mean Concentrations, Dobbin Street, Armagh 18th February to 31st December 2003
ug/m3
300
250
200
150
100
50
0
18/02/2003
04/03/2003
18/03/2003
01/04/2003
15/04/2003
29/04/2003
13/05/2003
27/05/2003
10/06/2003
24/06/2003
08/07/2003
22/07/2003
05/08/2003
19/08/2003
02/09/2003
16/09/2003
30/09/2003
14/10/2003
28/10/2003
11/11/2003
25/11/2003
09/12/2003
23/12/2003
Date


SO2 Hourly Concentrations, Dobbin Street, Armagh 18th February to 31st December 2003
400
350
300
250
200
150
100
50
0
ug/m3
18/02/2003
04/03/2003
18/03/2003
01/04/2003
15/04/2003
29/04/2003
13/05/2003
27/05/2003
10/06/2003
24/06/2003
08/07/2003
22/07/2003
05/08/2003
19/08/2003
02/09/2003
16/09/2003
30/09/2003
14/10/2003
28/10/2003
11/11/2003
25/11/2003
09/12/2003
23/12/2003
Date


SO2 15min Mean Concentrations Dobbin Street, Armagh 1st January to 31st December 2004
ug/m3
300
250
200
150
100
50
0
01/01/2004
15/01/2004
29/01/2004
12/02/2004
26/02/2004
11/03/2004
25/03/2004
08/04/2004
22/04/2004
06/05/2004
20/05/2004
03/06/2004
17/06/2004
01/07/2004
15/07/2004
29/07/2004
12/08/2004
26/08/2004
09/09/2004
23/09/2004
07/10/2004
21/10/2004
04/11/2004
18/11/2004
Date


SO2 Hourly Concentrations, Dobbin Street, Armagh 1st January to 31st December 2004
ug/m3
400
350
300
250
200
150
100
50
0
01/01/2004
15/01/2004
29/01/2004
12/02/2004
26/02/2004
11/03/2004
25/03/2004
08/04/2004
22/04/2004
06/05/2004
20/05/2004
03/06/2004
17/06/2004
01/07/2004
15/07/2004
29/07/2004
12/08/2004
26/08/2004
09/09/2004
23/09/2004
07/10/2004
21/10/2004
04/11/2004
18/11/2004
02/12/2004
16/12/2004
30/12/2004
Date