

Craigavon Borough Council

Local Air Quality Progress Report

MAY 2008

Executive Summary

Under the Local Air Quality Management (LAQM) regime, introduced by the Environment (NI) Order 2002, Craigavon Borough 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 Progress Report 2007, was appraised by the University of West England (UWE) on behalf of the Department of Environment's Environment and Heritage Service (EHS), and accepted unconditionally. It concluded that no further detailed assessment was 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 prescribed in the timetable for 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.PRNI(04), and summarises the findings of the LAQM activities undertaken by the Council including the currently available air quality monitoring results for 2007.

Significant capital expenditure had previously been incurred for continuous automatic monitoring for PM₁₀, NO₂ & SO₂. Results obtained over the years of active monitoring indicated that there was no negligible risk of exceeding prescribed standards, and it was recommended after the second round 'Review and Assessment' that monitoring at the automated sites within Craigavon **would not be** continued and the sites were deactivated. In due course, consideration may be given to relocation of the automatic monitors to other locations or local authorities that have more potential to be affected by the pollutants concerned.

The conclusion of this report confirms that for all the prescribed air pollutants, concentrations in the Borough 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 Borough is managed in a way that effects compliance with health-based, statutory pollutant limits.

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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 Craigavon Borough 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 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 elected 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 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 $\mu\text{g}/\text{m}^3$ | Running Annual Mean | 31/12/2010 |
| 1,3-Butadiene | 2.25 $\mu\text{g}/\text{m}^3$ | 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 $\mu\text{g}/\text{m}^3$ | Annual Mean | 31/12/2004 |
| | 0.25 $\mu\text{g}/\text{m}^3$ | Annual Mean | 31/12/2008 |
| Nitrogen dioxide | 200 $\mu\text{g}/\text{m}^3$ Not to be exceeded more than 18 times per year | 1 Hour Mean | 31/12/2005 |
| | 40 $\mu\text{g}/\text{m}^3$ | Annual Mean | 31/12/2005 |
| Particles (PM₁₀) (gravimetric)^d | 50 $\mu\text{g}/\text{m}^3$ Not to be exceeded more than 35 times per year | 24 Hour Mean | 31/12/2004 |
| | 40 $\mu\text{g}/\text{m}^3$ | Annual Mean | 31/12/2004 |
| Sulphur Dioxide | 266 $\mu\text{g}/\text{m}^3$ Not to be exceeded more than 35 times per year | 15 Minute Mean | 31/12/2005 |
| | 350 $\mu\text{g}/\text{m}^3$ Not to be exceeded more than 24 times per year | 1 Hour Mean | 31/12/2004 |
| | 125 $\mu\text{g}/\text{m}^3$ Not to be exceeded more than 3 times per year | 24 Hour Mean | 31/12/2004 |

1.3 Conclusions of Previous Rounds of Review and Assessment

PM₁₀

Stage 1 of the second round of review and assessment completed in 2006, concluded that PM₁₀ emissions were not significantly contentious. PM₁₀ monitoring equipment had been installed at Lord Lurgan Park, it was deemed useful at that time to keep updated emissions data for PM₁₀, as it was considered one of the key pollutants with regards to road traffic emissions. With the M1 & M12 motorway links passing through the Craigavon Borough Council area, the monitoring of PM₁₀ data was an essential element in ongoing assessment of local air quality in the area. However since 2006 the automatic monitoring station at Lord Lurgan Park has been decommissioned, as it was determined following the examination of historical monitoring data, that the likelihood of emissions breaching the objective limits for PM₁₀ were negligible and therefore the cost of operating the site was not viable.

The Council's Progress Report 2007, was appraised by the University of West England (UWE) on behalf of the Department of Environment's Environment and Heritage Service (EHS), and accepted unconditionally. It concluded that no further detailed assessment was required for PM₁₀ at this time and that there was currently no requirement for any statutory Air Quality Management Areas (AQMA's) to be declared.

SO₂

Stage 1 of the second round of review and assessment completed in 2006, concluded that SO₂ emissions did not require a further Stage 2/3 assessment on the basis of results gathered from the automatic monitoring station at Lord Lurgan Park.

Craigavon Borough Council no longer carries out monitoring for SO₂.

NO₂

Stage 1 of the second round of review and assessment completed in 2006, concluded that NO₂ emissions did not require a further Stage 2/3 assessment on the basis of results gathered from diffusion tube monitoring and automatic monitoring at a number of sampling locations within the district.

The Council's Progress Report 2007, was appraised by the University of West England (UWE) on behalf of the Department of Environment's Environment and Heritage Service (EHS), and accepted unconditionally. It concluded that no further detailed assessment was required for NO₂ at this time and that there was currently no requirement for any statutory Air Quality Management Areas (AQMA's) to be declared.

Other Prescribed Pollutants – Benzene, 1,3-Butadiene, Carbon Monoxide, and Lead

These pollutants were all screened out at the first stage of the first round of the review and assessment, as being insignificant in terms of potential for exceedence of prescribed standards. Consequently no monitoring of these pollutants has been initiated in the Borough.

2.0 New Monitoring Data

2.1 Summary of Monitoring Undertaken

Craigavon Borough Council carried out ambient monitoring of the following pollutants throughout 2007:

- NO₂ (by Automatic Air Monitoring Equipment & Diffusion Tube)

Table 2.1 : Air Quality Monitoring in Craigavon 2007

| Pollutant | Equipment | Location | Eastings | Northings | Site Ref. |
|-----------------------|--|--|----------|-----------|-----------|
| NO₂ | Nitrogen Dioxide Network of diffusion tubes managed by AEA Technology Diffusion Tube Diffusion Tube | Craigavon 5N, Town Hall, Union Street, Lurgan, Craigavon BT66 8YD | 308260 | 358250 | 82760 K |
| | | Craigavon 9N, West Street, Portadown, Craigavon BT62 3JY | 301040 | 353760 | 82979 K |
| | | Craigavon 7N, 36 Ardboe Drive, Lurgan, Craigavon BT66 8HP | 308130 | 357830 | 82762 B |
| | | Craigavon 8N, 27 Ballyhannon Road, Portadown, Craigavon BT63 5SE | 303170 | 354260 | 82763 B |
| | | 4 Cluandara, Derrymacash, Craigavon | 304402 | 359301 | 82767 |
| | | Castle Lane Public Toilets | 308230 | 358450 | 82886 |
| | | Ashgrove Community Centre | N/A | N/A | 82881 |
| | | Lord Lurgan Park | 307980 | 359301 | 82880 |

No other pollutants covered in the air quality strategy objectives are monitored in the Craigavon Borough Council..

2.1.1 Automatic Monitoring Sites

Following the Second Round ‘Updating and Screening Assessment’ 2006, Craigavon Borough Council has ceased operating all its automated monitoring stations at Lord Lurgan Park and Castle Lane, Lurgan. Data retrieved from the stations over a sustained period indicated that exceedences of the objective limits was unlikely at these locations and supported the council’s view that monitoring was logistically and financially unnecessary. The council will examine the possibility of relocating the monitoring equipment to a more suitable location or to a local authority which has the potential to be affected by the pollutants concerned.

QA / QC

Craigavon Borough Council currently has no QA/QC contracts at this time.

2.1.2 NO₂ Diffusion Tube Monitoring Sites

Craigavon Borough Council carries out monitoring of NO₂ by diffusion tubes at eight sites within its District, illustrated in Figure 4 Appendix A. The NO₂ diffusion tubes are prepared and analysed by Lambeth Environmental Laboratories. This laboratory takes part in the NO₂ 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 NO₂ Network, but none of the sites were co-located with an automatic NO₂ analyser. Details are given in Table 2.1

Table 2.1.2: Diffusion Tube Monitoring Site Details in Craigavon

| Pollutant | Equipment | Location | Eastings | Northings | Site Ref. |
|-----------------|--|---|----------|-----------|-----------|
| NO ₂ | Nitrogen Dioxide Network of diffusion tubes managed by AEA Technology Diffusion Tube | Craigavon 5N, Town Hall, Union Street, Lurgan, Craigavon BT66 8YD | 308260 | 358250 | 82760 K |
| | | Craigavon 9N, West Street, Portadown, Craigavon BT62 3JY | 301040 | 353760 | 82979 K |
| | | Craigavon 7N, 36 Ardboe Drive, Lurgan, Craigavon BT66 8HP | 308130 | 357830 | 82762 B |
| | | Craigavon 8N, 27 Ballyhannon Road, Portadown, Craigavon BT63 5SE | 303170 | 354260 | 82763 B |
| | | 4 Clundara, Derrymacash, Craigavon | 304402 | 359301 | 82767 |
| | | Castle Lane Public Toilets | 308230 | 358450 | 82886 |
| | | Ashgrove Community Centre | N/A | N/A | 82881 |
| | | Lord Lurgan Park | 307980 | 359301 | 82880 |

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

2.1.3 SO₂ Diffusion Tube Monitoring Sites

Craigavon Borough Council does not currently monitor for SO₂ using diffusion tubes.

2.2 NEW MONITORING

No new monitoring sites have been set up, since the previous Updating and Screening Assessment. Craigavon Borough Council has discontinued monitoring NO₂ emissions at the automatic monitoring station located at Castle Lane in Lurgan. Monitoring data recorded over the sampling period indicated that emissions of NO₂ at this location were unlikely to exceed the objective limits and therefore sampling was discontinued pending relocation of the equipment to a more suitable site.

2.3 MONITORING RESULTS AND COMPARISON WITH AQS OBJECTIVES

2.3.1 PM₁₀ (Automatic Monitoring Station)

Craigavon Borough Council does not currently use automatic monitoring techniques for PM₁₀. The information provided below is only for historical reference to previous years of monitoring.

Data Summary – Lord Lurgan Park 1st January 2006 to 31st December 2006

Ratified data capture of 64.4% for PM₁₀ was reported over the period 1st January to 31st December 2006. Data capture during this monitoring period did not meet the review and assessment target of 90% for ratified data sets. There was significant data loss across the period due to technical problems.

The DoE Northern Ireland objective value of 50 µg/m³ based on daily gravimetric equivalent data was exceeded on 6 occasions during the period. The objective allows up to 35 exceedences in a year. The annual mean concentration of 22 µg/m³ gravimetric equivalent was below the objective value of 40 µg/m³.

Table 2.3.1 PM₁₀ exceedences at Lord Lurgan Park – 1st January 2006 to 31st December 2006

| Pollutant | Air Quality Regulations (Northern Ireland) 2003 | Exceedences | Days |
|---|---|-------------|------|
| PM ₁₀ Particulate Matter (Gravimetric) | Daily Mean > 50 µg/m ³ | 6 | 6 |
| PM ₁₀ Particulate Matter (Gravimetric) | Annual mean > 40 µg/m ³ | 0 | - |

Data Summary – Lord Lurgan Park 1st January 2005 to 31st December 2005

Ratified data capture of 94.1% for PM₁₀ was reported over the period 1st January to 31st December 2005. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. There was significant data loss across the period due to technical problems.

The DoE Northern Ireland objective value of 50 µg/m³ based on daily gravimetric equivalent data was exceeded on 3 occasions during the period. The objective allows up to 35 exceedences in a year. The annual mean concentration of 20 µg/m³ gravimetric equivalent was below the objective value of 40 µg/m³.

Table 2.3.1 PM₁₀ exceedences at Lord Lurgan Park – 1st January 2005 to 31st December 2005

| Pollutant | Air Quality Regulations (Northern Ireland) 2003 | Exceedences | Days |
|---|---|-------------|------|
| PM ₁₀ Particulate Matter (Gravimetric) | Daily Mean > 50 µg/m ³ | 3 | 3 |
| PM ₁₀ Particulate Matter (Gravimetric) | Annual mean > 40 µg/m ³ | 0 | - |

Data Summary – Lord Lurgan Park 1st May 2004 to 31st October 2004

Ratified data capture of 97% for PM₁₀ was reported over the period 1st May to 31st October 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.

PM₁₀ concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The DoE Northern Ireland objective value of 50 µg/m³ based on daily gravimetric equivalent data was not exceeded during the period. The annual mean TEOM concentration of 13 µg/m³, when corrected to 17 µg/m³ gravimetric equivalent was below the objective value of 40 µg/m³.

Table 2.3.2: PM₁₀ exceedences at Lord Lurgan Park - 1st May 2004 to 31st October 2004

| Pollutant | Air Quality Regulations (Northern Ireland) 2003 | Exceedences | Days |
|---|---|-------------|------|
| PM ₁₀ Particulate Matter (Gravimetric) | Daily Mean > 50 µg/m ³ | 0 | 0 |
| PM ₁₀ Particulate Matter (Gravimetric) | Annual mean > 40 µg/m ³ | 0 | - |

2.3.2 SO₂ (Automatic Monitoring Station)

Craigavon Borough Council does not currently use automatic monitoring techniques for SO₂. The information provided below is only for historical reference to previous years of monitoring.

Data Summary – Lord Lurgan Park 1st January 2006 to 31st December 2006

Ratified data capture of 83% for SO₂ was reported over the period 1st January to 31st December 2006. Data capture during this monitoring period did not meet the review and assessment target of 90% for ratified data sets. There was significant data loss across the period due to technical problems.

SO₂ concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The maximum 15 minute mean of 80 µg/m³ was below the DoE Northern Ireland 15 minute objective value of 266 µg/m³. The maximum hourly mean of 53 µg/m³ was below the objective value of 350 µg/m³. The maximum daily mean of 16 µg/m³ was below the objective of 125 µg/m³.

Table 2.3.3: SO₂ exceedences at Lord Lurgan Park – 1st January to 31st December 2006

| 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 – Lord Lurgan Park 1st January to 31st December 2005

Ratified data capture of 83% for SO₂ was reported over the period 1st January to 31st December 2005. Data capture during this monitoring period did not meet the review and assessment target of 90% for ratified data sets. There was significant data loss across the period due to technical problems.

SO₂ concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The maximum 15 minute mean of 106 µg/m³ was below the DoE Northern Ireland 15 minute objective value of 266 µg/m³. The maximum hourly mean of 77 µg/m³ was below the objective value of 350 µg/m³. The maximum daily mean of 24 µg/m³ was below the objective of 125 µg/m³.

Table 2.3.3: SO₂ exceedences at Lord Lurgan Park – 1st January to 31st December 2005

| 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 – Lord Lurgan Park 27th October 2003 to 30th April 2004

Ratified data capture of 95% for SO₂ was reported over the period 27th October 2003 to 30th April 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.

SO₂ concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The maximum 15 minute mean of 80 µg/m³ was below the DoE Northern Ireland 15 minute

objective value of $266 \mu\text{g}/\text{m}^3$. The maximum hourly mean of $67 \mu\text{g}/\text{m}^3$ was below the objective value of $350 \mu\text{g}/\text{m}^3$. The maximum daily mean of $29 \mu\text{g}/\text{m}^3$ was below the objective of $125 \mu\text{g}/\text{m}^3$.

Table 2.3.3: SO₂ exceedences at Lord Lurgan Park - 27th October 2003 to 30th April 2004

| Pollutant | Air Quality Regulations (Northern Ireland) 2003 | Exceedences | Days |
|-----------------|---|-------------|------|
| Sulphur Dioxide | 15-Minute Mean > $266 \mu\text{g}/\text{m}^3$ | 0 | 0 |
| Sulphur Dioxide | Hourly Mean > $350 \mu\text{g}/\text{m}^3$ | 0 | 0 |
| Sulphur Dioxide | Daily Mean > $125 \mu\text{g}/\text{m}^3$ | 0 | 0 |

Data Summary – Lord Lurgan Park 1st May 2004 to 31st October 2004

Ratified data capture of 95% for SO₂ was reported over the period 1st May 2004 to 31st October 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.

SO₂ concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The maximum 15 minute mean of $74 \mu\text{g}/\text{m}^3$ was below the objective value of $266 \mu\text{g}/\text{m}^3$. The maximum hourly mean of $53 \mu\text{g}/\text{m}^3$ was below the objective value of $350 \mu\text{g}/\text{m}^3$. The maximum daily mean of $16 \mu\text{g}/\text{m}^3$ was below the objective of $125 \mu\text{g}/\text{m}^3$.

Table 2.3.4: SO₂ exceedences at Lord Lurgan Park - 1st May 2004 to 31st October 2004

| Pollutant | Air Quality Regulations (Northern Ireland) 2003 | Exceedences | Days |
|-----------------|---|-------------|------|
| Sulphur Dioxide | 15-Minute Mean > $266 \mu\text{g}/\text{m}^3$ | 0 | 0 |
| Sulphur Dioxide | Hourly Mean > $350 \mu\text{g}/\text{m}^3$ | 0 | 0 |
| Sulphur Dioxide | Daily Mean > $125 \mu\text{g}/\text{m}^3$ | 0 | 0 |

Graphs 1 & 2 in Appendix C (pg 34 & 35) illustrates the 15 Min Mean and Hourly concentrations as monitored at Lord Lurgan Park between 27th October 2003 to 31st October 2004.

2.3.3 NO₂ (Automatic Monitoring Station)

Craigavon Borough Council does not currently use automatic monitoring techniques for NO₂. The information provided below is only for historical reference to previous years of monitoring.

Data Summary – Castle Lane, Lurgan 1st January 2006 to 31st December 2006

Ratified data capture of 81.3% for NO₂ was reported over the period 1st January 2006 to 31st December 2006. Data capture during this monitoring period did not meet the review and

assessment target of 90% for ratified data sets. There was significant data loss across the period, due to technical problems.

NO₂ concentrations were recorded in the Defra LOW band throughout the period. The maximum hourly mean of 76 µg/m³ was below the objective value of 200 µg/m³. The mean daily concentration of 15 µg/m³ was below the objective of 40 µg/m³.

Table 2.3.5: NO₂ exceedences at Castle Lane, Lurgan – 1st January to 31st December 2006

| 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 |

Data Summary – Castle Lane, Lurgan 1st January to 31st December 2005

Ratified data capture of 86.6% for NO₂ was reported over the period 27th October 2003 to 30th April 2004. Data capture during this monitoring period did not meet the review and assessment target of 90% for ratified data sets. There was significant data loss across the period due to technical problems.

NO₂ concentrations were recorded in the Defra LOW band throughout the period. The maximum hourly mean of 78 µg/m³ was below the objective value of 200 µg/m³. The mean daily concentration of 15 µg/m³ was below the objective of 40 µg/m³.

Table 2.3.5: NO₂ exceedences at Castle Lane, Lurgan – 1st January to 31st December 2005

| 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 |

Data Summary – Castle Lane, Lurgan 27th October 2003 to 30th April 2004

Ratified data capture of 99% for NO₂ was reported over the period 27th October 2003 to 30th April 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.

NO₂ concentrations were recorded in the Defra LOW band throughout the period. The maximum hourly mean of 94 µg/m³ was below the objective value of 200 µg/m³. The mean daily concentration of 19 µg/m³ was below the objective of 40 µg/m³.

Table 2.3.5: NO₂ exceedences at Castle Lane, Lurgan - 27th October 2003 to 30th April 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 |

Data Summary –Castle Lane, Lurgan 1st May 2004 to 31st October 2004

Ratified data capture of 91% for NO₂ was reported over the period 1st May 2004 to 31st October 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 was:

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

NO₂ concentrations were recorded in the Defra LOW band throughout the period. The maximum hourly mean concentration of 53 µg/m³ was below the objective value of 200 µg/m³. The mean concentration of 11 µg/m³ was below the objective of 40 µg/m³.

Table 2.3.6: NO₂ exceedences at Castle Lane, Lurgan - 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 NO₂ (Diffusion Tube Monitoring)

NO₂ diffusion tube monitoring results have been bias corrected for NO₂ from 2003 to 2007. 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.

Tables 1 to 4 in Appendix B, list the results for NO₂ diffusion tubes during 2003 to 2006.

2.5.1 SO₂ (Diffusion Tube Monitoring)

Craigavon Borough Council does not currently use diffusion tube monitoring techniques for SO₂. The information provided below is only for historical reference to previous years of monitoring.

Sulphur Dioxide concentrations recorded by the diffusion tubes indicate that Sulphur Dioxide concentrations currently comply with the annual mean Air Quality Strategy objective at all measurement locations.

Recent studies have shown that the monitoring of SO₂ emissions by diffusion tube has raised questions about the limitations and accuracy of this method. Craigavon Borough Council has been advised by the University of West England help-desk, that the inaccuracies associated with this method may justify the cessation of any future SO₂ monitoring projects using diffusion tubes. Craigavon Borough Council ceased monitoring using SO₂ diffusion tubes.

Tables 3 & 4 in Appendix B, List the results for SO₂ diffusion tubes during 2003 and 2004.

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 Craigavon. 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 Craigavon Borough, have been identified.

3.1.3.3 Small Boilers

Craigavon Borough Council are not aware of any significant changes to >5MW_(thermal) fuel plants and processes.

3.1.4 Industrial Process Closures

Craigavon Borough Council has not identified any process closures within the borough.

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

Craigavon Borough Council identified no significant road layout changes or roadworks.

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 Craigavon 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 Craigavon 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 Craigavon Borough 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

Craigavon 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 Craigavon Borough area that have full planning permission granted where there is the risk of a significant detrimental impact on air quality.

3.3.2 New Commercial Developments

There are no new commercial developments (e.g. retail parks, office blocks, leisure centres) proposed for the Craigavon Borough area where there is the risk of significant detrimental impact on air quality.

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 Councils Progress Report of 2007, monitoring results indicate that concentrations of the most significant of the prescribed pollutants, NO₂, PM₁₀ & SO₂ are unlikely to exceed the statutory limits, particularly NO₂, which is the only pollutant currently being monitored in Craigavon Borough at this time.

This Progress Report has not identified any sources that require further assessment. Therefore at this stage there is no need for Craigavon Borough council to proceed to a detailed assessment for any of the pollutants in advance of the scheduled Third Round of Reviews and Assessments.

4.2 Recommendations

Passive sampling by diffusion tube is a simple cost effective method of monitoring and tracking air quality in an area. It is recommended that the NO₂ monitoring should be continued, targeting areas that are most likely to be problematic. The diffusion tube survey will comply with the objectives and sampling methods as set out in LAQM TG(03).

Significant capital expenditure has already been incurred for continuous automatic monitoring for PM₁₀, NO₂ & SO₂. Results obtained to date would indicate that there is no negligible risk of exceeding prescribed standards, and it was recommended after the second round 'Review and Assessment' that monitoring at the automated sites within Craigavon will not be continued since it was logistically and financially unnecessary. In due course, consideration may be given to relocation of the automatic monitors to other locations identified by future screening that have more potential to be affected by the pollutants concerned. With permission from the EHS (PEPG) the redundant NO₂ automatic analyzer located at Castle Lane in Lurgan was borrowed by Newtownabbey Borough Council for the purposes of monitoring NO₂ emission in their council area.

Craigavon Borough Council currently has its Air Quality Management Strategy in place and is working to fulfil the objectives that were initiated as part of the Strategy. The Strategy is currently at the end of its second year since being launched in March 2006 and the council has been involved in a successful 'Walk to School' campaign to highlight the issues of air pollution and road traffic caused by the school run. The council is also registered on the DOE Travelwise 'Carshare' scheme. Since local air quality management work by the council has to date indicated that the Borough enjoys a relatively good standard of air quality, it is anticipated that the strategy will focus on protecting this position for the future.

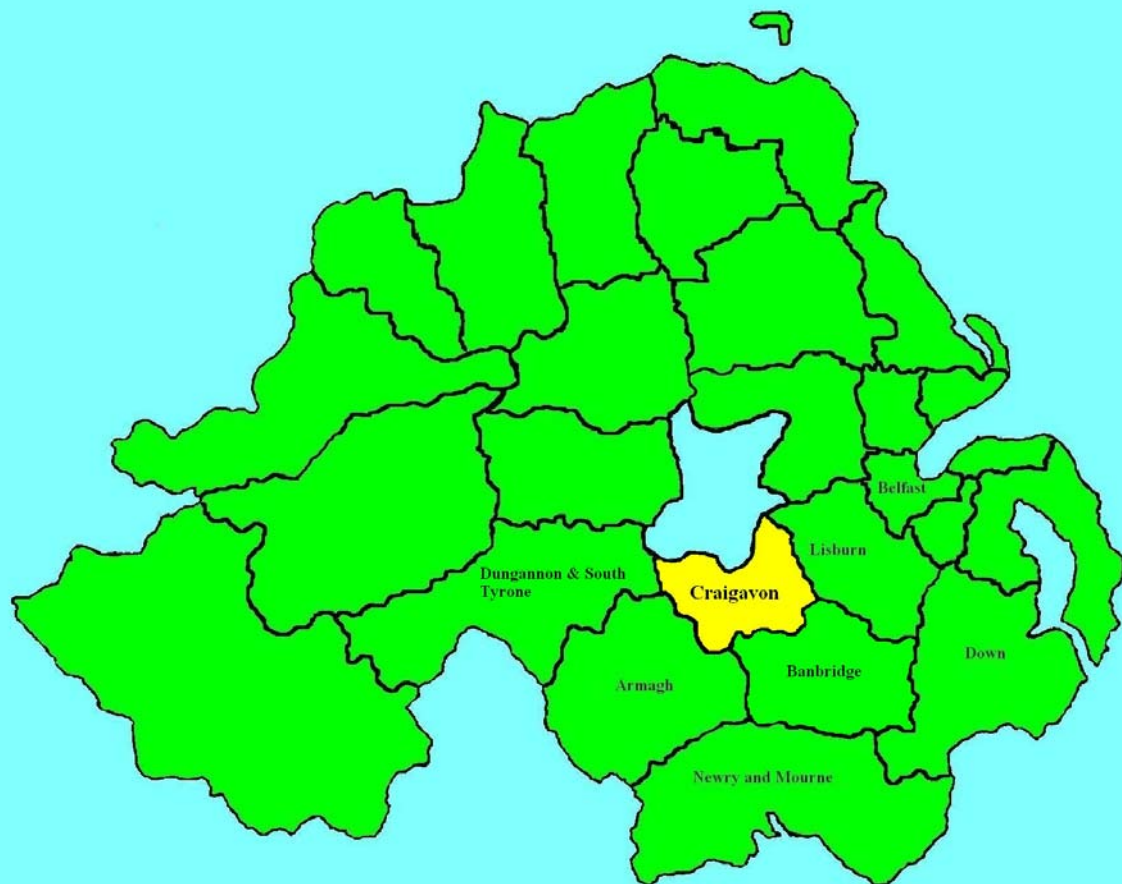
APPENDIX A

CRAIGAVON BOROUGH COUNCIL

Local Air Quality Monitoring Maps

Appendix 1

Map of Northern Ireland showing the location of Banbridge District Council





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Craigavon Borough Council Area

CAN: CR0120004A

DRAWN: ELR

DATE: January 2005

FIGURE 1

Craigavon Borough and surrounding road network

Craigavon Borough Council



KEY

- Areas of Receptors
- M1 Road Assessed
- NO₂ Diffusion Tube Monitoring

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CAN: CR0120004A

DRAWN: ELR

DATE: January 2005

Craigavon Borough Council: Air Quality Progress Report
April 2005

FIGURE 2

Monitoring and assessment locations used for assessment of traffic using the M1 and NO₂ Diffusion Tube at 4 Cluandara Drive.

Craigavon Borough Council



KEY

- NO₂ Continuous Monitoring: Castle Lane
- PM₁₀ & SO₂ Continuous Monitoring & SO₂ Diffusion Tube Monitoring: Lord Lurgan Park
- ① NO₂ Diffusion Tube Monitoring: Union Street (5N)
- ② NO₂ Diffusion Tube Monitoring: Ardboe Drive (7N)

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CAN: CR0120004A

DRAWN: ELR

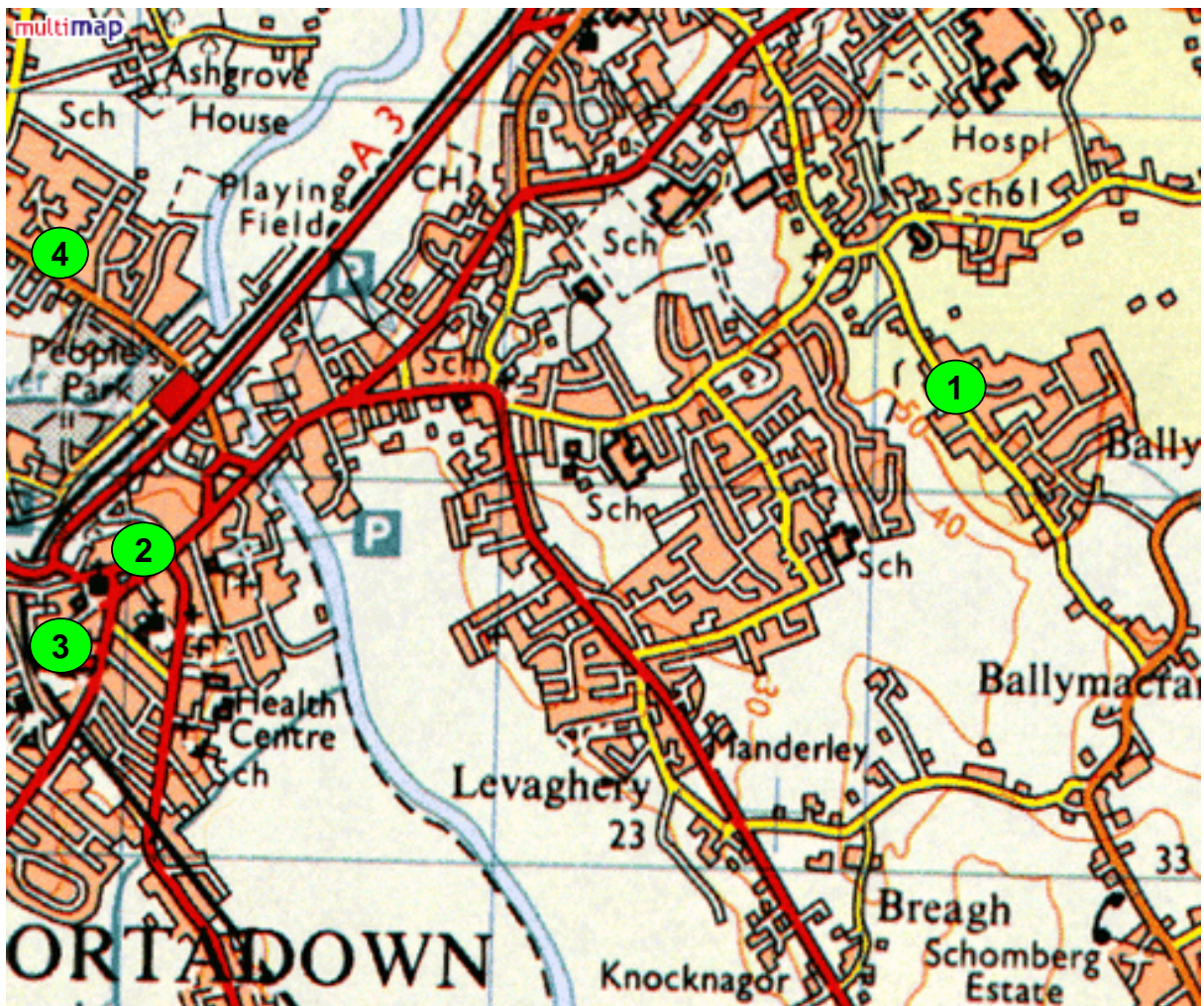
DATE: January 2005

Craigavon Borough Council: Air Quality Progress Report
April 2005

FIGURE 3

Monitoring Locations in Lurgan

Craigavon Borough Council



KEY

- ① NO₂ Diffusion Tube Monitoring: Ballyhannon Road (8N)
- ② NO₂ Diffusion Tube Monitoring: Market Street (9N)
- ③ NO₂ Diffusion Tube: West Street
- ④ NO₂ Diffusion Tube: Ashgrove Community Centre

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CAN: CR0120004A

DRAWN: ELR

DATE: January 2005

Craigavon Borough Council: Air Quality Progress Report
April 2005

FIGURE 4

Monitoring Locations in Portadown

Craigavon Borough Council

APPENDIX B

PM₁₀, SO₂ & NO_x DATA

CRAIGAVON BOROUGH COUNCIL **2003 to 2007**

CRAIGAVON LORD LURGAN PARK

01 January to 31 December 2006

These data have been fully ratified by AEA Energy & Environment

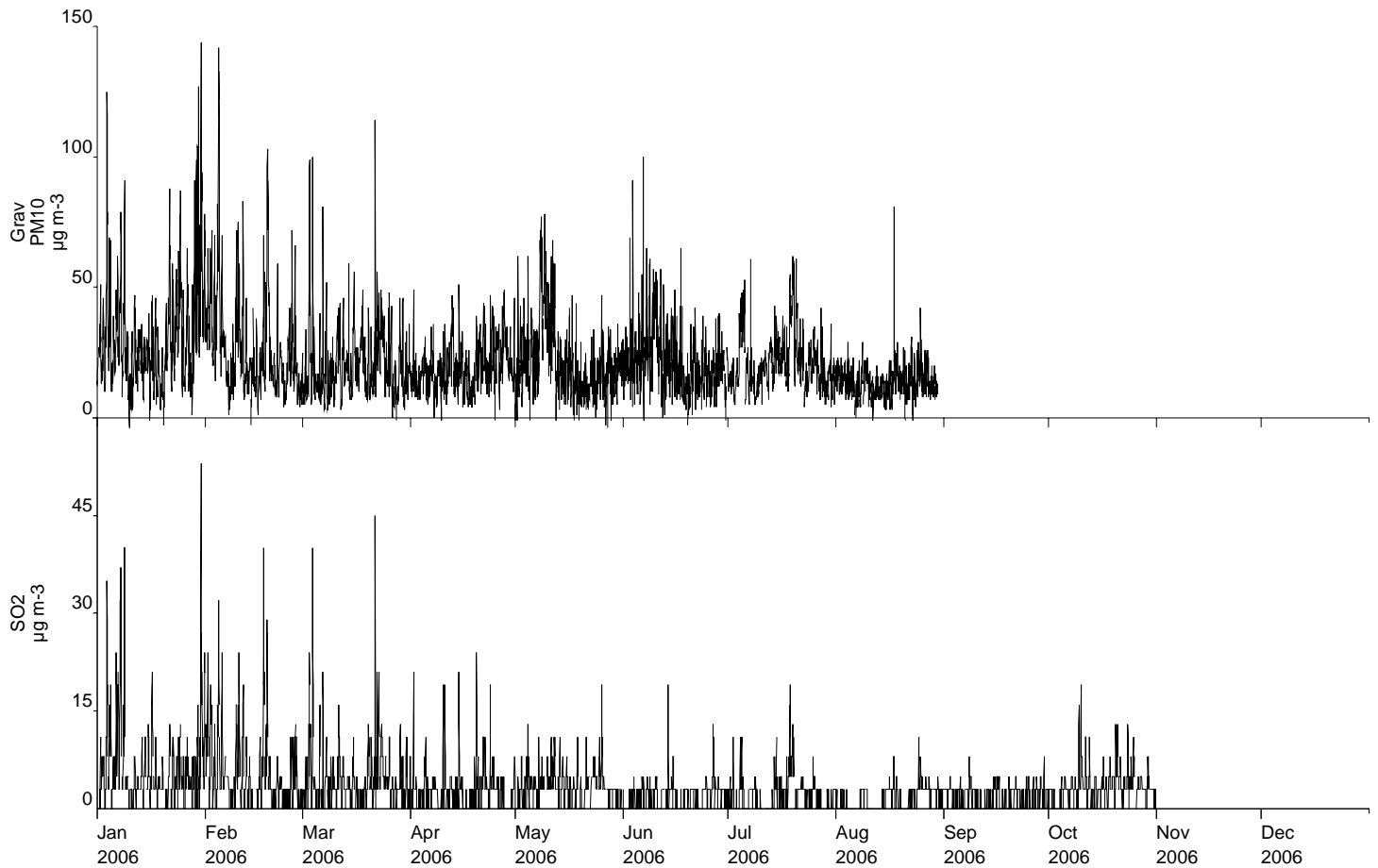
| POLLUTANT | PM ₁₀ * | SO ₂ |
|------------------------------|------------------------|-----------------------|
| Number Very High | - | 0 |
| Number High | - | 0 |
| Number Moderate | - | 0 |
| Number Low | - | 28231 |
| Maximum 15-minute mean | 181 µg m ⁻³ | 80 µg m ⁻³ |
| Maximum hourly mean | 144 µg m ⁻³ | 53 µg m ⁻³ |
| Maximum running 8-hour mean | 117 µg m ⁻³ | 29 µg m ⁻³ |
| Maximum running 24-hour mean | 75 µg m ⁻³ | 17 µg m ⁻³ |
| Maximum daily mean | 65 µg m ⁻³ | 16 µg m ⁻³ |
| Average | 22 µg m ⁻³ | 3 µg m ⁻³ |
| Data capture | 64.4 % | 78.9 % |

* PM₁₀ corrected to 'gravimetric units' using a factor of 1.3. The instrument is a TEOM
All mass units are at 20°C and 1013mb

| Pollutant | Air Quality Regulations (Northern Ireland) 2003 | Exceedences | Days |
|--|--|-------------|------|
| PM ₁₀ Particulate Matter (Gravimetric) | Daily mean > 50 µg m ⁻³ | 6 | 6 |
| PM ₁₀ Particulate Matter (Gravimetric) | Annual mean > 40 µg m ⁻³ | 0 | - |
| 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 |

Craigavon Lord Lurgan Park Air Monitoring

Hourly Mean Data for 01 January to 31 December 2006



CRAIGAVON CASTLE LANE

01 January to 31 December 2006

These data have been fully ratified by AEA Energy & Environment

| POLLUTANT | NO ₂ | NO _x |
|------------------------------|-----------------------|------------------------|
| Number Very High | 0 | - |
| Number High | 0 | - |
| Number Moderate | 0 | - |
| Number Low | 7122 | - |
| Maximum 15-minute mean | 94 µg m ⁻³ | 443 µg m ⁻³ |
| Maximum hourly mean | 76 µg m ⁻³ | 401 µg m ⁻³ |
| Maximum running 8-hour mean | 63 µg m ⁻³ | 263 µg m ⁻³ |
| Maximum running 24-hour mean | 47 µg m ⁻³ | 169 µg m ⁻³ |
| Maximum daily mean | 45 µg m ⁻³ | 152 µg m ⁻³ |
| Average | 15 µg m ⁻³ | 25 µg m ⁻³ |
| Data capture | 81.3 % | 81.3 % |

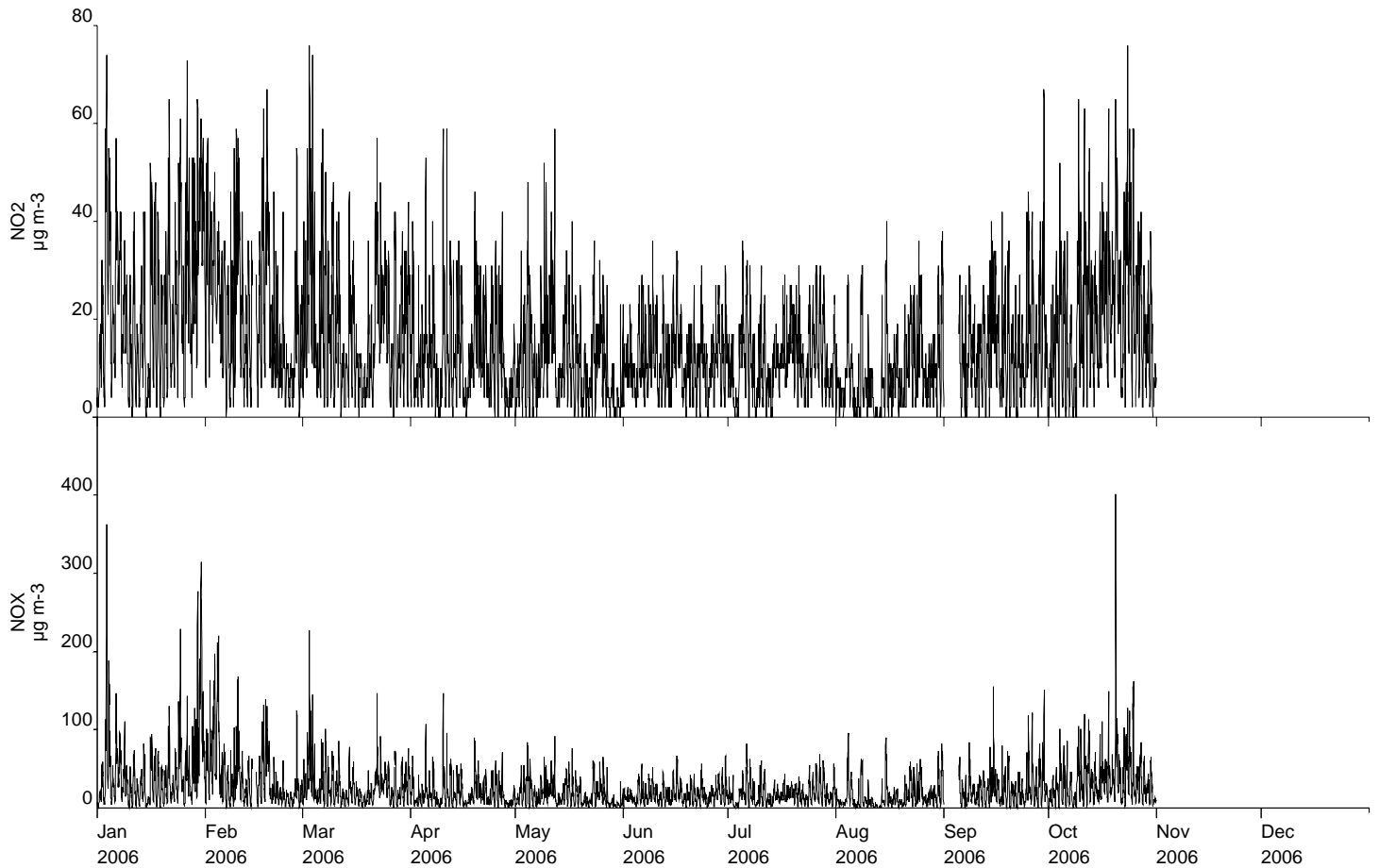
All mass units are at 20°C and 1013mb

NO_x mass units are NO_x as NO₂

| 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 |

Craigavon Castle Lane Air Monitoring

Hourly Mean Data for 01 January to 31 December 2006



Castle Lane Monitoring Results 2005

CRAIGAVON CASTLE LANE 01 January to 31 December 2005

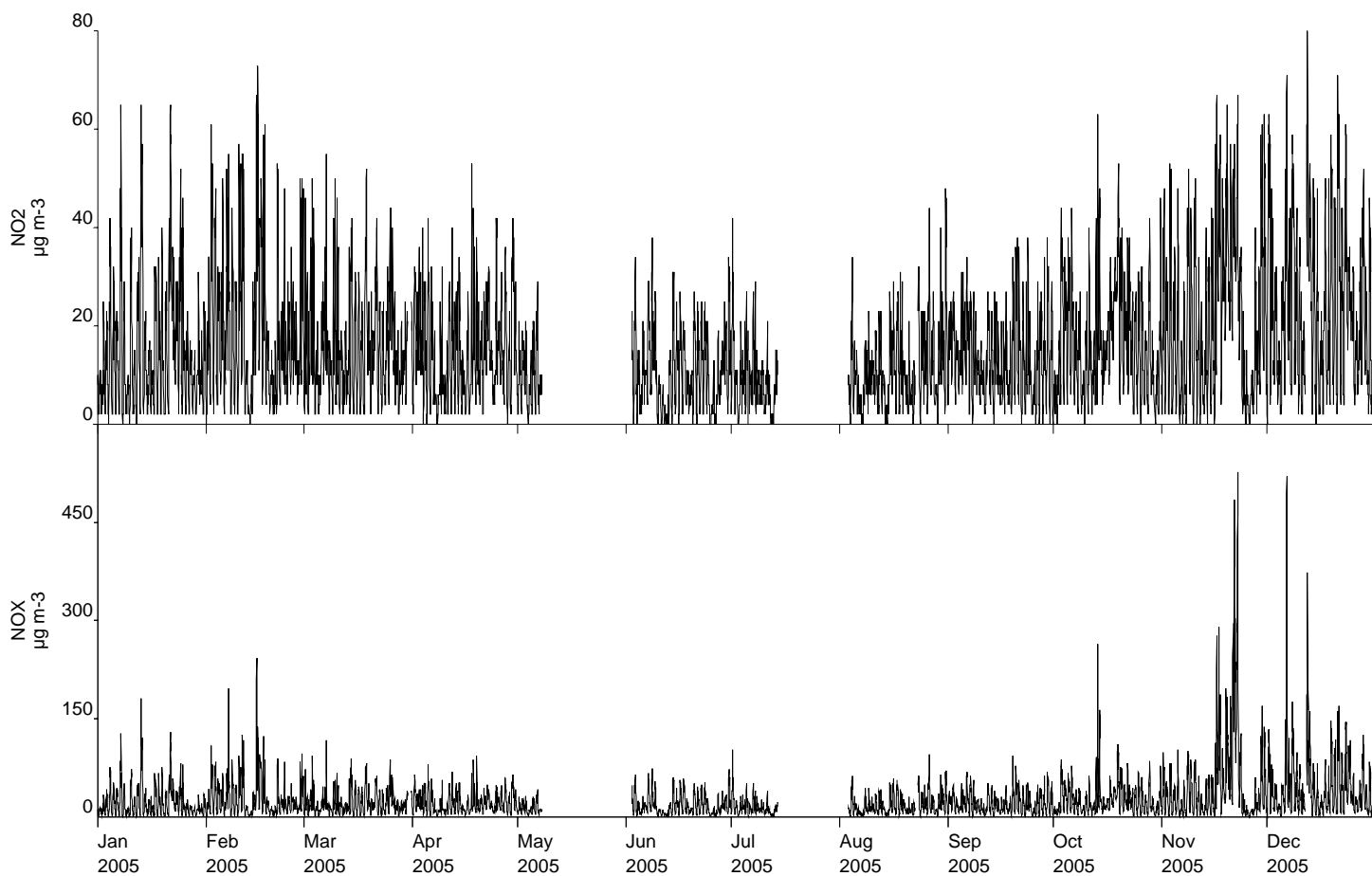
These data are provisional from 01/11/2005 and may be subject to further quality control

| POLLUTANT | NO ₂ |
|------------------------------|-----------------------|
| Number Very High | 0 |
| Number High | 0 |
| Number Moderate | 0 |
| Number Low | 7592 |
| Maximum 15-minute mean | 92 µg m ⁻³ |
| Maximum hourly mean | 80 µg m ⁻³ |
| Maximum running 8-hour mean | 61 µg m ⁻³ |
| Maximum running 24-hour mean | 49 µg m ⁻³ |
| Maximum daily mean | 42 µg m ⁻³ |
| Average | 15 µg m ⁻³ |
| Data capture | 86.7 % |

All mass units are at 20°C and 1013mb
NO_x mass units are NO_x as NO₂

| 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 |

**Craigavon Castle Lane Air Monitoring
Hourly Mean Data for 01 January to 31 December
2005**



Lord Lurgan Park Monitoring Results 2005

CRAIGAVON LORD LURGAN PARK 01 January to 31 December 2005

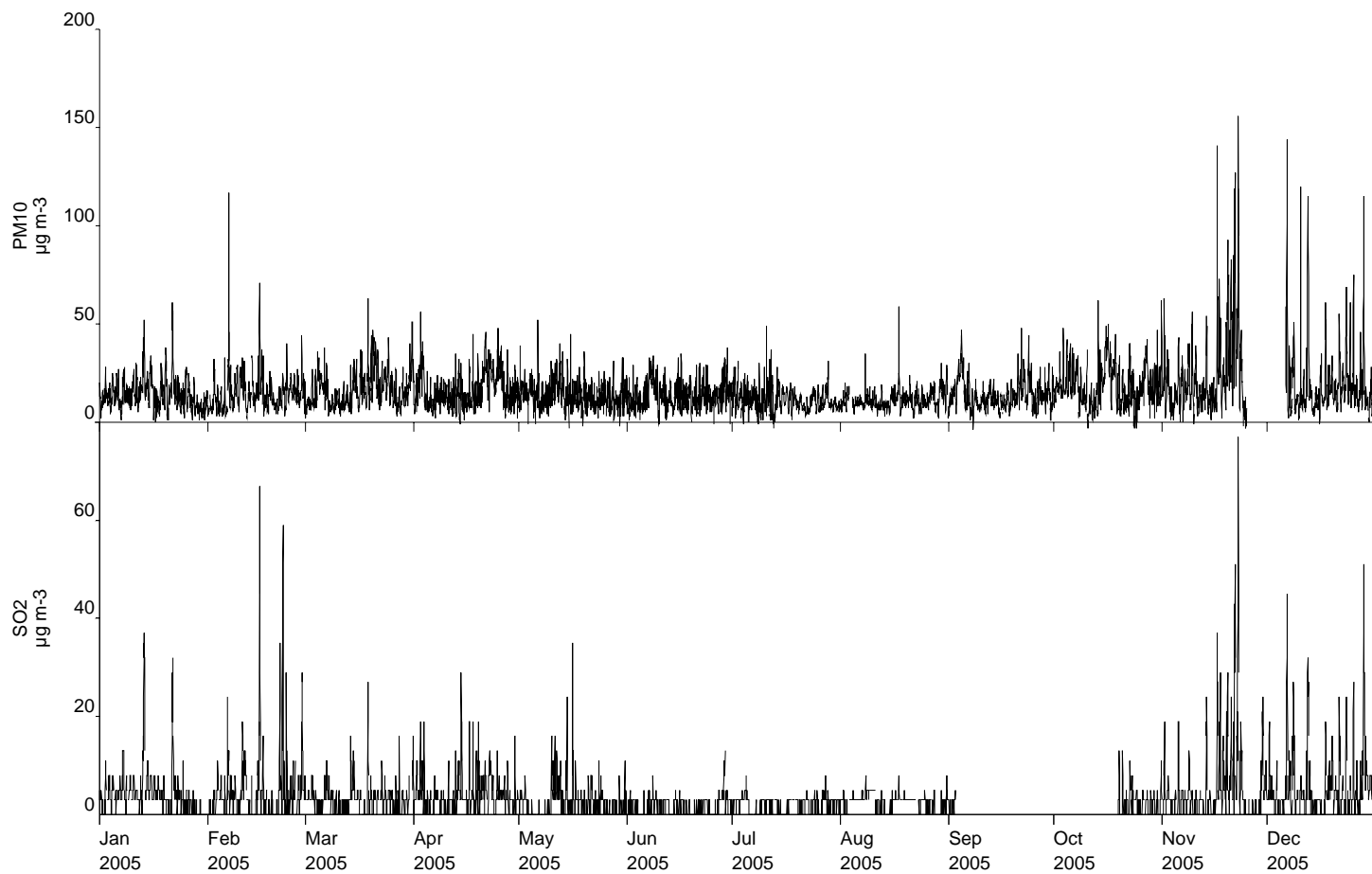
These data are provisional from 01/11/2005 and may be subject to further quality control

| POLLUTANT | PM ₁₀ + | SO ₂ |
|------------------------------|------------------------|------------------------|
| Number Very High | 0 | 0 |
| Number High | 0 | 0 |
| Number Moderate | 37 | 0 |
| Number Low | 8364 | 29710 |
| Maximum 15-minute mean | 208 µg m ⁻³ | 106 µg m ⁻³ |
| Maximum hourly mean | 156 µg m ⁻³ | 77 µg m ⁻³ |
| Maximum running 8-hour mean | 99 µg m ⁻³ | 53 µg m ⁻³ |
| Maximum running 24-hour mean | 61 µg m ⁻³ | 25 µg m ⁻³ |
| Maximum daily mean | 58 µg m ⁻³ | 24 µg m ⁻³ |
| Average | 15 µg m ⁻³ | 3 µg m ⁻³ |
| Data capture | 94.2 % | 83.0 % |

+ PM₁₀ instrument is a TEOM
All mass units are at 20°C and 1013mb
NO_x mass units are NO_x as NO₂

| Pollutant | Air Quality Regulations (Northern Ireland) 2003 | Exceedences | Days |
|--|--|-------------|------|
| PM ₁₀ Particulate Matter (Gravimetric) | Daily mean > 50 µg m ⁻³ | 3 | 3 |
| PM ₁₀ Particulate Matter (Gravimetric) | Annual mean > 40 µg m ⁻³ | 0 | - |
| 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 |

Craigavon Lord Lurgan Park Air Monitoring



**Hourly Mean Data for 01 January to 31 December
2005**

Table 1: Craigavon District Council – Bias Adjusted Nitrogen Dioxide (NO₂) Results (January 2007 - December 2007)

| Site No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ |
| Month | | | | | | | | |
| Jan-07 | 20 | 21 | 20 | 20 | 15 | 19 | 12 | 20 |
| Feb-07 | 27 | 28 | 17 | 12 | 15 | NS | NS | NS |
| Mar-07 | 10 | 20 | 10 | 10 | 8 | 21 | 6 | NS |
| Apr-07 | 14 | 23 | 5 | 8 | 8 | 9 | 7 | 15 |
| May-07 | 9 | 20 | 7 | 5 | 6 | 5 | 6 | 12 |
| Jun-07 | NS | 17 | 5 | 1 | 7 | 9 | 3 | 16 |
| Jul-07 | NS | 18 | 5 | 6 | 4 | 11 | 4 | 14 |
| Aug-07 | 16 | 19 | 11 | 12 | 12 | 13 | 11 | 21 |
| Sep-07 | 23 | 22 | 11 | 9 | 10 | 8 | 10 | 20 |
| Oct-07 | NS | 22 | 13 | 17 | 19 | 18 | 18 | 16 |
| Nov-07 | 29 | 33 | 13 | 15 | 18 | 20 | 15 | 32 |
| Dec-07 | 21 | 29 | 14 | 12 | 17 | 22 | 19 | 17 |
| *Mean | 20 | 24 | 12 | 12 | 13 | 15 | 11 | 20 |

***Mean Monthly Data is corrected for Bias**

| | | <u>Site Ref</u> |
|---|---------------------------|-----------------|
| 1 | Town Hall, Union Street | 82760 |
| 2 | West Street (Bakery) | 82979 |
| 3 | Ardboe Drive | 82762 |
| 4 | Ballyhannon Road | 82763 |
| 5 | Ashgrove Community Centre | 82764 |
| 6 | Castlelane Toilets | 82765 |
| 7 | Lord Lurgan Park | 82766 |
| 8 | Cluandara, Derrymacash | 82767 |

Bias Adjustment Factor 2007 – 1.06 (Cm/Dm)

Diffusion Tube Monitoring Data

Table 2 - Bias Adjusted NO₂ Diffusion Tube Monitoring Data 2006

| | Site 1 µg/m ³ | Site 2 µg/m ³ | Site 3 µg/m ³ | Site 4 µg/m ³ | Site 5 µg/m ³ | Site 6 µg/m ³ | Site 7 µg/m ³ | Site 8 µg/m ³ |
|------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Month | | | | | | | | |
| January | 26 | NS | NS | 16 | 24 | 14 | 14 | 20 |
| February | 18 | 14 | 18 | 19 | NS | 22 | 25 | 11 |
| March | 17 | 7 | 11 | 14 | 9 | 7 | 22 | 8 |
| April | 11 | 16 | 17 | 15 | 15 | 16 | 15 | 16 |
| May | 14 | 3 | 9 | 13 | 14 | 5 | 19 | 9 |
| June | 13 | 6 | 8 | 13 | 7 | 3 | 17 | 7 |
| July | 14 | 6 | 12 | 10 | 7 | 6 | 15 | 7 |
| August | 17 | 5 | 11 | 17 | 6 | 8 | 17 | 7 |
| September | 13 | 5 | 14 | 11 | 7 | 3 | 15 | NS |
| October | NS | NS | NS | NS | NS | NS | NS | NS |
| November | NS | NS | NS | NS | NS | NS | NS | NS |
| December | NS | NS | NS | NS | NS | NS | NS | NS |
| MEAN | 16 | 8* | 13* | 14 | 11* | 9 | 18 | 11* |
| BIAS MEAN | 16 | 8 | 13 | 15 | 11 | 10 | 18 | 11 |
| Estimated Annual Mean | | 8* | 12* | | 10* | | | 10* |

*Calculated using the short term estimation procedure in BOX6.5, Section 6-8 of LAQM TG03

Table 3 - Bias Adjusted NO₂ Diffusion Tube Monitoring Data 2005

| | Site 1 µg/m³ | Site 2 µg/m³ | Site 3 µg/m³ | Site 4 µg/m³ | Site 5 µg/m³ | Site 6 µg/m³ | Site 7 µg/m³ | Site 8 µg/m³ |
|------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Month | | | | | | | | |
| January | 19 | 21 | 15 | 13 | 7 | 19 | 15 | 11 |
| February | 23 | 24 | 21 | 13 | 14 | 21 | 10 | 29 |
| March | 19 | 19 | 10 | 10 | 12 | 11 | 11 | 12 |
| April | 16 | 16 | 13 | 15 | 9 | 8 | 12 | 11 |
| May | 27 | 28 | 26 | 20 | 19 | 29 | 22 | 32 |
| June | 32 | 29 | NS | 16 | 21 | 13 | 17 | 21 |
| July | 6 | 1 | 4 | 3 | 3 | 5 | 3 | 4 |
| August | | | | | | | | |
| September | | | | | | | | |
| October | 14 | 12 | 14 | 10 | 13 | 21 | 13 | 13 |
| November | 17 | 22 | 17 | 14 | 11 | 14 | 11 | 17 |
| December | 20 | 19 | 13 | 18 | 15 | 15 | 16 | 20 |

Table 4: Craigavon District Council – Bias Adjusted Nitrogen Dioxide (NO₂) Results (January 2004 - December 2004)

| Site No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|----------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ |
| Month | | | | | | | | |
| Jan-04 | 37 | 41 | 31 | 23 | 6 | 18 | 21 | 26 |
| Feb-04 | 11 | 13 | 14 | 10 | 9 | 30 | 11 | 19 |
| Mar-04 | 13 | 11 | 9 | 6 | 12 | 15 | 19 | 13 |
| Apr-04 | 11 | 16 | 6 | 5 | 6 | 4 | 6 | 11 |
| May-04 | 24 | 27 | 18 | 9 | 11 | 15 | 9 | 12 |
| Jun-04 | 17 | 22 | 26 | 24 | 26 | 26 | 25 | 33 |
| Jul-04 | 5 | 11 | 5 | 5 | 5 | 8 | 6 | 8 |
| Aug-04 | 18 | 5 | 14 | 6 | 6 | 16 | 9 | 12 |
| Sep-04 | 23 | 4 | 9 | 8 | 9 | 15 | 13 | 9 |
| Oct-04 | 25 | 22 | 15 | 11 | 14 | 14 | 26 | 14 |
| Nov-04 | 25 | 4 | 13 | 17 | 16 | 19 | 14 | 19 |
| Dec-04 | 26 | 25 | 19 | 13 | 10 | 18 | 16 | 23 |
| *Mean | 20 | 17 | 15 | 11 | 11 | 17 | 15 | 17 |

*Mean Monthly Data is corrected for Bias

| | | Site Ref |
|---|---------------------------|----------|
| 1 | Town Hall, Union Street | 82760 |
| 2 | West Street (Bakery) | 82979 |
| 3 | Ardboe Drive | 82762 |
| 4 | Ballyhannon Road | 82763 |
| 5 | Ashgrove Community Centre | 82764 |
| 6 | Castlelane Toilets | 82765 |
| 7 | Lord Lurgan Park | 82766 |
| 8 | Cluandara, Derrymacash | 82767 |

Bias Adjustment Factor 2004 – 1.08 (Cm/Dm)

Table 5: Craigavon District Council – Bias Adjusted Nitrogen Dioxide (NO₂) Results (January 2003 - December 2003)

| Site No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|----------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ | ug m ⁻³ |
| Month | | | | | | | | |
| Jan-04 | 37 | 51 | 34 | 14 | 28 | 39 | 27 | 46 |
| Feb-04 | 36 | 55 | 35 | 17 | 36 | 32 | 33 | 25 |
| Mar-04 | 14 | 13 | 42 | 13 | 15 | 27 | 14 | 14 |
| Apr-04 | 7 | 13 | 3 | 4 | 4 | 4 | 4 | 14 |
| May-04 | 16 | 29 | 6 | 9 | 12 | 16 | 7 | 16 |
| Jun-04 | 16 | 41 | 13 | 4 | 12 | 13 | 8 | 15 |
| Jul-04 | 12 | NS | 5 | NS | 7 | 7 | 3 | 12 |
| Aug-04 | 6 | 12 | 4 | 3 | 0 | 1 | 3 | 6 |
| Sep-04 | 15 | 23 | 11 | 8 | 9 | 24 | 15 | 13 |
| Oct-04 | 15 | 34 | 16 | 11 | 11 | 6 | 18 | 18 |
| Nov-04 | 29 | 17 | 23 | 14 | 22 | 28 | 9 | 20 |
| Dec-04 | 26 | 40 | 27 | 12 | 30 | 23 | 24 | 27 |
| *Mean | 19 | 30 | 18 | 10 | 15 | 18 | 14 | 19 |

*Mean Monthly Data is corrected for Bias

| | | Site Ref |
|---|---------------------------|----------|
| 1 | Town Hall, Union Street | 82760 |
| 2 | West Street (Bakery) | 82979 |
| 3 | Ardboe Drive | 82762 |
| 4 | Ballyhannon Road | 82763 |
| 5 | Ashgrove Community Centre | 82764 |
| 6 | Castlelane Toilets | 82765 |
| 7 | Lord Lurgan Park | 82766 |
| 8 | Cluandara, Derrymacash | 82767 |

Bias Adjustment Factor 2003 – 1.05 (Cm/Dm)

NS = No Sample

Table 6 : Craigavon Borough Council - SO₂ Results (January 2004 - December 2004)

| Site No. | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
|----------|--------------------|-----|--------------------|-----|--------------------|-----|--------------------|-----|--------------------|-----|--------------------|-----|--------------------|-----|--------------------|-----|
| | ug m ⁻³ | ppb | ug m ⁻³ | ppb | ug m ⁻³ | ppb | ug m ⁻³ | ppb | ug m ⁻³ | ppb | ug m ⁻³ | ppb | ug m ⁻³ | ppb | ug m ⁻³ | ppb |
| Month | | | | | | | | | | | | | | | | |
| Jan-03 | 13 | 5 | 12 | 4 | 6 | 2 | 8 | 3 | 13 | 5 | 7 | 3 | 10 | 4 | 7 | 3 |
| Feb-03 | 17 | 6 | 13 | 5 | 29 | 11 | 11 | 4 | 4 | 1 | 7 | 2 | 19 | 7 | 7 | 3 |
| Mar-03 | 4 | 2 | 8 | 3 | 14 | 5 | 8 | 3 | 25 | 9 | 26 | 10 | 9 | 3 | 7 | 3 |
| Apr-03 | 19 | 7 | 10 | 4 | NS | NS | 13 | 5 | 14 | 5 | 8 | 3 | 6 | 2 | 9 | 3 |
| May-03 | 7 | 2 | 11 | 4 | NS | NS | NS | NS | 9 | 3 | 7 | 3 | 8 | 3 | 8 | 3 |
| Jun-03 | 10 | 4 | 19 | 7 | 10 | 4 | 9 | 3 | 13 | 5 | 15 | 6 | 7 | 3 | 5 | 2 |
| Jul-03 | 8 | 3 | 6 | 2 | 12 | 4 | 8 | 3 | 9 | 4 | 6 | 2 | 11 | 4 | 11 | 4 |
| Aug-03 | 8 | 3 | 7 | 3 | 14 | 5 | 16 | 6 | 7 | 3 | 14 | 5 | 8 | 3 | 10 | 4 |
| Sep-03 | 9 | 3 | 6 | 2 | 12 | 5 | 14 | 5 | 14 | 5 | 14 | 5 | 9 | 3 | 11 | 4 |
| Oct-03 | 10 | 4 | 13 | 5 | 7 | 2 | NS | NS | 17 | 7 | 16 | 6 | 12 | 5 | 14 | 5 |
| Nov-03 | 12 | 4 | 19 | 7 | NS | NS | 11 | 4 | 8 | 3 | 7 | 3 | 22 | 8 | 4 | 1 |
| Dec-03 | 9 | 3 | 5 | 2 | 6 | 2 | 18 | 7 | 12 | 4 | 4 | 2 | 7 | 3 | 7 | 3 |
| Mean | 11 | 4 | 11 | 4 | 12 | 4 | 12 | 4 | 12 | 5 | 11 | 4 | 11 | 4 | 8 | 3 |

Site Ref

NS = No Sample

| | | |
|---|-----------------------------|-------|
| 1 | Lord Lurgan Park | 82880 |
| 2 | Ashgrove Community Centre | 82881 |
| 3 | Corcrair Community Centre | 82882 |
| 4 | Mourneview Community Centre | 82883 |
| 5 | Lake Street | 82884 |
| 6 | Ardboe Drive | 82885 |
| 7 | Castle Lane Toilets | 82886 |
| 8 | Kernan Hill | 82887 |

Table 7 : Craigavon Borough Council - SO₂ Results (January 2003 - December 2003)

| Site No. | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
|----------|--------------------|-----|--------------------|-----|--------------------|-----|--------------------|-----|--------------------|-----|--------------------|-----|--------------------|-----|--------------------|-----|
| | ug m ⁻³ | ppb | ug m ⁻³ | ppb | ug m ⁻³ | ppb | ug m ⁻³ | ppb | ug m ⁻³ | ppb | ug m ⁻³ | ppb | ug m ⁻³ | ppb | ug m ⁻³ | ppb |
| Month | | | | | | | | | | | | | | | | |
| Jan-03 | 12 | 4 | 6 | 2 | 10 | 4 | 13 | 5 | 13 | 5 | 7 | 3 | 8 | 3 | 7 | 3 |
| Feb-03 | 17 | 6 | 13 | 5 | 29 | 11 | 11 | 4 | 4 | 1 | 7 | 2 | 19 | 7 | 7 | 3 |
| Mar-03 | 4 | 2 | 8 | 3 | 14 | 5 | 8 | 3 | 25 | 9 | 26 | 10 | 9 | 3 | 7 | 3 |
| Apr-03 | 19 | 7 | 10 | 4 | - | - | 13 | 5 | 14 | 5 | 8 | 3 | 6 | 2 | 9 | 3 |
| May-03 | 7 | 2 | 11 | 4 | NS | NS | NS | NS | 9 | 3 | 7 | 3 | 8 | 3 | 8 | 3 |
| Jun-03 | 10 | 4 | 19 | 7 | 10 | 4 | 9 | 3 | 13 | 5 | 15 | 6 | 7 | 3 | 5 | 2 |
| Jul-03 | 8 | 3 | 6 | 2 | 12 | 4 | 8 | 3 | 9 | 4 | 6 | 2 | 11 | 4 | 11 | 4 |
| Aug-03 | 8 | 3 | 7 | 3 | 14 | 5 | 16 | 6 | 7 | 3 | 14 | 5 | 8 | 3 | 10 | 4 |
| Sep-03 | 9 | 3 | 6 | 2 | 12 | 5 | 14 | 5 | 14 | 5 | 14 | 5 | 9 | 3 | 11 | 4 |
| Oct-03 | 10 | 4 | 13 | 5 | 7 | 2 | NS | NS | 17 | 7 | 16 | 6 | 12 | 5 | 14 | 5 |
| Nov-03 | 12 | 4 | 19 | 7 | NS | NS | 11 | 4 | 8 | 3 | 7 | 4 | 22 | 8 | 4 | 1 |
| Dec-03 | 9 | 3 | 5 | 2 | 6 | 2 | 18 | 7 | 12 | 4 | 4 | 2 | 7 | 3 | 7 | 3 |
| Mean | 10 | 4 | 10 | 4 | 13 | 5 | 12 | 5 | 12 | 5 | 11 | 4 | 11 | 4 | 8 | 3 |

| | | Site Ref |
|---|-----------------------------|----------|
| 1 | Lord Lurgan Park | 82880 |
| 2 | Ashgrove Community Centre | 82881 |
| 3 | Corcrair Community Centre | 82882 |
| 4 | Mourneview Community Centre | 82883 |
| 5 | Lake Street | 82884 |
| 6 | Ardboe Drive | 82885 |
| 7 | Castle Lane Toilets | 82886 |
| 8 | Kernan Hill | 82887 |

NS = No Sample

