



Dumfries and Galloway Council

Local Air Quality Management – Updating and Screening Assessment

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CONTENTS

	Page
EXECUTIVE SUMMARY	1
1 INTRODUCTION	2
1.1 Project Background	2
1.2 Legislative Background	2
1.3 Aims of the Updating and Screening Assessment	4
1.4 Reporting of the Updating and Screening Assessment	4
1.5 Summary of the First and Second Rounds of Review and Assessment	5
2 ASSESSMENT METHODOLOGY	6
3 UPDATING AND SCREENING OF CARBON MONOXIDE	7
3.1 New monitoring data	7
3.2 Very busy roads or junctions in built-up areas	7
3.3 Conclusion	7
4 UPDATING AND SCREENING OF BENZENE	8
4.1 Monitoring data outside an AQMA	8
4.2 Monitoring data within an AQMA	8
4.3 Very busy roads or junctions in built-up areas	8
4.4 New industrial sources	8
4.5 Industrial sources with substantially increased emissions, or new relevant exposure	8
4.6 Petrol stations	8
4.7 Major fuel storage depots (petrol only)	8
4.8 Conclusion	8
5 UPDATING AND SCREENING OF 1,3-BUTADIENE	10
5.1 Monitoring data	10
5.2 New industrial sources	10
5.3 Existing industrial sources with significantly increased emissions, or new relevant exposure	10
5.4 Conclusion	10
6 UPDATING AND SCREENING OF LEAD	11

6.1	Monitoring data	11
6.2	New industrial sources	11
6.3	Industrial sources with substantially increased emissions, or new relevant exposure	11
6.4	Conclusion	11
7	UPDATING AND SCREENING OF NITROGEN DIOXIDE	12
7.1	Monitoring data outside an AQMA	12
7.2	Monitoring data within an AQMA	14
7.3	Narrow congested streets with residential properties close to the kerb	14
7.4	Junctions	14
7.5	Busy streets where people may spend 1-hour or more close to traffic	14
7.6	Roads with high flow of buses and/or HGVs	14
7.7	New roads constructed or proposed since the previous round of Review and Assessment	14
7.8	Roads with significantly changed traffic flows	14
7.9	Bus Stations	15
7.10	New industrial sources	15
7.11	Industrial sources with substantially increased emissions, or new relevant exposure	15
7.12	Aircraft	15
7.13	Conclusion	15
8	UPDATING AND SCREENING OF SULPHUR DIOXIDE	17
8.1	Monitoring data outside an AQMA	17
8.2	Monitoring data within an AQMA	17
8.3	New industrial sources	17
8.4	Industrial sources with substantially increased emissions, or new relevant exposure	17
8.5	Areas of domestic coal burning	17
8.6	Small boilers (>5MW(thermal)) burning coal or oil	17
8.7	Shipping	17
8.8	Railway Locomotives	18

8.9	Conclusion	18
9	UPDATING AND SCREENING OF PARTICLES (PM₁₀)	19
9.1	Monitoring data outside an AQMA	19
9.2	Monitoring data within an AQMA	19
9.3	Busy roads and junctions in Scotland	19
9.4	Junctions	19
9.5	Roads with high flow of buses and/or HGVs	20
9.6	New roads constructed or proposed since the previous round of Review and Assessment	20
9.7	Roads with significantly changed traffic flows, or new relevant exposure	20
9.8	Roads close to the objective during the second round of Review and Assessment	20
9.9	New industrial sources	20
9.10	Industrial sources with substantially increased emissions, or new relevant exposure	21
9.11	Areas with domestic solid fuel burning	21
9.12	Quarries, landfill sites, opencast coal, handling of dusty cargoes at ports	21
9.13	Aircraft	21
9.14	Conclusion	21
	APPENDIX I TRAFFIC DATA	23
	APPENDIX I TRAFFIC DATA CONTINUED	24
	APPENDIX II DMRB ASSESSMENTS FOR ROADS	25
	APPENDIX III LIST OF INDUSTRIAL PROCESSES	26
	GLOSSARY	34
	REFERENCES	35

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EXECUTIVE SUMMARY

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess the air quality within their area and take account of Government Guidance when undertaking such work.

The conclusions of the first round of review and assessment of air quality in Dumfries and Galloway were that the air quality objectives were likely to be met. As a consequence no air quality management areas were declared in Dumfries and Galloway.

In 2003, as part of a second round of review and assessment the Updating and Screening Assessment (USA) concluded that a detailed assessment of the influence of shipping at the ferry terminals at Stranraer and Cairnryan would be required. In 2004, a detailed assessment of the influence of shipping on sulphur dioxide (SO₂) levels at Cairnryan was carried out. The detailed assessment concluded that an air quality management area was not required. A further assessment will take place when Stena Line Ltd., relocates from Stranraer to Cairnryan (anticipated in 2008).

The Updating and Screening Assessment (USA) provides an update with respect to air quality issues within the Dumfries and Galloway area. There have been a number of changes since the last (second) round of review and assessments which have been taken into account in this assessment; including revised modelled background concentration maps, updated future year calculation tools and updates on specific sources (rail, shipping, poultry farms). The USA has included consideration of new emissions sources, in addition to any significant changes to existing emission sources identified in the previous rounds.

The USA considers the seven priority health-based air quality objectives as laid down in Regulations and assesses the likelihood that the air quality objectives will be met by their target dates. If the air quality objectives are unlikely to be met, a detailed assessment will be required. Having considered each pollutant and presented evidence to support the assessment of each, it is concluded that the air quality objectives for benzene, 1,3-butadiene, carbon monoxide, lead, PM₁₀, NO₂ and sulphur dioxide will be met. There will be no requirement to undertake a detailed assessment for these pollutants.

It is recommended that the Council continue with its monitoring programme for nitrogen dioxide to confirm the findings of this report.

Summary Table

Pollutant	Detailed assessment required?	Sources/Location
Benzene	No	
1, 3 - butadiene	No	
Carbon monoxide	No	
Lead	No	
Nitrogen dioxide	No	
PM ₁₀	No	
Sulphur dioxide	No	

1 INTRODUCTION

1.1 Project Background

Bureau Veritas was appointed by Dumfries and Galloway Council to carry out the third round Updating and Screening Assessment (USA) of air pollution sources that may affect local air quality within the area based on information provided by the local authority. The USA is required to be undertaken as part of the local authority's statutory duties under the Local Air Quality Management (LAQM) regime as defined within Part IV of the Environment Act 1995.

1.2 Legislative Background

Part IV of the Environment Act 1995 places a statutory duty on local authorities to periodically review and assess the air quality within their area. This involves consideration of present and likely future air quality against air quality standards and objectives. Guidelines for the 'Review and Assessment' of local air quality were published in the 1997 National Air Quality Strategy (NAQS) ¹ along with associated policy guidance and technical guidance. In 2000, Government reviewed the NAQS and published a revised Air Quality Strategy for England, Scotland, Wales and Northern Ireland (AQS)². This laid out a revised framework for air quality standards and objectives for seven pollutants, which were subsequently set in Regulations in 2000 for Scotland through the Air Quality (Scotland) Regulations 2000³. These were subsequently amended in 2002⁴.

In February 2003 the Government published its Addendum to the AQS. The Addendum included details of new objectives for benzene, carbon monoxide and PM₁₀ that had already been given effect in Scotland by the 2002 amendment regulations⁴. The PM₁₀ objectives to be achieved by 2010 in Scotland mark a significant tightening of the existing 2004 objectives in that a new annual mean objective of 18 micrograms per cubic metre has been set, whilst the fixed 24-hour mean remains at the same level (50 micrograms per cubic metre) but with only 7 allowable exceedence days (rather than 35).

Revised Technical Guidance (LAQM.TG(03))⁵ and Policy Guidance (LAQM.PG(03))⁶ were issued on behalf of DEFRA in January 2003. This guidance sets the framework for the requirements of review and assessment for future years, taking account of experiences from the previous rounds of review and assessment. Additional guidance has been provided in the form of frequently asked questions (FAQs) and updated LAQM tools in January 2006 to assist with the third round of review and assessment to be completed by April 2006. This includes revised modelled background concentration maps for NO_x, NO₂ and PM₁₀, updated future year calculation tools and updates on specific sources (rail, shipping, poultry farms).

The Objectives included in the Air Quality (Scotland) Regulations, 2000, and Air Quality (Scotland) (Amendment) Regulations, 2002, provide the over-arching assessment criteria to which local air quality management and the process of review and assessment relate in

¹ DoE (1997) The United Kingdom National Air Quality Strategy The Stationery Office

² DETR (2000) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland – Working together for Clean Air, The Stationery Office

³ DETR (2000) The Air Quality (Scotland) Regulations 2000, The Stationery Office SI No. 97

⁴ Defra (2002) The Air Quality (Scotland) Amendment Regulations 2002, The Stationery Office No. 297

⁵ Defra (2003) Technical Guidance LAQM.TG(03), Part IV of the Environment Act 1995, Local Air Quality Management, The Stationery Office

⁶ Defra (2003) Policy Guidance LAQM.PG(03), Part IV of the Environment Act 1995, Local Air Quality Management, The Stationery Office

Scotland. These are summarised below in Table 1.1 for the seven pollutants of concern to health which are assessed in this report.

Table 1.1 Air Quality Standards and Objectives

Pollutant	Air Quality Objective	Measured as	Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m ³	Running annual mean	31.12.2003
	3.25 µg/m ³	Running annual mean	31.12.2010
1,3 butadiene	2.25 µg/m ³	Running annual mean	31.12.2003
Carbon Monoxide	10.0 mg/m ³	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^a	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m ³	annual mean	31.12.2005
Particles (PM₁₀) (gravimetric)^b	50 µg/m ³ not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m ³	annual mean	31.12.2004
	50 µg/m ³ not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	18 µg/m ³	annual mean	31.12.2010
Sulphur dioxide	350 µg/m ³ not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m ³ not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m ³ not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

a. The objectives for nitrogen dioxide are provisional. These objectives are equivalent to the EU Limit value to be met by 2010

b. Measured using the European gravimetric transfer sampler or equivalent.

Within the First Round of Review and Assessment it was recommended that local authorities fulfil their statutory duty under the Local Air Quality Management regime by undertaking a three-stage assessment, increasing in detail at each stage. The first stage of this process (Stage 1) includes undertaking a desktop review in order to identify all sources of pollution within the area. Using Technical Guidance issued by Government significance is placed on sources of pollution both within the authority's area and those immediately outside the authority's area, that are likely to impact on air quality. Having identified those sources and areas that require further attention, simple screening assessments (Stage 2) or detailed monitoring and modelling programmes (Stage 3) are undertaken. The more recent (2003-2005) Second Round of Review and Assessment provided a basis for local authorities to

again update their previous air quality assessments. In doing so, local authorities were to take into consideration changes in national air quality standards and objectives and revised Technical Guidance (LAQM.TG(03)), new emission sources, and any significant proposed planning developments due to take place before the relevant Air Quality Objective date. Where the results of the Review and Assessment process highlight that problems are likely to exist with respect to achievement of the relevant Air Quality Standards and Objectives, the authority is required to declare an Air Quality Management Area (AQMA) under Section 83(1) of the Environment Act 1995.

Having declared an AQMA the authority is required to confirm the findings of the Detailed Assessment work through further monitoring or modelling assessments (Further Assessment). The Further Assessment should provide information on the source-apportionment of the pollutant emissions in order to identify the level of pollutant reduction required for the attainment of relevant air quality objectives. Additionally, consideration should be made to evaluating local management practices that could be used to improve air quality, and feed into the formulation of an Action Plan.

At the time of writing the Review and Assessment process has culminated in the declaration of over 175 separate AQMA areas across the UK. Results of the process have shown that road traffic emissions are the main cause of exceedences of two pollutants listed in the AQS - fine particulates (PM₁₀) and nitrogen dioxide (NO₂). Whilst other pollutants such as carbon monoxide (CO) and benzene are associated with road traffic emissions, the latest national perspective on the occurrence of each of these pollutants suggests that these are no longer a problem at roadside locations across the UK.

1.3 Aims of the Updating and Screening Assessment

The purpose of the Updating and Screening Assessment is:

- To identify new or substantially changed emission sources since the last round of review and assessment which may lead to an air quality objective being exceeded. A series of checklist for pollutants, and different screening tools for industrial and road traffic sources are used in order to determine those new sources that may have significant contributions to potential exceedences of the air quality objectives.
- To assess new monitoring data in terms of relevant exposure and compare with air quality objectives
- Where a risk of exceeding an air quality objective at relevant exposure locations has been identified through the USA, a detailed assessment is required (due to be reported by April 2007). The detailed assessment should identify with reasonable certainty whether or not an exceedence is likely to occur.

1.4 Reporting of the Updating and Screening Assessment

The USA has been reported as one section for each pollutant to be assessed, as per the LAQM.TG(03) Technical Guidance, with reference to updated checklists provided for the third round.

A summary of the responses to the USA checklist criteria for each pollutant has been included within each section.

1.5 Summary of the First and Second Rounds of Review and Assessment

The conclusions of the first round of review and assessment of air quality in Dumfries and Galloway were that the air quality objectives were likely to be met. As a consequence no air quality management areas were declared in Dumfries and Galloway.

In 2003, as part of a second round of review and assessment the Updating and Screening Assessment (USA) concluded that a detailed assessment of the influence of shipping at the ferry terminals at Stranraer and Cairnryan would be required. In 2004, a detailed assessment of the influence of shipping on SO₂ levels at Cairnryan was carried out. The detailed assessment concluded that an air quality management area was not required. A further assessment will take place when Stena Line Ltd., relocates from Stranraer to Cairnryan (anticipated in 2008). The Scottish Executive accepted the Detailed Assessment conclusions.

The Annual Progress Report (APR) for 2005 considered monitoring data for 2004, and the conclusions of the APR were that there were no exceedences which warranted a detailed assessment.

2 ASSESSMENT METHODOLOGY

Background concentrations as used in this assessment have been obtained from the national maps of modelled background concentrations available from the UK Air Quality Archive website www.airquality.co.uk. The maps have been updated for pollutants NO_x, NO₂ and PM₁₀ from the previous round of review and assessment and are projected from a 2004 baseline.

Continuous monitoring results for the two Automatic Urban and Rural Network (AURN) sites in Dumfries and Galloway have been obtained directly from the UK air quality archive. Dumfries and Galloway Council operates additional monitoring outside the network, through nitrogen dioxide and (short-term) benzene passive diffusion tubes, and these are also considered within this report.

Traffic data for roads within the area have been provided by Dumfries and Galloway Council, in the form of AADT data and future year growth factors obtained from TEMPRO/National Road Traffic Forecast. Scottish Executive road traffic data for trunk roads have been used to supplement the local data as appropriate. In the absence of speed data, speeds have been based on speed limits, modified according to local conditions to take account of congestion and stop/start vehicle movements at junctions. Speeds were reduced at junctions to 20kph in accordance with LAQM.TG (03) to reflect the higher emissions of queuing traffic.

Design Manual for Roads and Bridges (DMRB) screening method V1.02 has been used to predict the traffic flow at relevant receptor locations along significant roads and junctions in the area in order to assess the concentrations of NO₂, PM₁₀, CO and benzene in the relevant objective years.

The Scottish Environment Protection Agency (SEPA) has provided a current list of industrial processes regulated by SEPA under the Pollution Prevention and Control Act 1999 as referred to in Appendix III. Additional information has been obtained for new and substantially changed processes potentially significant to LAQM as set out in LAQM.TG(03) Annex 2. Industrial processes have been screened where relevant using LAQM nomogram tools. Where air quality assessments in respect of industrial processes have been undertaken since the previous USA as part of the planning or authorisation process these have been checked and found to be sufficient for review and assessment purposes.

Other potential sources of pollutant emissions in the area, such as rail, shipping, airports, domestic sources, bus stations, small boilers and fugitive sources of PM₁₀ (quarries, landfills, construction sites, etc) have been derived through discussions with the local authority and screened using the criteria as set out in the USA checklists in LAQM.TG(03).

3 UPDATING AND SCREENING OF CARBON MONOXIDE

3.1 New monitoring data

There is currently monitoring of carbon monoxide carried out within the Dumfries and Galloway area at the Buccleuch Street roadside site near the Dumfries Town Centre. Carbon monoxide monitoring results for 2005, as shown in Table 3.1, confirm the objective will be met.

Table 3.1 Continuous carbon monoxide monitoring results 2005

Location	% Data capture	Maximum 8-hour running mean 2005 in mg/m ³
Buccleuch Street roadside site	97	2.7
Objective (running 8-hour mean)		10

3.2 Very busy roads or junctions in built-up areas

Monitoring data from across the UK indicate that the carbon monoxide objective is only likely to be exceeded near to 'very busy' roads and junctions⁷, where the current year background concentration is greater than 1mg/m³. The highest modelled background concentration in 2005 in the Dumfries and Galloway area is 0.1mg/m³. Additionally, there are no new (or substantially changed) roads which meet the criteria for 'very busy' roads and junctions that warrant further assessment. The Objective is therefore expected to be achieved at all locations within the area.

3.3 Conclusion

No further action is required for carbon monoxide.

Checklist Summary for Carbon Monoxide:

Item	Response
New monitoring data	Carbon monoxide is currently monitored at one roadside site and the objective is being met
Very busy roads or junctions in built up areas	No new (or substantially changed) roads have been identified which meet these criteria. Background concentrations are below the threshold level.
Conclusion	No further action required

⁷ 'Very busy' is defined as single carriageways with greater than 80,000 vehicles per day, dual carriageways with greater than 120,000 vehicles per day and motorways with greater than 140,000 vehicles per day

4 UPDATING AND SCREENING OF BENZENE

4.1 Monitoring data outside an AQMA

Short-term monitoring of benzene was undertaken within the Dumfries and Galloway area in Cairnryan and Stranraer at five sites in 2005, in relation to volatile organic carbon (VOC) emissions from shipping. These results indicate that benzene concentrations are well below the 2010 annual mean benzene objective, including busy roadside sites, with maximum concentrations of less than $1\mu\text{g}/\text{m}^3$ in 2005.

4.2 Monitoring data within an AQMA

There are no AQMA areas that have been declared for benzene in the Dumfries and Galloway area and therefore this section is not relevant.

4.3 Very busy roads or junctions in built-up areas

Monitoring data from across the UK indicate that the benzene objective for 2010 is only likely to be exceeded near to 'very busy' roads and junctions⁸, where the 2010 background concentration is greater than $2\mu\text{g}/\text{m}^3$. The highest estimated background concentration in the Dumfries and Galloway area is $0.2\mu\text{g}/\text{m}^3$. This confirms that the objective will be met at all locations within the area.

4.4 New industrial sources

There have been no new processes identified in the Dumfries and Galloway area or in neighbouring authorities which emit significant quantities of benzene. A list of industrial processes in the Dumfries and Galloway area is shown in Appendix III.

4.5 Industrial sources with substantially increased emissions, or new relevant exposure

There are no existing industrial processes that emit significant quantities of benzene. There are therefore unlikely to be exceedences of the benzene objective as a result of industrial processes. A list of industrial processes in the Dumfries and Galloway area is shown in Appendix III.

4.6 Petrol stations

Petrol stations are only likely to lead to an exceedence of the 2010 objective for benzene if they have a large throughput of petrol (greater than 2 million litres per annum), are near to a busy road (>30,000 AADT) and have relevant exposure within 10 m of the petrol pumps. There are no petrol stations within the Dumfries and Galloway area that fulfil these criteria, and therefore it is unlikely that petrol stations will lead to an exceedence of the benzene objective.

4.7 Major fuel storage depots (petrol only)

There are no major fuel storage depots in the Dumfries and Galloway area.

4.8 Conclusion

No further action is required for benzene.

⁸ 'Very busy' is defined as single carriageways with greater than 80,000 vehicles per day, dual carriageways with greater than 120,000 vehicles per day and motorways with greater than 140,000 vehicles per day

Checklist Summary for Benzene:

Item	Response
Monitoring data outside an AQMA	Dumfries and Galloway Council has recently monitored benzene in relation to volatile organic carbon (VOC) emissions from shipping, and results show levels well below the objective
Monitoring data within an AQMA	No AQMA, therefore not relevant
Very busy roads or junctions in built up areas	No roads or junctions have been identified which meet these criteria
New industrial sources.	No industrial processes have been identified which meet these criteria
Industrial sources with substantially increased emissions, or new relevant exposure	No industrial processes have been identified which meet these criteria
Petrol stations	No petrol stations have been identified which meet these criteria
Major fuel storage depots (petrol only)	No major fuel storage depots in the area
Conclusion	No further action required

5 UPDATING AND SCREENING OF 1,3-BUTADIENE

5.1 Monitoring data

There is currently no monitoring of 1,3-butadiene carried out within the Dumfries and Galloway area. Monitoring is carried out as part of the national Automatic Urban and Rural Monitoring Network (AURN) and the results show that the running annual mean objective is expected to be achieved where there are no significant sources. Previous monitoring in the vicinity of rubber processes in Dumfries and Galloway showed that the objectives were being met. As there are no other significant sources of 1,3-butadiene in the Dumfries and Galloway area, it is expected that the objective will be met.

5.2 New industrial sources

There are no new processes which handle 1,3-butadiene located in or near to the Dumfries and Galloway area. A list of industrial processes in the Dumfries and Galloway area is shown in Appendix III.

5.3 Existing industrial sources with significantly increased emissions, or new relevant exposure

There are no existing industrial processes located in or near to the Dumfries and Galloway area which emit significant quantities of 1,3-butadiene. A list of industrial processes in the Dumfries and Galloway area is shown in Appendix III.

5.4 Conclusion

No further action is required for 1,3-butadiene.

Checklist Summary for 1,3-butadiene:

Item	Response
Monitoring data	The local authority is not currently monitoring 1,3-butadiene. However, previous monitoring of rubber processes confirmed that the objectives were being met in regard to these processes.
New industrial sources	No industrial processes have been identified which meet these criteria
Existing industrial sources with significantly increased emissions, or new relevant exposure	No industrial processes have been identified which meet these criteria
Conclusion	No further action required

6 UPDATING AND SCREENING OF LEAD

6.1 Monitoring data

There is currently no monitoring of lead carried out in the Dumfries and Galloway area. Monitoring is carried out as part of the national metals monitoring network and the results show that the running annual mean objective is expected to be achieved where there are no significant sources. As there are no significant sources of lead in Dumfries and Galloway, it is expected that the objective will be met within the Dumfries and Galloway area.

6.2 New industrial sources

There are no new processes, which emit lead, located in or near to the Dumfries and Galloway area. A list of industrial processes in the Dumfries and Galloway area is shown in Appendix III.

6.3 Industrial sources with substantially increased emissions, or new relevant exposure

There are no such processes, which emit lead, located in or near to the Dumfries and Galloway area. A list of industrial processes in the Dumfries and Galloway area is shown in Appendix III.

6.4 Conclusion

No further action is required for lead.

Checklist Summary for Lead:

Item	Response
Monitoring data	The local authority is currently not monitoring lead
New industrial sources	No industrial processes have been identified which meet these criteria
Industrial sources with substantially increased emissions, or new relevant exposure	No industrial processes have been identified which meet these criteria
Conclusion	No further action required

7 UPDATING AND SCREENING OF NITROGEN DIOXIDE

7.1 Monitoring data outside an AQMA

There is currently continuous monitoring of nitrogen dioxide outside an AQMA at two locations in the area: Dumfries and Eskdalemuir. The sites form part of the UK Automatic Urban and Rural Network for air quality monitoring across the UK and monitor for NO_x/NO₂ on a real-time basis, reporting hourly concentrations via the Central Management and Co-ordination Unit and the QA/QC unit at AEA Technology NETCEN. Data for 2005 have been ratified by NETCEN. The results, as shown in Table 7.1, show that the objectives are being met.

Table 7.1 Continuous nitrogen dioxide monitoring results 2005

Location	% Data capture	2005 NO ₂ Annual Mean (µg/m ³)	No. of exceedences of hourly mean (> 200 µg/m ³)
Buccleuch Street , Dumfries roadside	97	35.9	1
Eskdalemuir rural background	93	3.8	0
Objective		40	not more than 18

Nitrogen dioxide is measured using diffusion tubes at 11 locations in the Dumfries and Galloway area. The tubes are prepared and analysed by Casella CRE Air (formerly known as GMSS) using UKAS accredited method AQ/02 (10% TEA⁹ in water). Casella CRE participates in the UK National Diffusion Tube Network and the Workplace Analysis Scheme for Efficiency (WASP). They currently hold UKAS accreditation for analysis of diffusion tubes.

With regard to the application of a bias adjustment factor for the diffusion tubes, the technical guidance LAQM.TG (03) and Review and Assessment Helpdesk¹⁰ recommends use of a local bias adjustment factor where available and relevant to diffusion tube sites. Dumfries and Galloway Council has triplicate co-located diffusion tubes at the Buccleuch Street roadside continuous monitoring station in Dumfries which have been used to derive a local bias adjustment factor for 2005 of 0.97. Annualisation of data has been undertaken for short-term sites in accordance with LAQM.TG(03).

The bias-adjusted diffusion tube results, as shown in Table 7.2, show that there are no predicted exceedences at any of the monitoring sites. The highest concentrations are predicted at sites 10 and 13. Sites 10 and 11 (control site) were short-term sites installed in response to a complaint; the residential properties are 5m from the edge of the road (A75 E) and more than 10m from the edge of the road (A75 W) and therefore taking into account the projection to façade (www.uwe.ac.uk/aqm/review FAQ) from these sites, the objectives are clearly met and no further action is warranted. With respect to site 13 (Buccleuch Street Bridge), the nearest receptor is within 5m from the kerb and monitoring is continuing at this location to confirm compliance.

⁹ TEA = Triethanolamine

¹⁰ www.uwe.ac.uk/aqm/review



Table 7.2 Nitrogen dioxide diffusion tube annual mean results 2005 in $\mu\text{g}/\text{m}^3$

No.	Site	Location	Reference	Type	No. months	Bias-Corrected Annual Mean 2005	2005 Annual Mean projected to 2010
1	M74 Slip Road	Lockerbie	NY133814	Intermediate	12	31.6	26.6
2	Buccleuch Street (E)	Dumfries	NX970762	Roadside	12	36.3	30.5
3	Buccleuch Street (W)	Dumfries	NX969762	Kerbside	11	35.1	29.5
4	Loreburn Street	Dumfries	NX974762	Kerbside	11	27.3	23.0
5	St Michael Street	Dumfries	NX975756	Roadside	12	25.9	21.8
6	Argyll Drive	Dumfries	NX994788	Background	12	11.7	10.2
7	Charlotte Street	Stranraer	NX061608	Kerbside	11	19.6	16.5
8	Port Rodie Car Park	Stranraer	NX063610	Other	12	18.9	15.9
9	A77 Cairn Ryan	Stranraer	NX073674	Roadside	12	18.1	15.2
10	A75 (E)	Springholm	NX807703	Roadside	5	39.6	33.3
11	A75 (W)	Springholm	NX806698	Roadside	5	27.8	23.4
12	Buccleuch St South	Dumfries	NX970762	Kerbside	2	28.8	24.2
13	Buccleuch St Bridge	Dumfries	NX968762	Kerbside	2	39.6	33.3

Notes Exceedences are highlighted in bold.

7.2 Monitoring data within an AQMA

There are no AQMA areas in the Dumfries and Galloway area and therefore this section is not relevant.

7.3 Narrow congested streets with residential properties close to the kerb

There are no new areas identified which meet these criteria and there is no new relevant exposure at the locations previously assessed in the USA 2003. As these types of location were specifically included during previous rounds, there is no need to proceed further with this section.

7.4 Junctions

Seven junctions in Dumfries have been identified as potentially significant due to congestion issues and relevant exposure. These have been assessed using the DMRB screening tool and the results are shown in Table 7.3. The DMRB results predict that that the annual mean objective is likely to be met at these locations.

Table 7.3 DMRB results for nitrogen dioxide at significant junctions in Dumfries

Receptor Location/Junction	Predicted (2005) Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)	Predicted (2010) Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)
Edinburgh Road/A75	13.4 (24.3)	10.5 (18.2)
Brooms Road/Annan Road	24.0 (37.3)	18.8 (28.8)
Brooms Road/Leafield Road	22.2 (33.7)	17.3 (25.9)
St Michael Street/St Michael Street Bridge Road	23.1 (35.4)	17.9 (27.1)
Nith Bank/Craigs Road	19.8 (28.8)	15.5 (22.2)
Buccleuch Street/Glasgow Street	24.5 (38.2)	19.0 (29.2)
Buccleuch Street/Whitesands	24.8 (38.7)	19.4 (30.1)
Objective/EU Limit Value	40	40

Street canyon DMRB model runs shown in brackets

7.5 Busy streets where people may spend 1-hour or more close to traffic

There are no busy streets where members of the public are likely to spend an hour or more close to traffic in the Dumfries and Galloway area that have not been assessed previously.

7.6 Roads with high flow of buses and/or HGVs

There is one major road in the Dumfries and Galloway area identified that has a flow of buses and/or HGVs greater than 25%: the M74 motorway, but there is no relevant exposure to warrant further assessment.

7.7 New roads constructed or proposed since the previous round of Review and Assessment

There are no significant new roads that have been constructed or proposed since the previous round and therefore this section is not relevant.

7.8 Roads with significantly changed traffic flows

There are no roads in the Dumfries and Galloway area identified that have had a substantial change in traffic flow of greater than 25% and no new relevant exposure at previously assessed roads which warrant further assessment.

The DMRB assessment results for all roads assessed in the area are shown in Appendix II. There are no exceedences of the objectives predicted.

7.9 Bus Stations

There are bus stops in the centre of Dumfries for the purposes of dropping off and picking up of passengers, which have been assessed in the previous round USA 2003. There are no significant changes to bus movements or new receptor locations.

7.10 New industrial sources

There have been no new processes, which emit significant quantities of nitrogen dioxide in or near to the Dumfries and Galloway area, identified since the previous round of review and assessment and therefore there is no need for any further assessment. A list of industrial processes in the Dumfries and Galloway area is shown in Appendix III.

7.11 Industrial sources with substantially increased emissions, or new relevant exposure

There are such no industrial processes in or near to the Dumfries and Galloway area which have been identified as significant contributors to nitrogen dioxide since the previous round of review and assessment. No existing sources have substantially increased emissions or have new relevant exposure. A list of industrial processes in the Dumfries and Galloway area is shown in Appendix III.

7.12 Aircraft

There are no major airports in or near to the Dumfries and Galloway area.

7.13 Conclusion

A detailed assessment is not required for nitrogen dioxide.

Checklist Summary for Nitrogen Dioxide:

Item	Response
Monitoring data outside an AQMA	Monitoring data indicate that the annual mean objective is met.
Monitoring data within an AQMA	There are no AQMA areas, therefore this section is not relevant
Narrow congested streets with residential properties close to the kerb	This was examined in the previous round USA 2003. No changes or further assessment required.
Junctions	Seven potentially significant junctions assessed using DMRB. Results show annual mean objective expected to be met.
Busy streets where people may spend 1 hour or more close to traffic	This was examined in the previous round USA 2003. No changes or further assessment required.
Roads with high flow of buses and/or HGVs	This was examined in the previous round USA 2003. No changes or further assessment required.
New roads constructed or proposed since the previous round of R&A	No significant new roads, therefore this section not relevant.
Roads with significantly changed traffic flows, or new relevant exposure	No roads identified with significantly changed traffic flows, or new relevant exposure.
Bus Stations	This was examined in the previous round USA 2003. No changes or further assessment required.
New industrial sources	No industrial processes have been identified which meet these criteria
Industrial sources with substantially increased emissions, or new relevant exposure	No industrial processes have been identified which meet these criteria
Aircraft	No airports have been identified which meet these criteria
Conclusion	No further action required

8 UPDATING AND SCREENING OF SULPHUR DIOXIDE

8.1 Monitoring data outside an AQMA

There is currently no continuous monitoring of sulphur dioxide undertaken within the Dumfries and Galloway area. Monitoring undertaken at Cairnryan as part of the Detailed Assessment for sulphur dioxide from shipping indicated that all objectives would be met. Further monitoring is proposed in 2008 once the Stena Line Ltd operations move from Stanraer to Cairnryan.

8.2 Monitoring data within an AQMA

No AQMA areas have been declared for sulphur dioxide in the Dumfries and Galloway area and therefore this section is not relevant.

8.3 New industrial sources

There have been no new processes, which emit significant quantities of sulphur dioxide, introduced in or near to the Dumfries and Galloway area since the previous round of review and assessment. A list of industrial processes in the Dumfries and Galloway area is shown in Appendix III.

8.4 Industrial sources with substantially increased emissions, or new relevant exposure

There have been no substantial changes to industrial processes or new relevant exposure since the previous rounds. A list of industrial processes in the Dumfries and Galloway area is shown in Appendix III.

8.5 Areas of domestic coal burning

There are no areas in Dumfries and Galloway where there is a high density of domestic coal burning. Sanquhar was a coal-mining area in the past and has been assessed in the previous round of review and assessment and found not to be significant with respect to exceedences of the objectives.

8.6 Small boilers (>5MW(thermal)) burning coal or oil

The existence of any schools, hospitals or other large institutional or commercial buildings, which may have boilers using coal or heavy fuel oil has been determined using local knowledge. There are no new boilers that have been identified within or near to the Dumfries and Galloway area that have not been previously assessed. There are three newly PPC-permitted processes for treating and processing milk which have large-scale boilers. However, these largely use natural gas (with heavy fuel as back up) and have been subject to air quality assessments which demonstrate compliance with the objectives.

8.7 Shipping

Shipping has been assessed at Cairnryan as part of the Detailed Assessment 2004. The report concluded that objectives were met and that no AQMA was warranted for sulphur dioxide. Shipping will be reassessed following the relocation of Stena Line Ltd to Cairnryan. The relocation would result in an increase in daily departures from 9 to 16, with a maximum number of ships berthed of 3 (up from 2). An air quality assessment has been undertaken for the proposal and the modelled results predict that the air quality objectives will be met.

8.8 Railway Locomotives

Railway locomotives were not identified as a significant source of sulphur dioxide in the Dumfries and Galloway area in the previous rounds of review and assessment. There are no significant changes to the rail network since the last round to warrant any further assessment.

8.9 Conclusion

A Detailed Assessment is not required for sulphur dioxide.

Checklist Summary for Sulphur Dioxide:

Item	Response
Monitoring data outside an AQMA	The local authority is not currently monitoring SO ₂
Monitoring data within an AQMA	No AQMA, therefore not relevant
New industrial sources	No new industrial processes have been identified which meet these criteria
Industrial sources with substantially increased emissions, or new relevant exposure	No industrial processes have been identified which meet these criteria
Areas of domestic coal burning	No significant areas identified
Small boilers (>5MW(thermal)) burning coal or oil	No new boilers identified which meet these criteria
Shipping	Detailed assessment of shipping already undertaken
Railway Locomotives	No rail movements identified which meet these criteria
Conclusion	No further action required

9 UPDATING AND SCREENING OF PARTICLES (PM₁₀)

9.1 Monitoring data outside an AQMA

There is currently monitoring of PM₁₀ (using a Partisol gravimetric sequential air sampler) in Dumfries and Galloway outside an AQMA at one location in the area: Dumfries roadside site. The site forms part of the UK Automatic Urban and Rural Network for air quality monitoring across the UK and monitors PM₁₀ on a 24-hour basis, reporting concentrations via the Central Management and Co-ordination Unit and the QA/QC unit at AEA Technology NETCEN. Data for 2005 have been ratified by NETCEN. The results, as shown in Table 7.1, show that the 2004 objectives are met in 2005. With respect to the 2010 annual mean objective, this is predicted to be exceeded, although it should be noted that there is no relevant exposure at this location.

Table 9.1 PM₁₀ Monitoring Results in 2005 (µg/m³)

Location	% Data capture	2005 PM ₁₀ Annual Mean	Number of exceedences of 24-hour mean (> 50 µg/m ³)	Projected 2010 PM ₁₀ Annual Mean	Projected number of exceedences of the 24-hour mean in 2010 (> 50 µg/m ³)
Buccleuch Street , Dumfries (roadside)	97	20	6	19	2
Objective		40	35	18	7

9.2 Monitoring data within an AQMA

There are no AQMA areas for PM₁₀ in the Dumfries and Galloway area and therefore this section is not relevant.

9.3 Busy roads and junctions in Scotland

Background concentrations in 2010 in Dumfries and Galloway are expected to be below 15µg/m³ and therefore busy roads and junctions with annual average daily traffic flows of greater than 10000 should be assessed using DMRB. The assessments for roads as shown in Appendix II show no exceedences of the objectives. The assessment for busy junctions is shown in section 9.4 below.

9.4 Junctions

Seven junctions in Dumfries have been identified by the local authority as potentially significant due to congestion issues and relevant exposure. PM₁₀ concentrations in 2005 and 2010 were assessed at the nearest relevant receptors to these junctions using DMRB and the results are shown in Table 9.2. Results from the DMRB assessment of junctions indicate that the 2004 PM₁₀ objectives are being met at all locations.

With regard to the 2010 PM₁₀ objectives, there are 3 junctions where there are predicted exceedences of the annual mean objective at the nearest receptor locations. However the DMRB is generally precautionary and it should be noted also that the predicted annual mean concentrations are all less than 1µg/m³. Comparison of DMRB assessment results and monitored data along Buccleuch Street shows that DMRB is overestimating by more than 1.5µg/m³ therefore it is considered that the annual mean objective is likely to be met.

Table 9.2 DMRB Calculations for PM₁₀ at Significant Junctions in Dumfries

	2005	2005	2010	2010
Receptor location/ Junction	Predicted Annual Mean Concentration (µg/m ³)	Predicted Number of Exceedences of 50 µg/m ³ as a 24-Hour Mean	Predicted Annual Mean Concentration (µg/m ³)	Predicted Number of Exceedences of 50 µg/m ³ as a 24-Hour Mean
Edinburgh Road/A75	15.9	0	13.0	0
Brooms Road/Annan Road	21.9	6	18.1	1
Brooms Road/Leaffield Road	20.6	4	17.2	1
St Michael Street/St Michael Street Bridge Road	21.4	5	17.7	1
Nith Bank/Craigs Road	19.4	3	16.7	1
Buccleuch Street/Glasgow Street	22.7	8	18.6	2
Buccleuch Street/Whitesands	22.9	8	18.7	2
Objective	40	35	18	7

9.5 Roads with high flow of buses and/or HGVs

There are three major roads in the Dumfries and Galloway area identified that have a flow of buses and/or HGVs greater than 20%: the M74, A74 and A75, and these have been assessed using DMRB where there is relevant exposure, as shown in Appendix II. There are no exceedences of the PM₁₀ objectives predicted.

9.6 New roads constructed or proposed since the previous round of Review and Assessment

There are no significant new roads that have been constructed or proposed since the previous round and therefore this section is not relevant.

9.7 Roads with significantly changed traffic flows, or new relevant exposure

There are no roads in the Dumfries and Galloway area identified that have had a substantial change in traffic flow of greater than 25% and no new relevant exposure at previously assessed roads which warrant further assessment.

The DMRB assessment results for all roads assessed in the area are shown in Appendix II. There are no exceedences of the PM₁₀ objectives predicted.

9.8 Roads close to the objective during the second round of Review and Assessment

All roads with greater than 10000 annual average daily traffic flows have been assessed using DMRB and the results as shown in Appendix II show no exceedences of the objectives. This includes Buccleuch Street in Dumfries which was the only road close to the objective in the previous round.

9.9 New industrial sources

There are no new processes, which emit significant quantities of PM₁₀, identified in or near the Dumfries and Galloway area since the previous round of review and assessment. A list of industrial processes in the Dumfries and Galloway area is shown in Appendix III.

Construction of a pyrolysis plant (a type of incinerator) also referred to as an energy-from-waste (EFW) plant has not commenced. Planning consent has been granted in respect of the EFW plant at a site near the refuse-derived-fuel (RDF) plant currently under construction at Dargavel. Planning consent has also been granted for a 40MW wood-burning power station to be constructed at Steven's Croft 2½ miles north of Lockerbie. The main fuel will be

forestry-related materials in the form of small roundwood and sawmill co-products but the plant will be designed to burn a percentage of short-rotation coppice and recycled timber. Construction has begun at this site, but the process will not be operational until the end of 2007. An air quality assessment has been undertaken and accepted as part of the planning application; the assessment, which was found to be sufficient for review and assessment purposes, included (ADMS 3.1) air dispersion modelling. The results showed no predicted exceedences of the objectives.

9.10 Industrial sources with substantially increased emissions, or new relevant exposure

There were no processes identified in the previous round, which emit significant quantities of PM₁₀ in or near the Dumfries and Galloway area. No industrial sources have substantially increased their emissions of PM₁₀ and there is no new relevant exposure which warrants further assessment. A list of industrial processes in the Dumfries and Galloway area is shown in Appendix III.

9.11 Areas with domestic solid fuel burning

There are no areas of the Dumfries and Galloway area where there is a high density of domestic coal burning. Sanquhar was a coal-mining area in the past and has been assessed in the previous round of review and assessment and found not to be significant with respect to exceedences of the objectives.

9.12 Quarries, landfill sites, opencast coal, handling of dusty cargoes at ports

No processes have been identified that are expected to emit significant fugitive dust emissions that would lead to exceedences of the PM₁₀ objectives. Permitted processes are shown in Appendix III.

Tongland Quarry, Kirkcudbright operated by Barr Limited is the subject of a current planning application for the extension of the area for mineral extraction. An air quality assessment (December 2005) has been undertaken as part of environmental assessment for the application. There is only one sensitive receptor within 250m of the site and this has been considered within the assessment. The assessment concludes that there will be no significant impact of the proposal, with a method of working in place and appropriate management practices e.g. movement of stockpiles when meteorological conditions are suitable.

Jericho Bridge Quarry, Locharbriggs, Dumfries operated by Tarmac Northern Ltd., and Grange Quarry, Tundergarth, Lockerbie operated by Stuart Dodd are similarly the subject of current planning applications for extension of the operational area of the sites. These applications are currently being determined.

Glenmuckloch opencast coal site, to be operated by ATH Resources, in Kirkconnel has received planning permission. Operation is due to commence in September 2006.

9.13 Aircraft

There are no major airports in or near to the Dumfries and Galloway area.

9.14 Conclusion

A Detailed Assessment is not required for PM₁₀.

Checklist Summary for PM₁₀:

Item	Response
Monitoring data outside an AQMA	There are no measured exceedences of the 2004 PM ₁₀ objectives in 2005. There is a projected exceedence of the annual mean 2010 objective at the Dumfries roadside site, but there is no relevant exposure.
Monitoring data within an AQMA	No AQMAs, therefore not relevant.
Busy roads and junctions in Scotland	Busy roads assessed (Appendix II) show no exceedences of the objectives. Seven busy junctions assessed, as referred to below.
Junctions	Seven junctions assessed – annual mean objective 2010 predicted to be potentially exceeded at 3 junctions, but DMRB being overly precautionary.
Roads with high flow of buses and/or HGVs	Three roads with high HGV flows have been assessed. There are no exceedences of the PM ₁₀ objectives predicted.
New roads constructed or proposed since the previous round of Review and Assessment	No significant new roads, therefore not relevant.
Roads with significantly changed traffic flows, or new relevant exposure	No roads meet these criteria
Roads close to the objective during the second round of review and assessment	Buccleuch Street in Dumfries was identified as the road closest to the objective in the second round. This has been assessed (Appendix II) and there are no exceedences of the objectives.
New industrial sources	Two new industrial processes have been granted planning consent which meet these criteria. These are not yet operational. Air quality assessments have been undertaken as part of the planning consent and there are no predicted exceedences of objectives.
Industrial sources with substantially increased emissions, or new relevant exposure	No industrial processes have been identified which meet these criteria
Areas with domestic solid fuel burning	No significant areas identified
Quarries, landfill sites, opencast coal, handling of dusty cargoes at ports	No significant processes identified
Aircraft	No airports have been identified which meet these criteria
Conclusion	No further action required

APPENDIX I TRAFFIC DATA

x	y	Road	%HGV	AADT 2005	AADT 2010
296600	576500	A76 / Glasgow Street north of Union Street	5.4	15717	16873
296700	576200	A76 / Glasgow Street south of Union Street	5.4	15365	16496
296600	576000	A780 / Galloway St/Laurieknowe west of Terregles Street	5.2	10256	11011
297000	576000	A781 / White Sands south of Buccleuch Street	6.2	13960	14988
297200	575900	A781 / White Sands south of Bank Street	6.2	16530	17746
296500	575300	A710 / New Abbey Rd north of Pleasance Avenue	3.8	11672	12531
296800	575300	A756 / Pleasance Avenue, between Robison Drive and Richmond Avenue	3.2	12952	13905
297300	575600	A756 / St Michaels Bridge Road east of Troqueer Road	2.7	16840	18079
297600	575600	B725 / St Michael Street south of Brooms Road	5.8	19645	21091
297700	575400	B725 / Nith Bank south of St Michael Street	2.6	21201	22761
297800	575500	Craigs Road east of St Michael Road	1.5	9679	10391
297400	575700	A756 / St Michaels Bridge Rd west of St Michael Street	2.7	24801	26625
297500	575800	A756 / Brooms Road between St Michael St and Glebe St.	5.6	17898	19215
297900	576000	A756 / Brooms Road between Barrie Avenue and Eastfield Road	5.6	14999	16103
297700	576100	Leafield Road	4.0	8605	9239
297800	576300	A780 / Annan Road East of English Street	4.4	9177	9853
298200	576300	A780 / Annan Road between Cardoness Street and Balmoral Road	4.4	9947	10679
297500	576200	A780 / English Road north of Shakespeare Street	7.3	9136	9808
297800	576500	A780 / English Road north of Cornwall Mount	7.3	10589	11369
297200	576400	A780 / Church Crescent, east of Buccleuch Street		15348	16477
297300	576500	A780 / Academy Street, north of Church Crescent	6.2	10211	10963
298231	577900	A701 / Edinburgh Road, north of Marchfield Road	4.8	17116	18376
297701	578247	A75 between Glasgow Road and Edinburgh Road		26205	28133
298441	578234	A701 north of A75		12733	13670
299670	576073	A780 / Annan Road west of Brownrigg Loaning	4.4	12943	13895
297822	575138	Bankend Road between Johnstone Park and Picket Cross	1.4	11993	12875
295178	574645	A711 / Old Military Road east of roundabout	3.5	12936	13888
295677	578145	Glasgow Road south east of Irongray Road	4.0	11901	12777
296197	577323	Glasgow Road north of A75	4.0	24460	26259
296496	576883	Glasgow Street south of Glasgow Road	5.4	18349	19700
322153	567285	A75 East Riggs (Core 723)	19.0	10120	10864
279550	567920	A75 Castle Douglas (Core 870)	14.0	8612	9246
310478	575637	B7020 Upper Dormant (Core 722)	6.0	626	672
310200	591250	M74 North of J17 – Northbound	31.0	14662	15741
310200	591250	M74 North of J17 - Southbound	29.0	14280	15331
332800	567100	M74 South of Gretna Junction – Northbound	27.0	16359	17563
332800	567100	M74 South of Gretna Junction - Southbound	26.0	18284	19629
234000	543110	A747 Port William	6.0	768	824
249550	554200	A75 Carsluith	25.0	4788	5140
299300	580260	A701 Locharbriggs	13.0	8830	9480
317420	575950	B7076 Ecclefechan	10.0	1417	1521
337420	580650	A7 Langholm	13.0	3609	3875
281850	607350	A76 Mennock	18.0	3284	3526
297900	576000	A756	1.9	11033	11418

APPENDIX I TRAFFIC DATA CONTINUED

x	y	Road	%HGV	AADT 2005	AADT 2010
304180	608200	A74	22.9	26058	26967
306700	573900	A756	19.5	9527	9859
296600	576020	A780	3.2	12603	13042
310220	593500	M74	9.1	23106	23911
304180	608200	M74	9.1	26256	27172
316880	568000	A75	15.0	11239	11631
301700	576000	A75	15.7	13386	13853
300320	577000	A75	16.8	9650	9986
299000	577630	A75	17.1	12704	13147
297650	578250	A75	11.5	17480	18090
296775	576110	A780	1.8	21901	22665
297000	576200	A780	1.7	16218	16783
297340	576215	A780	1.6	10333	10694
298150	577750	A701	1.7	15949	16505
296450	577000	A76	1.6	14287	14785
327000	571000	M74	23.2	32247	33371
330000	569120	M74	25.7	27040	27983
332000	568220	M74	17.9	31378	32472
314947	579000	M74	24.9	25238	26117
313100	581900	M74	32.0	20940	21670
311160	587400	M74	32.1	20369	21079
320600	574180	M74	9.1	24156	24998



APPENDIX II DMRB ASSESSMENTS FOR ROADS

Receptor	X	Y	Annual Mean PM ₁₀	PM ₁₀ Number Daily means > 50	Annual Mean PM ₁₀	PM ₁₀ Number Daily means > 50	Annual Mean Benzene	CO	Annual Mean NO ₂	Annual Mean NO ₂ (with SC)	Annual Mean NO ₂	Annual Mean NO ₂ (with SC)	Detailed Assessment Required?
			2005	2005	2010	2010	2010	2005	2005	2005	2010	2010	
79 Glasgow Street, A76	296625	576311	17.3	1	15.3	0	0.26	0.22	18.2	25.5	14.1	19.6	No
20/22 Buccleuch Street, A780	296918	576182	16.8	1	15.1	0	0.29	0.24	16.2	21.6	12.7	16.7	No
30 Whitesands, A781	296981	576066	17.8	1	15.6	0	0.27	0.23	19.2	27.6	14.9	21.2	No
32 New Abbey Road, A710	296493	575545	16.3	0	14.7	0	0.24	0.19	15.9	21.1	12.6	16.6	No
Raigmore, Pleasance Avenue, A756	297157	575497	18.1	1	15.8	0	0.34	0.31	18.1	25.3	14.1	19.5	No
15 Troqueer Road, A756	297169	575538	17.8	1	15.6	0	0.33	0.30	17.6	24.5	13.7	18.8	No
97 St Michael Street (Public House), B725	297478	575664	18.0	1	15.7	0	0.29	0.24	19.5	28.2	15.2	21.6	No
72 St Michael Street, B725	297558	575609	17.8	1	15.5	0	0.29	0.23	19.1	27.4	14.8	21.0	No
1 Nith Bank, B725	297702	575279	17.2	1	15.3	0	0.31	0.24	17.4	24.1	13.6	18.5	No
90 Brooms Road, A756	297609	575854	17.8	1	15.6	0	0.28	0.23	19.1	27.5	14.9	21.1	No
36 English Street, A780	297350	576074	16.9	1	15.1	0	0.24	0.19	17.7	24.5	13.9	19.2	No
16 Church Crescent, A780	297159	576298	16.5	1	14.9	0	0.27	0.22	16.1	21.4	12.6	16.5	No
Garroch View, A75	294420	575422	17.0	1	15.0	0	0.21	0.17	18.2	25.5	14.3	20.0	No
4 Lincluden Road, A75	296613	577370	16.5	0	14.7	0	0.21	0.15	18.0	25.1	14.0	19.2	No
319 Annan Road, A780	299443	576057	16.8	1	15.1	0	0.25	0.21	17.0	23.2	13.5	18.2	No
Maryfield Lodge, Bankend Road	297966	574971	15.9	0	14.5	0	0.25	0.20	14.8	18.7	11.7	14.7	No
A711 / Old Military Road	295270	574720	16.5	1	14.9	0	0.25	0.20	16.4	22.0	13.0	17.2	No
Abbeycroft, A76 Glasgow Road	295826	577989	17.0	1	15.1	0	0.28	0.21	18.5	26.1	14.3	19.9	No
A74 (M)	332564	567354	14.3	0	12.0	0	0.08	0.13	14.4	25.5	10.9	19.1	No
Hill House, A74 (M)	331329	568694	15.5	0	12.7	0	0.10	0.14	16.9	30.6	12.9	23.2	No
A74 (M)	326029	571231	16.2	0	13.1	0	0.11	0.15	18.0	32.9	13.7	24.7	No
A74 (M)	312130	584392	15.3	0	12.5	0	0.08	0.13	16.8	30.3	12.7	22.7	No

Notes SC=Street canyon. All results as ug/m³, except CO (mg/m³) and number of exceedences.



APPENDIX III LIST OF INDUSTRIAL PROCESSES

Ref	Process Name	Process Type	Section	Identified as significant in LAQM.TG(03) Annex 2	New Source?	Substantial Change? >30%	Complaints?	Detailed Assessment Required?	Comments
IPC/W/00072	DuPont Teijin Films UK Ltd, Dumfries Works	Organic chemicals	4.2	Yes	No	No	No	No	Assessed for previous USA
IPC/W/00074	British Gas plc, Moffat Compressor Station	Combustion	1.3	Yes	No	No	No	No	Assessed for previous USA
IPC/W/20006	Transco, Moffat Compressor Station	Gasification & associated processes	1.1	Yes	No	No	No	No	Assessed for previous USA
IPC/W/20017	BGE (UK) Ltd Compressor Station, Beattock	Combustion	1.3	Yes	No	No	No	No	Assessed for previous USA
IPC/W/20021	BGE (UK) Ltd, AGI Odourising Unit Compressor Station, Beattock	Gasification & associated processes	1	Yes	No	No	No	No	Assessed for previous USA
IPC/W/00075	BGE (UK) Ltd Compressor Station Kirkcudbright	Combustion	1.3	Yes	No	No	No	No	Assessed for previous USA
PPC/W/20021	Langholm Dyeing Co Ltd, Waterside Mill, DG13 0DG	Coating activities, printing & textile treatment	6.4,A(a)	No	Yes	N/A	No	No	
PPC/W/20027	Shanks Waste Management Ltd RDF Plant, Lochar Moss, Lockerbie Rd., Dumfries DG1 1QS	Refuse Derived Fuel Plant	5.3	Yes	Yes	N/A	No	No	Air Quality Assessment undertaken*; not operational but construction work commenced
PPC/W/20032	Rhodia Pharma Solutions Ltd, Annan, DG12 5QH	Manufacture of organic compounds containing oxygen	4.1	No	No	No	No	No	Boiler assessed for previous USA



APPENDIX III (CONTINUED) LIST OF INDUSTRIAL PROCESSES

Ref	Process Name	Process Type	Section	Identified as significant in LAQM.TG(03) Annex 2	New Source?	Substantial Change? >30%	Complaints?	Detailed Assessment Required?	Comments
PPC/W/20033	Linde Gas (UK) Ltd, Annan, DG12 5QH	Operation of a nitrogen plant at an installation manufacturing organic compounds containing oxygen	Relates to PPC/W/20032	No	No	No	No	No	
PPC/A/19003148	The Cheese Co., Lockerbie	Treatment & processing of milk	6.8 e	Yes	No	No	No	No	Air Quality Assessment undertaken*. Shares plant with Arla Foods
PPC/A/1003149	Arla Foods Limited Lockerbie Dairy DG11 1LW	Treatment & processing of milk	6.8 e	Yes	Yes (to permitting)	No	No	No	Air Quality Assessment undertaken*; replacement heavy fuel oil with gas and light oil
PPC/W/30060	Alubrite Ltd Dumfries	Acid Processes - surface treatment of metals	4.3	No	No	No	No	No	
PPC/W/30085	Tesco Cuckoo Bridge Dumfries, DG2	Unloading of petrol at a service station	1.2	No	Yes	No	No	No	
PPC/W/30090	Roucan Loch Crematorium Dumfries	Cremation of human remains	5.1 (Part B)	No	Yes	No	No	No	Air Quality Assessment undertaken*
PPC/W/30186	James Jones & Sons Ltd Steven's Croft Lockerbie, DG11 2RR	Manufacture of timber and wood-based products	6.7	No	No	No	No	No	
PPC/W/30073	BP Filling Station Castle Douglas, DG7 1DT	Unloading of petrol at a service station	1.2	No	No	No	No	No	
PPC/W/30074	Crown Filling Station Castle Douglas, DG7 1LB	Unloading of petrol at a service station	1.2	No	No	No	No	No	



APPENDIX III (CONTINUED) LIST OF INDUSTRIAL PROCESSES

Ref	Process Name	Process Type	Section	Identified as significant in LAQM.TG(03) Annex 2	New Source?	Substantial Change? >30%	Complaints?	Detailed Assessment Required?	Comments
PPC/W/30075	Maxwell Arms Service Station Dalbeattie, DG5 4AH	Unloading of petrol at a service station	1.2	No	No	No	No	No	
PPC/W/30108	Galloway Plant Hire Mobile Plant, Dindinnie Quarry, Stranraer, DG9 0LE	Mobile crushing - stones, bricks, tiles and concrete	3.4	No	No	No	No	No	
APC/W/00322	Keyline Builders Merchants, Kellwood Road, Dumfries	Timber Sawmill	6.7	No	No	No	No	No	
APC/W/00323	James Jones & Sons Ltd, Heathhall Industrial Estate	Timber Sawmill	6.7	No	No	No	No	No	
APC/W/00330	Hoddam Contracting Co Ltd, Kilblane Quarry	Mineral Concrete Batching	3.1	No	No	No	No	No	
APC/W/00332	James Kingan & Sons Ltd Townhead Sawmill	Timber Sawmill	6.7	No	No	No	No	No	
APC/W/00337	Gates [The Gates Power Transmission Ltd], Heathhall, Dumfries	Textile/fabric finishing process	6.5	No	No	No	No	No	Assessed previously for 1,3 butadiene
APC/W/00339	Penman Engineering Ltd	Coating Process Metal/Plastic	6.5	No	No	No	No	No	
APC/W/00340	Interfloor Ltd, Heathhall, Dumfries	Rubber Processes	6.8	Yes	No	No	Yes, VOC odour issue	No	Assessed previously for 1,3 butadiene
APC/W/00342	EME Education and Municipal Equipment (Scotland)	Metal processes , coating processes	2.1	No	No	No	No	No	
APC/W/00343	Dundas Chemical Co (Mosspark) Ltd., Mosspark Dumfries	Process involving the treatment and processing of animal matter	6.9	Yes	No	No	No	No	Air Quality Assessment undertaken* PPC permit being determined



APPENDIX III (CONTINUED) LIST OF INDUSTRIAL PROCESSES

Ref	Process Name	Process Type	Section	Identified as significant in LAQM.TG(03) Annex 2	New Source?	Substantial Change? >30%	Complaints?	Detailed Assessment Required?	Comments
APC/W/00350	Russell Rooftiles Ltd, Lochmaben	Mineral Concrete Batching	3.1	No	No	No	No	No	
APC/W/00351	Hoddam Contracting Co Ltd, Ecclefechan	Mineral Concrete Batching	3.1	No	No	No	No	No	
APC/W/20048	Hanson Quarry Products Europe Ltd, Heathhall Industrial Estate	Batching of ready-mixed concrete	3.1	No	No	No	No	No	
APC/W/20052	Alba Proteins Ltd., Collin	Pet Food Manufacture	6.9	No	No	No	No	No	
APC/W/20082	Tamac Northern Ltd, Jericho Bridge Quarry, Locharbriggs, Dumfries	Use of cement in bulk at a concrete batching plant and roadstone coating	3.1	Yes	No	No	No	No	Assessed for previous USA; fuel: gas oil. Planning consent currently being sought for quarry extension Further assessment undertaken*.
APC/W/20085	Transco, Langholm	Odorising of natural gas	1.1	Yes	No	No	No	No	Assessed for previous USA
APC/W/20086	Transco, Lockerbie	Odorising of natural gas	1.1	Yes	No	No	No	No	Assessed for previous USA
APC/W/20087	Transco, Nether Howcleugh, north of Moffat	Odorising of natural gas	1.1	Yes	No	No	No	No	Assessed for previous USA
APC/W/20107	Wm Morrison Supermarkets Plc, Petrol Station Annan	Unloading petrol at service station	1.4	No	No	No	No	No	
APC/W/20109	Mathers Ltd, Dumfries	Unloading petrol at service station	1.4	No	No	No	No	No	
APC/W/20130	Jack, John , Benmar Garage, Moffat	Unloading petrol at service station	1.4	No	No	No	No	No	
APC/W/20176	J B Stevenson & Jeffrey, Nationwide Crash Repair Centre Ltd, Dumfries	Respraying of road vehicles	6.5	No	No	No	No	No	



APPENDIX III (CONTINUED) LIST OF INDUSTRIAL PROCESSES

Ref	Process Name	Process Type	Section	Identified as significant in LAQM.TG(03) Annex 2	New Source?	Substantial Change? >30%	Complaints?	Detailed Assessment Required?	Comments
APC/W/20179	Wood, J and B, St Michaels Services, Dumfries	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/20204	Welcome Break Ltd, Gretna Green Service Area A74(M)	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/20214	Dundas Chemical Company (Mosspark) Ltd, Dumfries	Incineration	5.1	Yes	No	No	No	No	Air Quality Assessment undertaken* PPC permit being determined
APC/W/20235	Wm Morrison Supermarkets Plc, Petrol Station, Dumfries	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/20240	Shell UK Ltd, Shell Collin	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/20255	Esso Petroleum Company Ltd, Heathhall Service Station	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/20287	Wm Morrison Supermarkets Plc, Townfoot Filling Station, Lockerbie	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/20378	Michael and Lorna Fusco, Border Cars, Dumfries	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/20379	Annandale Water Service Area M74	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/20388	James Wallace (Dumfries) Ltd, Newton Gardens Glasgow Rd., Dumfries	Unloading of petrol at a service station	1.4	No	No	No	No	No	



APPENDIX III (CONTINUED) LIST OF INDUSTRIAL PROCESSES

Ref	Process Name	Process Type	Section	Identified as significant in LAQM.TG(03) Annex 2	New Source?	Substantial Change? >30%	Complaints?	Detailed Assessment Required?	Comments
APC/W/20486	Forest Fencing Ltd, Stevenscroft, Lockerbie	Timber	6.7	No	No	No	No	No	
APC/W/20510	Aggregate Industries UK Ltd, Morrington Coated Roadstone	Coating roadstone with tar or bitumen	3.4	Yes	No	No	No	No	Assessed for previous USA; fuel: gas oil
APC/W/20517	ATH Resources, Glenmuckloch Opencast Coal Site, Kirkconnel	Opencast coal mining	3.4	Yes	Yes	No	No	No	Air Quality Assessment undertaken*; production starts in September
APC/W/20522	Incineration Scotland, Mossbank, Dumfries (Linked with Dundas Chemical Co.)	Incineration of animal carcasses	5.1	Yes	No	No	No	No	Air Quality Assessment undertaken* PPC permit being determined
APC/W/20529	Martins Tyre & Auto Services Ltd, Langholm	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/20530	A & P Fraser, Trigony Filling Station, Closeburn	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/20531	Burnside Filling Station, Sanquhar	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/20532	W & A Proudfoot, Colvin Garage, Moffat	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/20533	William Cluckie and I E Riddall, Castleview Filling Station, Sanquhar	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/20536	Crossways Filling Station, Gretna, Dumfriesshire	Unloading of petrol at a service station	1.4	No	No	No	No	No	



APPENDIX III (CONTINUED) LIST OF INDUSTRIAL PROCESSES

Ref	Process Name	Process Type	Section	Identified as significant in LAQM.TG(03) Annex 2	New Source?	Substantial Change? >30%	Complaints?	Detailed Assessment Required?	Comments
APC/W/20537	Stuart Dodd, Grange Quarry Ltd, Lockerbie	Crushing & screening of rock operation	3.4	No	No	No	No	No	Planning consent for extension being sought.
APC/W/20538	Cally Service Station, Annan	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/21001	Townhead Filling Station, Lockerbie	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/21002	Bruce Filling Station, Lockerbie	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/00021	Robert Howie & Sons, Kenmuir Sawmills, Dalbeattie	Manufacture and Chemical Treatment of Wood Products	6.7	No	No	No	No	No	
APC/W/00360	Andrew McMillan Ltd, Aird Quarry, Castle Kennedy	Bulk Cement	3.1	No	No	No	No	No	
APC/W/00364	Barr Ltd, Barlockhart Quarry, Glenluce	Bulk Cement	3.1	No	No	No	No	No	
APC/W/00365	Barr Ltd., Barlockhart Quarry, Glenluce	Quarry and roadstone coating	3.4	Yes	No	No	No	No	Assessed for previous USA; fuel: gas oil
APC/W/00369	Barr Ltd, Cairnryan Quarry	Stone Crushing and Quarry Process	3.4	No	No	No	No	No	
APC/W/00370	Hanson Quarry Products Europe Ltd, Clarebrand Premix, Castle Douglas	Bulk Cement	3.1	No	No	No	No	No	
APC/W/00375	Luce Bay Plant Hire Ltd, Dunragit	Bulk Cement	3.1	No	No	No	No	No	
APC/W/00383	Barr Ltd, Tongland Quarry Kirkcudbright	Quarry and Roadstone Coating	3.4	Yes	No	No	No	No	Fuel: gas oil. Planning consent sought for quarry extension. Assessment undertaken*



APPENDIX III (CONTINUED) LIST OF INDUSTRIAL PROCESSES

Ref	Process Name	Process Type	Section	Identified as significant in LAQM.TG(03) Annex 2	New Source?	Substantial Change? >30%	Complaints?	Detailed Assessment Required?	Comments
APC/W/00385	Barr Ltd, Tongland Quarry Kirkcudbright	Bulk Cement	3.1	No	No	No	No	No	
APC/W/20117	Mirrey, James Stranraer	Unloading petrol at service station	1.4	No	No	No	No	No	
APC/W/20118	Portrodie Self Serve, Stranraer	Unloading petrol at service station	1.4	No	No	No	No	No	
APC/W/20119	R Wood & B Wood, Wigtown Road Service Station, Newton Stewart	Unloading of petrol at service station	1.4	No	No	No	No	No	
APC/W/20294	Wm Morrison Supermarkets Plc, Petrol Station Stranraer	Unloading of petrol at a service station	1.4	No	No	No	No	No	
APC/W/20434	Strathclyde Skip Hire, Carty Tile Works Newton Stewart	Crushing and screening of bricks, tiles, concrete and stone	3.4	Yes	No	No	No	No	Assessed for previous USA
APC/W/20534	Crosbie & Bateman Beaconsfield Garage Kirkcudbright	Unloading petrol at service station	1.4	No	No	No	No	No	
APC/W/20535	R.F. McCreddie & Co Queen St., Newton Stewart	Unloading petrol at service station	1.4	No	No	No	No	No	
APC/W/20541	D.H.Graham, County Garage Queen St., Castle Douglas	Unloading petrol at service station	1.4	No	No	No	No	No	
PPC/A/1000151	Armstrong Waste Mgt Auchenlosh, Dalbeattie	Landfill	5.2a	No	No	No	No	No	
PPC/A/1000154	Shanks Waste Management Galdenoch, Leswalt, Stranraer	Landfill	5.2a	No	No	No	No	No	
PPC/A/1000155	Shanks Waste Management Aucheninnes, Dalbeattie	Landfill	5.2a	No	No	No	No	No	

* The air quality assessments undertaken have been checked and are sufficient for review and assessment purposes.

GLOSSARY

Abbreviation	Definition
AQMA	Air Quality Management Area
DEFRA	Department for Environment, Food and Rural Affairs
DETR	Department for Transport and Regions
DMRB V1.02	Design Manual for Roads and Bridges (Highways Agency November 2003) - screening tool for traffic sources
DOE	Department of the Environment
HGV	Heavy goods vehicles
LAQM	Local Air Quality Management
LAQM.TG(03)	Technical guidance document provided by DEFRA to assist local authorities in completion of the LAQM Review & Assessment process
NAQS	National Air Quality Strategy
NO ₂	Nitrogen dioxide
NO _x	Oxides of nitrogen
PM ₁₀	Fine particle matter less than 10µm diameter
ppb	Parts per billion
SEPA	Scottish Environment Protection Agency
SO ₂	Sulphur dioxide
µg/m ³	Micrograms per cubic metre
USA	Updating and Screening Assessment

REFERENCES

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

Defra, (February 2003), The Air Quality Strategy for England, Scotland, Wales and Northern Ireland: Addendum.

Defra, (February 2003), Local Air Quality Management, Technical Guidance LAQM.TG(03).
The Air Quality (England) Regulations 2000, Statutory Instrument 928

The Air Quality (Scotland) Regulations 2000, Statutory Instrument 97

The Air Quality (Scotland) (Amendment) Regulations 2002, Statutory Instrument 297

Highways Agency (November 2003), Design Manual for Roads and Bridges, Volume 11,
Section 3, Part 1 Air Quality v1.02.