Cookstown
DISTRICT COUNCIL
COMHAIRLE CHEANTAR NA COIRRE CRÍOCHAÍ
DISTRICK COONCIL O COOKESTOUN

2011 Air Quality Progress Report for *Cookstown District Council*

In fulfillment of the Environment (Northern Ireland) Order 2002 - Local Air Quality Management

Date: October 2011

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Executive Summary

Local Air Quality Management by Local Authorities was introduced as a Statutory Duty by the Environment (Northern Ireland) Order 2002, and subsequent Regulations. Under this legislation District Councils are required to review the present air quality and the likely future air quality, to assess whether the nationally presented objectives are likely to be achieved. The first stage of Cookstown District Councils Review and assessment of air quality was published in August 2001.This identified the main sources of seven key pollutants within the district.

This was followed by the second and third stage Review and Assessment published in 2004, which further scrutinized three pollutants which had been identified in the previous reports as potentially concerning, namely Nitrogen dioxide, Sulphur dioxide and particulates. This report concluded that it was unlikely that the air quality objectives would be exceeded, and that it was not necessary for Cookstown District Council to declare any Air Quality Management Areas.

Subsequent updating and Screening Assessments for Cookstown, concluded that for each of the seven key air pollutants the air quality objectives were likely to be met. This progress report has confirmed that the air quality objectives are still being met for each of the seven key air pollutants and a more detailed assessment is not required at this time.

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1 Introduction

1.1 Description of Local Authority Area

The Cookstown District Council area is situated in the central Mid-Ulster area of Northern Ireland. It shares it boundaries with Magherafelt District Council to the north, Omagh District Council to the west, and Dungannon and South Tyrone Borough Council to the south. Its eastern boundary is the shoreline of Lough Neagh. The area has a population of 32,000 and covers 235 square miles. Much of the population of the District is located in the town of Cookstown which is central to the area. There are also a number of rural villages in the district, Moneymore, Stewartstown, Coagh, Ardboe and Pomeroy.

The area is easily accessible and is a convenient distance from Northern Ireland's two main motorways, the M1 and M2. The main A29 north-south route bisects the district. The major airports and harbours in Northern Ireland are all within 1 hour's drive of Cookstown. Agriculture and the agri-food business are strong contributors to the areas economy. However, the district also boasts a number of key industrial employers.

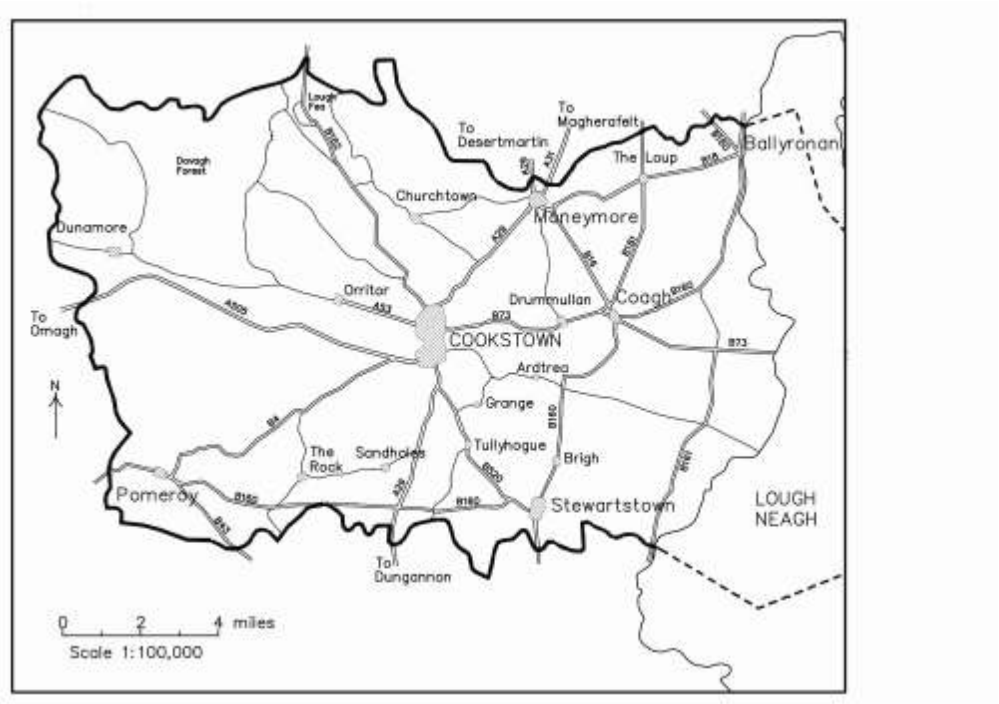

Figure 1.1 –Map Showing Cookstown District Council area.

1.2 Purpose of Progress Report

Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the Local Air Quality Management process.

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedence of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM **in Northern Ireland** are set out in the Air Quality Regulations (Northern Ireland) 2003, Statutory Rules of Northern Ireland 2003, no. 342, and are shown in Table 1.1. This table shows the objectives in units of micrograms per cubic metre $\mu g/m^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

Table 1.1 Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in Northern Ireland.

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	16.25 $\mu g/m^3$	Running annual mean	31.12.2003
	3.25 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu g/m^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

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

The first round review and assessment of air quality was completed in 2004. It involved a 3-stage approach, the findings of which are contained in two reports:

(1) 1st Stage Review and Assessment Report – August 2001

Table 1.2

SUMMARY OF FIRST STAGE REVIEW AND ASSESSMENT IN COOKSTOWN

Pollutant	Significant Sources	Recommendations
Carbon Monoxide	No significant Sources	No further assessment
Benzene	No significant Sources	No further assessment
1–3 Butadiene	No significant Sources	No further assessment
Lead	No significant sources	No further assessment
Nitrogen Dioxide	• Four single carriageway road junctions exceeding average threshold • Two dual carriageway junctions exceeding 10,000 vpd and sensitive properties within 10 metres • Three dual carriageway sections exceeding 10,000 vpd and sensitive properties within 10m • One Part A process in Cookstown	Proceed to 2nd stage
Sulphur Dioxide	• One Part A process • One Thermal combustion system • At least 2 1x1km grid squares with potentially more than 300 houses burning coal	Proceed to 2nd stage
PM_{10}	• At least 16 sections of single carriageway roads and 7 road junctions exceeding 5000 vehicles per day and with sensitive properties within 2m (single carriageway) or 10m (dual carriageway) • Four dual carriageway sections exceeds 5000 vpd with sensitive properties within 10 metres • One significant Part A process	Proceed to 2nd stage

(2) 2nd/3rd Stage Review and Assessment Report – August 2004.

Conclusions and Recommendations of the 2nd/3rd Stage Report are given below.

- Air quality objectives for SO_2 and PM_{10} are likely to be met and therefore there is no need to designate an air quality management area for these pollutants.

- Existing monitoring of the SO_2 and PM_{10} will continue using real-time analysers, in order to provide data to verify the detailed dispersion modelling predictions resulting in the above conclusions.

- Air quality objectives for NO_2 are expected to be met at locations of relevant public exposure i.e. building facades of residential properties, despite exceedances of the annual mean objective at three kerbside sites. An air quality management area for NO_2 is therefore not being designated for this pollutant.

- Predicted concentrations of NO_2 at a number of building facades of residential properties are close, but not exceeding air quality objectives. Further monitoring of NO_2 will be carried out using diffusion tubes. These will be located on the facades of residential properties closest to the kerbside sites where exceedances of the NO_2 annual mean objective have been identified.

3) Update And Screening Assessment Report August 2006

UPDATING AND SCREENING ASSESSMENT – AUGUST 2006

Table 1.3 SUMMARY FINDINGS OF UPDATE AND SCREENING ASSESSMENT IN COOKSTOWN

Pollutant	Conclusion	Recommendation
Carbon Monoxide	The objective for CO is unlikely to be exceeded at any location in the Cookstown area.	There is no need to undertake a detailed assessment for Carbon Monoxide.
Benzene	The objective for Benzene is unlikely to be exceeded at any location in the Cookstown area.	There is no need to undertake a detailed assessment for Benzene.
1 – 3 Butadiene	The objective for 1-3 Butadiene is unlikely to be exceeded at any location in the Cookstown area.	There is no need to undertake a detailed assessment for 1-3 Butadiene.
Lead	The objective for lead is unlikely to be exceeded at any location in the Cookstown area.	There is no need to undertake a detailed assessment for Lead.
Nitrogen Dioxide	The assessment indicated that the conclusion drawn from the 1st round of review and assessment remains valid, and has indicated that the annual menu and hourly objective for Nitrogen Dioxide are unlikely to be exceeded.	There is no need to undertake a detailed assessment for Nitrogen Dioxide.
Particulate Matter PM_{10}	The assessment has indicated that both the daily and the annual mean for particulate matter are unlikely to be exceeded at any location in Cookstown area.	There is no need to undertake a detailed assessment for PM_{10}
Sulphur Dioxide SO_2	The assessment has indicated that both the annual mean and hourly objective 15 minute mean for Sulphur Dioxide are unlikely to be exceeded at any location in the Cookstown area.	There is no need to undertake a detailed assessment for Sulphur Dioxide.

4) Update And Screening Assessment Report 2009

Table 1.4 SUMMARY FINDINGS OF UPDATE AND SCREENING ASSESSMENT IN COOKSTOWN

Pollutant	Conclusion	Recommendation
Carbon Monoxide	The objective for CO is unlikely to be exceeded at any location in the Cookstown area.	There is no need to undertake a detailed assessment for Carbon Monoxide.
Benzene	The objective for Benzene is unlikely to be exceeded at any location in the Cookstown area.	There is no need to undertake a detailed assessment for Benzene.
1 – 3 Butadiene	The objective for 1-3 Butadiene is unlikely to be exceeded at any location in the Cookstown area.	There is no need to undertake a detailed assessment for 1-3 Butadiene.
Lead	The objective for lead is unlikely to be exceeded at any location in the Cookstown area.	There is no need to undertake a detailed assessment for Lead.
Nitrogen Dioxide	The assessment indicated that the conclusion drawn from the 1st round of review and assessment remains valid, and has indicated that the annual menu and hourly objective for Nitrogen Dioxide are unlikely to be exceeded.	There is no need to undertake a detailed assessment for Nitrogen Dioxide.
Particulate Matter PM_{10}	The assessment has indicated that both the daily and the annual mean for particulate matter are unlikely to be exceeded at any location in Cookstown area.	There is no need to undertake a detailed assessment for PM_{10}
Sulphur Dioxide SO_2	The assessment has indicated that both the annual mean and hourly objective 15 minute mean for Sulphur Dioxide are unlikely to be exceeded at any location in the Cookstown area.	There is no need to undertake a detailed assessment for Sulphur Dioxide.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Automatic monitoring was carried out in the District for both PM10 and Sulphur dioxide from December 2003 to July 2011. The PM10 was monitored by a TEOM series 1400a ambient particulate monitor. The Sulphur dioxide was monitored using a Monitor Europe ML 9805B Sulphur dioxide analyser. Both of these were housed within a secure site at Gortalowry House, Church Street, Cookstown. The site was chosen because it was within the 1 x 1km grid square identified in the Stage 1 Risk and Assessment Report as having the highest concentration of coal burning properties in the Cookstown District. No other sites have started up since the previous assessment.

QAQC for the site was undertaken by the National Physical Laboratory (NPL), Hampton Road, Teddington, Middlesex, England. Data was collected and disseminated to the Northern Ireland website on a daily basis by NPL's partner in this project, Kings College ERG.

Site audits were carried out twice a year by NPL. The audits assess the analyser performance characteristics and measured the concentration of on-site transfer standards. A UKAS accredited calibration certificate was issued by NPL following these audits.

In addition to this, routine calibrations were undertaken by Council staff every fortnight, with the results of the calibrations emailed to NPL.

Figure 2.1 Map Showing Location of Automatic Monitoring Site at 94 Church Street, Cookstown

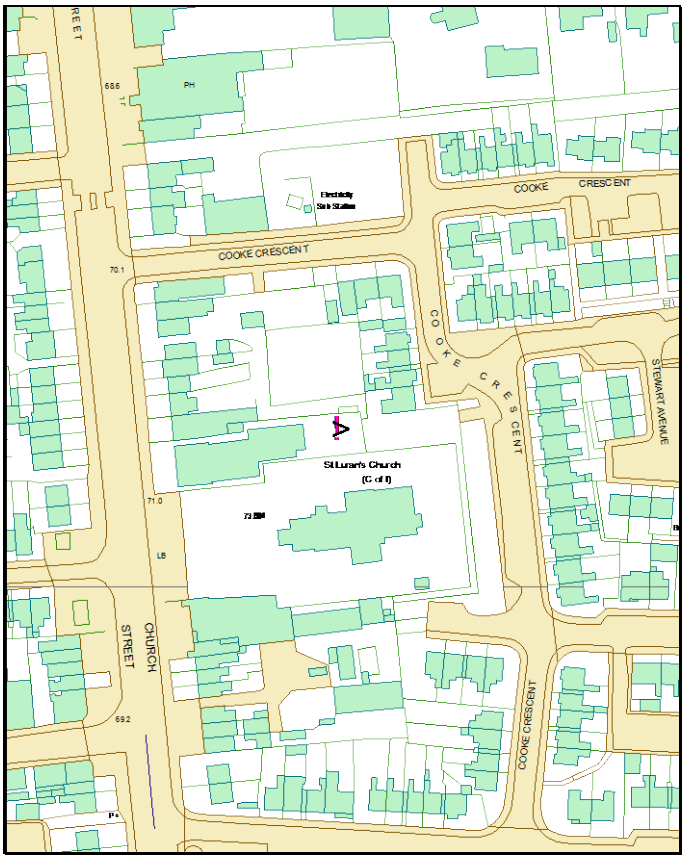

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA ?	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road *(N/A if not applicable)*	Worst-case Location ?
Gortalowry House	Urban background	X 281207 Y 377242	SO2 PM10	N	Y (16m)	N/A	Y

2.1.2 Non-Automatic Monitoring

The Council monitors Nitrogen dioxide at 8 sites around the district using passive diffusion tubes. Diffusion tubes represent a simple and cost-effective method of monitoring air quality in an area, to give a good general indication of average pollution concentrations. They are particularly useful for assessment against annual mean objectives.

Monitoring sites are chosen to provide data on locations that are likely to give a worst case scenario of air quality in this particular area. These should be representative of likely residential exposure and, where possible, are close to the nearest receptor from the busy road or road junction of interest. The sites are subject to periodic review and where sufficient data has been gathered, some of the diffusion tubes are relocated to new locations.

Figure 2.2 Map(s) of Non-Automatic Monitoring Sites at Moneymore

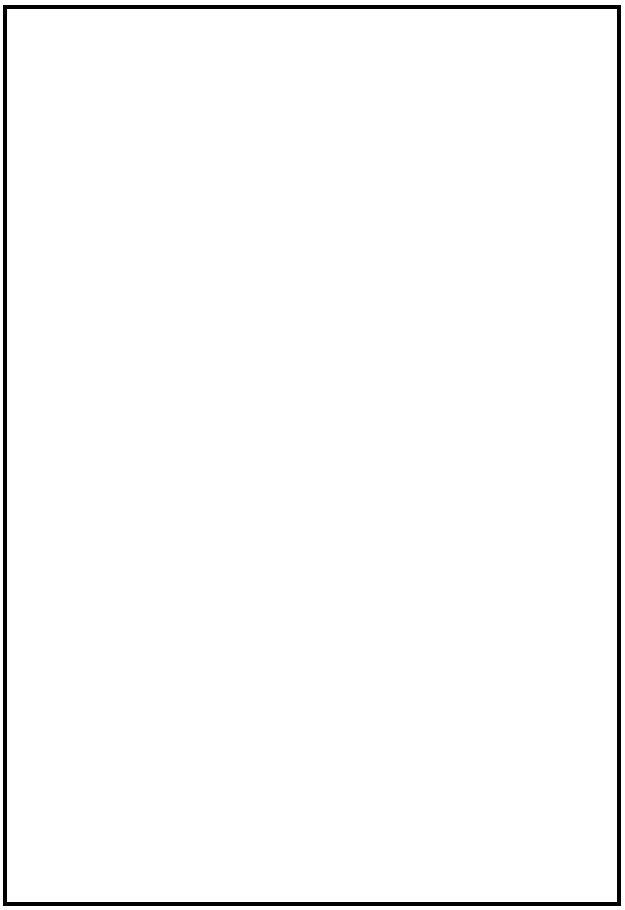

Table 2.2 Details of Non- Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA?	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road *(N/A if not applicable)*	Worst-case Location?
Z1	Roadside	X 285770 Y 383510	NO2	No	<1m	2m	Y
Z2	Kerbside	X 281071 Y 378445	NO2	No	6m	<1m	Y
Z3	Roadside	X 281053 Y 378197	NO2	No	7m	2m	Y
Z4	Kerbside	X 281121 Y 377537	NO2	No	<1m	<1m	Y
Z5	Kerbside	X 281225 Y 376939	NO2	No	7m	<1m	Y
Z8	Kerbside	X 285813 Y 383458	NO2	No	3m	<1m	Y
Z9	Kerbside	X 285779 Y 383446	NO2	No	4m	<1m	Y
Z10	Kerbside	X 285759 Y 383333	NO2	No	5m	2m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Diffusion Tube Monitoring Data

The analysis of the monitoring tube data is undertaken by Gradko Environmental Ltd. The figures for 2010 in Table 2.3 below are bias corrected by a figure of 0.92. This figure is taken from the Defra spreadsheet based on those tubes analysed by Gradko Environmental using the 20% TEA/ Water for the year 2010. The figure was based on 34 studies throughout the UK.

Diffusion tubes were located at seven locations in the district, four in Moneymore and four in Cookstown. These were located along roads that were taken to be particularly busy. The tubes were mostly located in a kerbside location except for Z1 and Z3 which were located at roadside locations.

Table 2.3 Results of Nitrogen Dioxide Diffusion Tubes

Site ID	Location	Within AQMA?	Data Capture 2010 %	Annual mean concentrations ($\mu g/m^3$)
Z1	**Lawford St, Moneymore**	**N**	**100**	**37.9**
Z2	**William Street, Cookstown**	**N**	**100**	**31.6**
Z3	**James Street, Cookstown**	**N**	**100**	**39.7**
Z4	**Church Street, Cookstown**	**N**	**100**	**32.8**
Z5	**Killymoon Street, Cookstown**	**N**	**100**	**36.0**
Z8	**Smith Street, Moneymore**	**N**	**75**	**30.0* (28.3)**
Z9	**High Street, Moneymore**	**N**	**75**	**22.0* (20.8)**
Z10	**Stonard Street, Moneymore**	**N**	**75**	**42.2* (39.8)**

- * estimated figure
- 8 month monitored figure given in brackets.

As can be seen from the results indicated in Table 2.4 above the results from the monitoring tubes were all under the 40 $\mu g/m^3$ value except for the tube located at Z10.

The tubes in Moneymore are located along the main road running through the village of Moneymore. The three tubes Z8 to Z10 were only in position for eight months. To enable a full year estimate to make a calculation was made using the method specified in Box 3.2 of the Local Air Quality Management Technical Guidance LAQM.TG(09). Using real time monitoring results from monitoring locations in Ballymena, Armagh and Newry an adjustment factor of 1.06 was determined and applied to the monitoring figures. This

correction factor had the effect of pushing the overall result for Z10 over the 40 µg/m³ value for the period.

However, the tubes had only been in place 8 months, and a rolling 12 month figure for Z10 has provided a 12 month mean of less than 40 µg/m³. Given this information, it was decided to conduct further monitoring at this location before determining any additional course of action. This conclusion was supported by data from the two closest tubes which both show figures significantly under the 40 µg/m³ threshold.

Results for all tubes located in the town of Cookstown were all under the air quality objective of 40 µg/m³.

2.2.2 PM_{10}

As can be seen from Table 2.41 below the average Annual Mean concentration is 23 µg/m³ for 2009. Although this has risen from 17µg/m³ in 2008 it is still considerably less than the 2004 objective of 40 µg/m³.

Table 2.42 shows the number of exceedences of the 50 µg/m³ 24 hours mean PM^{10} objective fell to 10 from a figure of 21 in 2008. Again this is well below the 35 exceedences allowed in the 2004 objectives.

Table 2.41 Results of PM_{10} Automatic Monitoring: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Data Capture for monitoring period [a] %	Data Capture for full calendar year 2009 [b] %	Annual mean concentrations (µg/m³)		
					2008	2009	2010
Gortalowry House	94 Church Street Cookstown	N	92	92	**17**	**19**	23

Table 2.42 Results of PM_{10} Automatic Monitoring: Comparison with 24-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture for monitoring period [a] %	Data Capture 2009 [b] %	Number of Exceedences of daily mean objective (50 μg/m^3) If data capture < 90%, include the 90th percentile of daily means in brackets.		
					2008 [c]	2009 [c]	2010 [c]
Gortalowry House	94 Church Street Cookstown	N	92	92	21	19	10

2.2.3 Sulphur Dioxide

The figures in Table 2.5 show that none of the objectives are being exceeded in relation to Sulphur dioxide. In fact for the entire period there were no recorded exceedences of the 15 minute, 1 hour or 24 hour objectives. This figure is consistent with the 2008 and 2009 results, which both showed no recorded exceedences as well. The results are based on an average 92% data capture rate so are representative of conditions found at the site throughout the year.

The site was selected in 2003 as being the most representative site in the district as it was within the 1 x 1km grid square identified in the Stage 1 Risk and Assessment Report as having the highest concentration of coal burning properties in the Cookstown District.

Table 2.5 Results of SO_2 Automatic Monitoring: Comparison with Objectives

Site ID	Location	Within AQMA	Data Capture for monitoring period [a] %	Data Capture 2009 [b] %	Number of Exceedences of: (μg/m^3)		
					15-minute Objective (266 μg/m^3)	1-hour Objective (350 μg/m^3)	24-hour Objective (125 μg/m^3)
Gortalowry House	94 Church St Cookstown	N	92	92	0	0	0

2.2.4 Benzene

Cookstown District Council does not carry out routine monitoring for Benzene based on conclusions from previous air quality reports.

2.2.5 Other pollutants monitored

Cookstown District Council does not carry out routine monitoring for other pollutants based on conclusions from previous air quality reports

2.2.6 Summary of Compliance with AQS Objectives

Cookstown District Council has examined the results from monitoring in the district. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

3 New Local Developments

Cookstown District Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

4 Planning Applications

Cookstown District Council confirms that there are no identified planned developments which may have an impact on air quality within the Local Authority area.

5 Conclusions and Proposed Actions

5.1 Conclusions from New Monitoring Data

Cookstown District Council undertakes diffusion tube monitoring at eight locations throughout the district for NO2. Seven of these sites have met the air quality objective of <40 µg/m³. One of the monitoring locations slightly exceeded the objective. However the tube was only in place for eight months, and the figure an estimate using information from sites nearby using real time analysers. Examination of a rolling 12 month set of results for the location show results under 40 µg/m³. This location will continue to be closely monitored and may

Automatic monitoring of PM10, undertaken at the Gortalowry House site in Cookstown shows no exceedences of the 2010 air quality objectives. Automatic monitoring of SO2 at the same site showed no exceedences of the 15-minute, 1-hour, or 24-hour mean air quality objectives.

Cookstown District Council has no Air Quality Management Areas currently declared in the District. Air quality monitoring data for the 2010 year does not indicate the need to declare an AQMA at this time.

5.2 Conclusions relating to New Local Developments

There are no new local developments that will require more detailed consideration in the next Updating and Screening Assessment.

5.3 Proposed Actions

The new monitoring data provided in this Progress Report has not identified the need for Cookstown District Council to proceed to a detailed assessment for any pollutant.

The report did however highlight the need to continue to monitor the Nitrogen dioxide levels at certain points throughout the Districts.

The Councils next course of action is to submit an Updating and Screening Assessment in 2012.

6 References

Publications

1. The Environment (Northern Ireland) Order 2002
2. Air Quality Regulations (Northern Ireland) 2003
3. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2000
4. DEFRA Local Air Quality Management Technical Guidance LAQM.TG(09)
5. Cookstown District Council 1st Stage Review and Assessment - August 2001
6. Cookstown District Council 2nd/3rd Stage Review and Assessment Report- August 2004
7. Cookstown District Council – Updating and Screening Assessment – August 2006
8. Cookstown District Council Progress Report - 2007
9. Cookstown District Council Progress Report – 2008
10. Cookstown District Council- Updating and Screening Assessment 2009.
11. Cookstown District Council Progress Report – 2010

Websites

Northern Ireland Air Quality Website - http://www.airqualityni.co.uk/

Appendices

Appendix A:

Table A.1 Diffusion Tube Bias Adjustment Factors

Changes to Diffusion Tube Bias Adjustment Factors with 04/11 Issue of the Spreadsheet				
			New (04/11) Factor	
Laboratory	Method	Year	No. of Studies	Factor
Aberdeen CC	20% TEA in Water	2010	1	0.82
Bristol Scientific Services	20% TEA in Water	2010	7	0.85
Cardiff Scientific Services	50% TEA in Acetone	2010	4	0.85
Edinburgh Scientific Services	50% TEA in Acetone	2010	2	1.02
Environmental Scientific Groups	20% TEA in Water	2010	10	0.84
Environmental Scientific Groups	50% TEA in Acetone	2010	3	0.83
Glasgow Scientific Services	20% TEA in Water	2010	1	1.10
Gradko	***20% TEA in Water***	***2010***	***39***	***0.92***
Gradko	50% TEA in Acetone	2010	17	0.99
Harwell Scientific Services	50% TEA in Acetone	2010	18	0.85
Harwell Scientific Services	20% TEA in Water	2010	1	0.77
Kent Scientific Services	20% TEA in Water	2010	1	0.78
Kirklees Council Scientific Services	50% TEA in Acetone	2010	1	0.78
Lambeth Scientific Services	50% TEA in Acetone	2010	3	1.07
Lancashire CC	50% TEA in Acetone	2010	1	0.90
Milton Keynes Council	20% TEA in Water	2010	6	0.84
Northampton BC	20% TEA in Water	2010	3	0.73
South Yorkshire Labs	50% TEA in Acetone	2010	5	0.88
Staffordshire Scientific Services	20% TEA in Water	2010	6	0.87
Tayside SS	20% TEA in Water	2010	4	0.78
West Yorkshire Analytical Services	50% TEA in Acetone	2010	12	0.90
Edinburgh Scientific Services	50% TEA in Acetone	2009	5	0.85
Number of Studies Included			**150**	

As can be seen from the table above the correction factor to be applied to those diffusion tubes analysed by Gradko using the 20% TEA in water method is 0.92 based on 39 studies throughout the UK. It was decided to use the national figure for bias adjustment as it was based on 39 studies and was likely to give a more accurate comparison than local studies which would only be based on a few.

A.2 QA/QC of automatic monitoring

As previously stated the QAQC for the automatic monitoring sites is provided by the National Physical Laboratory who undertake two audits of the site per year.

QA/QC of diffusion tube monitoring

Table A2: Laboratory summary performance for WASP NO_2 PT rounds 105 - 113
The following table lists those UK laboratories undertaking LAQM activities that have participated in recent HSL WASP NO_2 PT rounds and the percentage (%) of results submitted which were subsequently determined to be **satisfactory** based upon a z-score of < ± 2 as defined above.

Round conducted in the period	Apr-Jun 2009	Jun-Aug 2009	Oct-Dec 2009	Jan-Mar 2010	Apr-Jun 2010	Jun-Aug 2010	Oct-Dec 2010	Jan-Mar 2011	Apr-Jun 2011
Aberdeen Public Analysts	100 %	75 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Bristol City Council	100 %	100 %	100 %	75 %	100 %	100 %	100 %	100 %	100 %
Cardiff Scientific Services	100 %	100 %	100 %	100 %		100 %	75 %	100 %	100 %
Edinburgh City Council	75%	100 %	100 %	100 %	100 %	75 %	100 %	100 %	100 %
Environmental Services Group	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Exova	75 %	75 %	100 %	100 %	50 %	50 %	100 %	100 %	100 %
Glasgow Scientific Services	75 %	100 %	100 %	50 %	100 %	100 %	100 %	100 %	100 %
Gradko International	***100%***	***100 %***	***100%***	***100%***	***87.5%***	***100 %***	***100 %***	***100 %***	***100 %***
Environmental Services Group, Didcot (formally Harwell	100 %	50 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Kent Scientific Services	100 %	100 %	100 %	100 %	100 %	100 %	100 %	50 %	100 %
Kirklees MBC	25 %	100 %	75 %	100 %	100 %	100 %	0 %	100 %	0 %
Lambeth Scientific Services	75 %	100 %	0 %	50 %	100 %	100 %	100 %	50 %	25 %
Lancashire County Analysts	75 %	75 %	75 %	100 %	100 %	75 %	50 %	100 %	75 %
Milton Keynes Council	75 %	100 %	75 %	100 %	25 %	50 %	100 %	100 %	75 %
Northampton Borough Council	100 %	100 %	75 %	100 %	100 %	100 %	100 %	100 %	100 %
South Yorkshire Council	100 %	75 %	100 %	25 %	100 %	100 %	100 %	100 %	100 %
Staffordshire County Council	100 %	75 %	100 %	100 %	100 %	50 %	100 %	100 %	100 %
Tayside	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Walsall MBC	100 %	100 %	-	100 %	100 %	100 %	-	-	-
West Yorkshire Analytical Services	75 %	100 %	100 %	100 %	100 %	100 %	100 %	75 %	75 %

As can be seen from the Table Gradko were reported as having good performance for the relevant period during which they were analysing the diffusion tubes for this report.