2015 Updating and Screening Assessment for Mid-Ulster District Council

In fulfilment of the Environment (NI) Order 2002
Local Air Quality Management

November 2015

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Report Reference number	MUDC/AQ/2015
Date	November 2015

Executive Summary

Magherafelt Area

An Air Quality Management Area (AQMA) was declared in the former of Magherafelt District Council area in February 2012 at Church Street and lower King Street. Based on monitoring data, concentrations within these areas continue to exceed the objective limit of 40ug/m^3 for NO2 and as a result the AQMA should remain.

As a result of new school premises and new traffic movements adjacent to the AQMA, additional sites continue to be monitored. To date these concentrations outside the AQMA are all below the objectives, with the exception of one site.

Construction of the A31 Magherafelt by-pass has now commenced. The by-pass will consist of a 5.9km single carriageway to the east of Magherafelt town. This Department is confident that the use of the by-pass will result in a reduction of NO2 levels, enabling the potential revocation of the AQMA.

There are no other issues of concern which need to be highlighted in this report.

Dungannon Area

Diffusion Tube monitoring at 10 locations within Dungannon and South Tyrone Borough Council's area has demonstrated that there are **2** sites where NO_2 levels exceeded the objective limit of 40ug/m^3; namely Newell Road, Dungannon and Charlemont Street in Moy. There are already Air Quality Management Areas in place for these 2 sites. Action Plans for the existing AQMAs at Newell Road, Dungannon and Charlemont Street, Moy were submitted in January 2015.

As was stated in the Progress Report in 2014 the Air Quality Management Areas at Church Street (Dungannon) and Stewartstown Road (Coalisland) had not breached the air quality objective for the previous three years. As a result these 2 AQMAs were revoked by Dungannon & South Tyrone Borough Council in November 2014.

Cookstown Area

Diffusion tube monitoring at 8 locations in the former Cookstown District Council area did not demonstrate any exceedences of the objective limit of 40ug/m^3. Routine monitoring of the 8 locations in Cookstown and Moneymore will continue under Mid Ulster District Council.

Contents

1 Introduction

1.1 Description of Local Authority Area

Mid-Ulster District Council is a local authority that was established on 1 April 2015 as a part of Local Government re-organisation in Northern Ireland. It amalgamates the three former Councils of Cookstown, Dungannon and South Tyrone, and Magherafelt.

Mid Ulster District Council, as the name suggests, is located centrally within the province. It straddles the two counties of Tyrone and Derry/ Londonderry. The District runs from Swatragh in the north to Fivemiletown in the south and from the Sperrin Mountains in the west to the shores of Lough Neagh in the east. Mid Ulster is the seventh largest of the eleven new council districts.

The district covers an area of some 1714 km^2 and serves a population of over 141,000 people. One third of the Council's population lives in urban areas while two thirds inhabit rural areas. The District has the fastest population growth when compared with the other 10 Council areas. The population increased by 18.7% from 2001 to 2013 compared with the Northern Ireland average of 8.3%.

Mid Ulster's employment sector is concentrated in the manufacturing, engineering, construction and agri-food industries.

1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process as set out in the Environment (Northern Ireland) Order 2002, the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedances are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

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 μg/m^3 (milligrams per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedances in each year that are permitted (where applicable).

Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in Northern Ireland

Pollutant	Air Quality Objective		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	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 (PM_{10}) (gravimetric)	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
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

1.4 Summary of Previous Review and Assessments

Magherafelt District Council

Magherafelt District Council in February 2001 submitted a "1st Stage Review and Assessment of Air Quality". Using DETR guidance documents, the Review and Assessment considered pollutants of concern to determine whether or not a Second Stage Review and Assessment was required. The results of the 1st Stage Review and Assessment are summarised below.

Table 1.2 – Magherafelt District Council Second Stage Review

POLLUTANT	**2ND STAGE REVIEW AND ASSESSMENT NEEDED**
Carbon Dioxide	No
Benzene	No
1,3 Butadiene	No
Lead	No
Nitrogen Dioxide	Yes
Sulphur Dioxide	Yes
PM10	Yes

A "2nd Stage Review and Assessment of Air Quality" was submitted in April 2004. The pollutants highlighted above were subject to further scrutiny and the conclusion of the report in part prepared by NETCEN was that there was no need to proceed to a Stage 3 Review and Assessment for SO2, NO2 or PM10.

A "Progress Report on Air Quality Management" was submitted in April 2005. A previous NETCEN report predicted an exceedance of the air quality objective for nitrogen dioxide in 2005 at site 6, however it was stated that the proposed A6 Toome by-pass would ease the weight of traffic on that road significantly and that an exceedance would not be likely. The 2005 report confirmed that the by-pass takes the bulk of traffic away from its original route thus reducing the impact of traffic on receptors close to the monitoring location. Results for site 6 showed a significant lowering of the annual average concentration in 2004 as opposed to the previous results. The new route runs through an area of open land in which there are no nearby receptors at present. Air quality objectives for SO2 and PM10 continued to be met.

An 'Air Quality Update and Screening Assessment' report was submitted in April 2006. This report concluded that there was no necessity to carry out a Detailed Assessment in respect of NO2, SO2 or PM10.

A "Progress Report on Air Quality Management" was submitted in April 2007. A review and assessment of pollutants showed the air quality objectives for NO2, SO2 and PM10 continued to be met throughout the district of Magherafelt.

A “Local Air Quality Management Grant Evaluation Form” was submitted in April 2008. Results for site 1 showed a clear exceedance for NO2 and therefore this department were advised to undertake a Detailed Assessment.

A “Progress Report on Air Quality Management” was submitted in August 2008. Due to the exceedance to the NO2 standard set for site 1, it was the intention of this department to provide an additional tube in the vicinity of the nearest residential property for comparison purposes.

A “Local Air Quality Management Grant Evaluation Form” was submitted in April 2009. Results for previous years showed a clear exceedance at site 1 for NO2 and so an additional tube (site 8) was provided in the vicinity of the nearest residential property for comparison purposes (from 4th September 2008). Results showed that levels of this pollutant met with standards set. Monitoring therefore ceased at site 1 as properties in the vicinity of this tube are now commercial or available for commercial use.

An ‘Air Quality Update and Screening Assessment’ report was submitted in May 2009. This report concluded that there was a necessity to carry out a Detailed Assessment in respect of NO2 at site 2.

A “Local Air Quality Management Grant Evaluation Form” and a “Progress Report on Air Quality Management” were submitted in July 2010. Additional sites were identified in the area surrounding site 2 in order to gain a comprehensive overview of the air quality standard in this area.

A “Detailed Assessment for NO2 Levels on Church Street and King Street, Magherafelt” was submitted March 2011 (amended September 2011) to the Air and Environmental Quality Unit of the Department of the Environment. This concluded that there were exceedances at site 2, 9 and 10 with other locations in this vicinity close to the objective limit. A recommendation to declare an AQMA was made.

A “Local Air Quality Management Grant Evaluation Form” was submitted in May 2011. This highlighted that a Detailed Assessment had been submitted however the final outcome had not been decided.

A “Local Air Quality Management Grant Evaluation Form” was submitted in March 2012. This highlighted that an AQMA had been formally declared.

An ‘Air Quality Update and Screening Assessment’ report was submitted in May 2012. This report concluded that an AQMA had been formally declared and that an Action Plan would be submitted.

A “Local Air Quality Management Grant Evaluation Form” was submitted in May 2013. This highlighted that an Action Plan would be submitted to DOENI and that monitoring commenced at additional sites adjacent to the AQMA as a result of new school premises and new traffic movements.

An ‘Air Quality Progress Report’ was submitted in December 2013. This highlighted that an Action Plan would be submitted to DOENI and that monitoring commenced at additional sites adjacent to the AQMA as a result of new school premises and new traffic movements.

An ‘Air Quality Progress Report’ was submitted in May 2014. This highlighted that an Action Plan would be submitted to DOENI and that monitoring commenced at additional sites adjacent to the AQMA as a result of new school premises and new traffic movements. This highlighted that an Action Plan would be submitted to DOENI and that monitoring at additional sites adjacent to the AQMA would continue to be monitored to establish if the designated area requires to be extended.

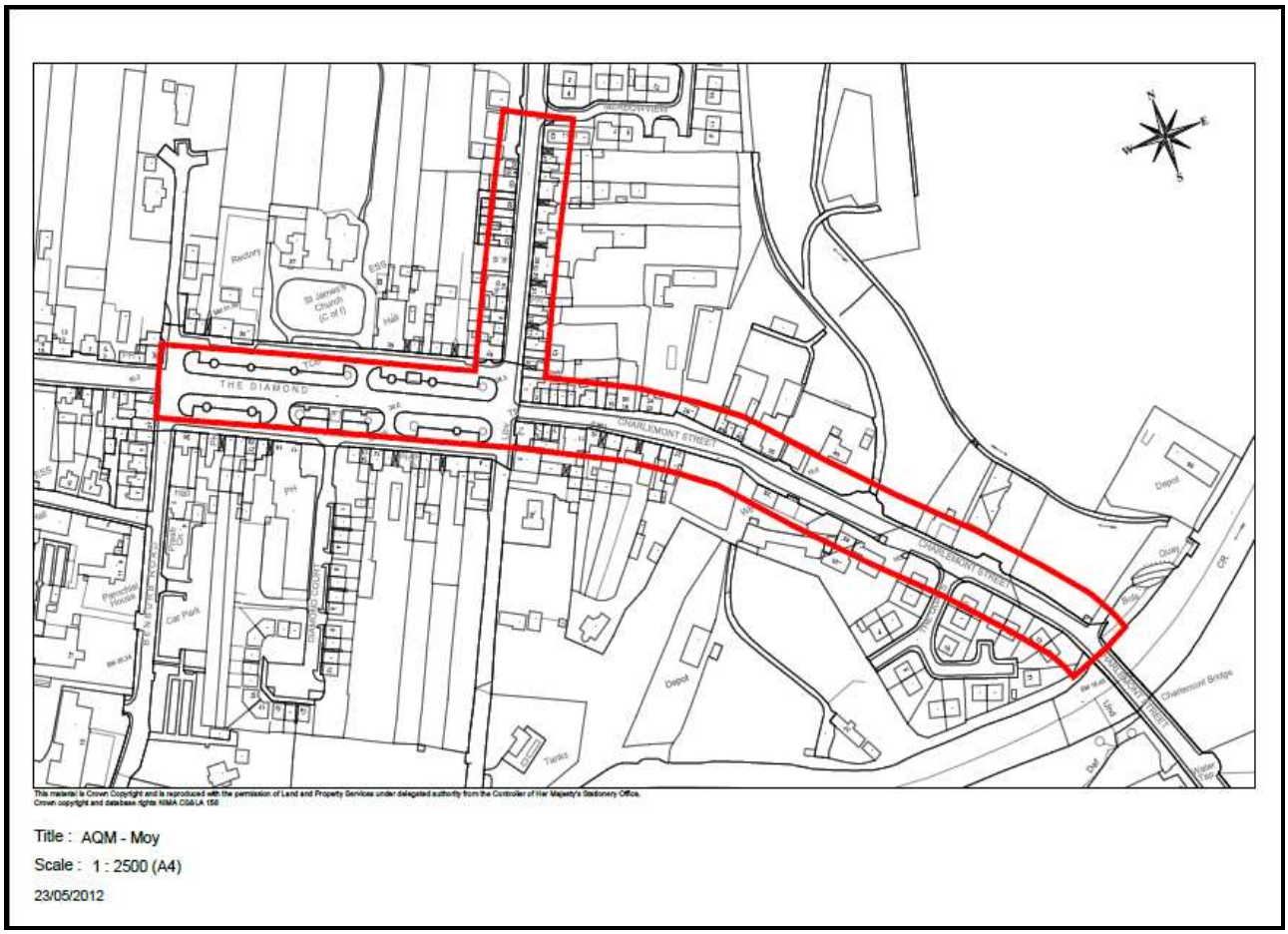
Fig 1.1- AQMA in former Magherafelt BC area.

Dungannon and South Tyrone District Council

Table 1.3- Summary of Previous Review and Assessment Report completed by Dungannon and South Tyrone Borough Council

Report Type	Date	Exceedences	Detailed Assessment Required	AQMA's Declared
Initial Review and Assessment	Jan 2001	None	Yes	None
Reappraisal of Traffic Pollution Modelling	Jan 2004	None	No	None
Report of the Second and Third Stage R&A of Local Air Quality	Aug 2004	None	No	None
Progress Report	June 2005	None	Yes	None
Review and Assessment: Supplementary Report on NO2 concentrations in Church Street Dungannon	June 2005	None	No	None
Updating and Screening Assessment	June 2006	Yes	Yes	None
Further Assessment of NO2 levels in Church Street	September 2007	Yes	No	Yes
Progress Report	June 2008	Yes	No	Already declared
Updating and Screening Assessment	April 2009	Yes	No	Already declared
AQMA Action Plan and Progress Report	July 2010	Yes	Yes	-
Progress Report	May 2011	Yes	Yes	Yes (3)
Detailed Assessment	July 2011	Yes		Yes
Updating and Screening Assessment	May 2012	Yes	No	No
Progress Report	May 2013	Yes	No	No
Progress Report	May 2014	Yes	No	No

Figure 1.2 Map of AQMA Boundaries Dungannon



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Title : AQM - Newell Road, Dungannon
Scale : 1 : 1000 (A4)
23/05/2012

Cookstown District Council

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:

Table 1.4

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 SO2 and PM10 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 SO2 and PM10 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 NO2 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 NO2 is therefore not being designated for this pollutant.

- Predicted concentrations of NO2 at a number of building facades of residential properties are close, but not exceeding air quality objectives. Further monitoring of NO2 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 NO2 annual mean objective have been identified.

3) Update and Screening Assessment Reports

Table 1.5 Summary of Cookstown D.C USA Reports.

Pollutant	USA Report 2006	USA Report 2009	USA Report 2012	Recommendation
Carbon Monoxide	The objective for CO is unlikely to be exceeded at any location in the Cookstown area.	The objective for CO is unlikely to be exceeded at any location in the Cookstown area.	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	The objective for Benzene is unlikely to be exceeded at any location in the Cookstown area.	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.	The objective for 1-3 Butadiene is unlikely to be exceeded at any location in the Cookstown area.	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 exceed at any location in the Cookstown area.	The objective for Lead is unlikely to be exceed at any location in the Cookstown area.	The objective for Lead is unlikely to be exceed 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.	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.	. 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.	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.	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.	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.	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 Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

There are no automatic monitoring sites within Mid Ulster District Council area

2.1.2 Non-Automatic Monitoring Sites

Former Magherafelt District Council Area

Table 2.1.a Details of Non - Automatic Monitoring Sites in former Magherafelt District Council area.

Magherafelt Office							
Site Name	Site Type	OS Grid Ref.	Pollutants Monitored	In AQMA?	Relevant Exposure	Distance to Kerb of nearest Road	Worst Case Location
2	Main route through town	X 8977 Y9073		Y	Y (1m)	1.5m	Y
3	Adj traffic lights	X8531 Y9043	NO_2	N	Y (1m)	1m	Y
4	Off main Rd leading to Cul de sac	X8989 Y9078	NO_2	Y	Y(10m)	1m	N
5	Roadside	X9251 Y9318	NO_2	N	Y(0m)	1m	Y
6	Adj to main arterial route	X9887 Y9085	NO_2	N	Y(25m)	1m	Y
7	Moderately used route to town centre	X8982 Y9069	NO_2	Y	Y(15m)	1m	Y
8	Nearest residential property to site 1.	X8960 Y9046	NO_2	N	Y(0m)	1m	Y
9	Adj. roundabout off town centre	X8974 Y9073	NO_2	Y	Y(10m)	1m	N
10	Adj. roundabout off town centre	X8979 Y9074	NO_2	Y	Y(0m)	1m	Y
11	Moderately used route to town centre	X8979 Y9071	NO_2	Y	Y(15m)	1m	N
12	Main route through town	X8989 Y9075	NO_2	Y	Y(15m)	1m	N
13	Main route through town	X8989 Y9077	NO_2	Y	Y(5m)	1m	Y
14	Main route through town	X8995 Y9083	NO_2	N	Y(5m)	1m	Y
15	Moderately used route to town centre	X8994 Y9084	NO_2	N	Y(10m)	1m	Y
16	Moderately used route to town centre	X8993 Y9089	NO_2	N	Y(5m)	1m	Y
17	Main route through town	X8997 Y9082	NO_2	N	Y(3m)	1m	Y
18	Main route through town	X8999 Y9085	NO_2	N	Y(3m)	1m	Y
19	Main route through town	X9003 Y9087	NO_2	N	Y(3m)	1m	Y
20	Main route through town	X9004 Y9089	NO_2	N	Y(20m)	1m	Y
21	Main route through town	X9008 Y9093	NO_2	N	Y(20m)	1m	Y
22	Main route through town	X9013 9097	NO_2	N	Y(20m)	1m	Y

Former Dungannon And South Tyrone Borough Council

Dungannon and South Tyrone Borough Council carried out monitoring of NO_2 by diffusion tubes at 10 sites within the borough during 2014. The NO_2 diffusion tubes were prepared and analysed by Environmental Sciences Group (ESG) Didcot. Environmental Sciences Group (ESG) Didcot was contracted to supply and analyse the diffusion tubes from the beginning of January 2013. This laboratory takes part in the NO_2 Network QA/QC Field Inter-comparison survey. ESG's diffusion tubes are prepared by coating the grids in 50% TEA in Acetone. Analysis is carried out using a colorimetric technique.

None of the sites were co-located with an automatic NO_2 analyser. Details are given in Table 2.1.2a.

Diffusion Tube Bias Adjustment Factors

The NO_2 diffusion tubes were prepared and analysed by Harwell Scientifics (ESG) from the beginning of April 2011. This laboratory takes part in the NO_2 Network QA/QC Field Intercomparison survey. Harwell Scientifics (ESG) diffusion tubes are prepared by coating the grids in 50% TEA in Acetone. Mid Ulster District Council obtained the appropriate bias factor from the Defra Website. A factor of 0.81 was taken from the drop down menus available on the excel spreadsheet matrix.

Factor from Local Co-location Studies (if available)

Dungannon and South Tyrone Borough Council did not use a Bias Factor from a local Co-location study. Dungannon and South Tyrone Borough Council do not have an automatic NO_2 analyser in the borough to carry out a co-location assessment.

Discussion of Choice of Factor to Use

Dungannon and South Tyrone Borough Council used the Bias Factor from the Defra Website. This was calculated by using the matrix available on the site by selecting the appropriate laboratory, year of monitoring and significant methodology.

Dungannon and South Tyrone Borough Council used a bias factor for 2014 (0.81)

QA/QC of diffusion tube monitoring (See Appendix A for Harwell Scientifics (ESG) WASP data)

Table 2.1.b Details of Non- Automatic Monitoring Sites in Former Dungannon & South Tyrone Borough Council Area

Dungannon Office								
Site Name	Site Type	OS Grid Ref.	Pollutants Monitored	In AQMA?	Is monitoring co-located with a continuous analyser? (Y/N)	Relevant Exposure	Distance to Kerb of nearest Road	Worst Case Location
Dunclare Way	Urban Background		NO_2	N	N	Y	<2m	Y
Ardgannon	Urban Background		NO_2	N	N	Y(<10)	<5m	Y
Church Street	Roadside		NO_2	N	N	Y(<1)	1m	Y
Newell Road	Roadside		NO_2	N	N	Y(<1)	1m	Y
Charlemont St. Moy	Roadside		NO_2	N	N	Y(<1)	1m	Y
Killyman St. Moy	Roadside		NO_2	N	N	Y(<1)	1m	Y
The Quays Moy	Urban Background		NO_2	N	N	Y(<5)	<5m	Y
Stewartstown Rd, Coalisland	Roadside		NO_2	N	N	Y(<5)	<5m	Y
Clogher	Roadside		NO_2	N	N	Y(<5)	<5m	Y
Fivemiletown	Roadside		NO_2	N	N	Y(<5)	<5m	Y

Former Cookstown District Council

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.

Table 2.1.c Details of Non-Automatic Monitoring Sites in Cookstown District Council Area

Cookstown Office								
Site Name	Site Type	OS Grid Ref.	Pollutants Monitored	In AQMA?	Is monitoring co-located with a continuous analyser? (Y/N)	Relevant Exposure	Distance to Kerb of nearest Road	Worst Case Location
Lawford St Moneymore	Roadside	X 285770 Y 383510	NO_2	N	N	Y	<1m	Y
William Street Cookstown	Kerbside	X 281071 Y 378445	NO_2	N	N	Y	6m	Y
James Street Cookstown	Roadside	X 281053 Y 378197	NO_2	N	N	Y	7m	Y
Church Street Cookstown	Kerbside	X 281121 Y 377537	NO_2	N	N	Y	<1m	Y
Killymoon Street, Cookstown	Kerbside	X 281225 Y 376939	NO_2	N	N	Y	7m	Y
Smith Street Moneymore	Kerbside	X 285813 Y 383458	NO_2	N	N	Y	1m	Y
Stonard Street Moneymore	Kerbside	X 285759 Y 383333	NO_2	N	N	Y	1m	Y
Conyngham Street,Moneymore	Kerbside	X 285874 Y 383341	NO_2	N	N	Y	1m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

Not applicable to Mid Ulster District Council.

2.1.2 Non-Automatic Monitoring Sites Diffusion Tube Monitoring Data

Former Magherafelt District Council

Table 2.2.a Results of Nitrogen Dioxide Diffusion Tubes 2014 in Magherafelt DC.

Magherafelt Office				
Site ID	OS Grid Ref	Within AQMA	Data Capture %	Annual Mean Concentrations 2014 (µg/m³) Adjusted for bias
2	X 8977 Y9073	Y	100	47*
3	X8531 Y9043	N	100	33
4	X8989 Y9078	Y	100	20
5	X9251 Y9318	N	25	25
6	X9887 Y9085	N	25	24
7	X8982 Y9069	Y	100	24
8	X8960 Y9046	N	25	24
9	X8974 Y9073	Y	100	42*
10	X8979 Y9074	Y	100	49*
11	X8979 Y9071	Y	92	30
12	X8989 Y9075	Y	100	30
13	X8989 Y9077	Y	75	26
14	X8995 Y9083	N	75	22
15	X8994 Y9084	N	75	20
16	X8993 Y9089	N	75	19
17	X8997 Y9082	N	75	31
18	X8999 Y9085	N	75	33
19	X9003 Y9087	N	75	32
20	X9004 Y9089	N	75	42*
21	X9008 Y9093	N	75	38
22	X9013 9097	N	75	25
*Indicates exceedences				

Analysis of the diffusion tubes was carried out by Gradko International Limited. An Air Quality Management Area has been declared in the District of Magherafelt on 14th February 2012 in respect of Church Street and lower King Street. This area has been shown on the map in Appendix 2 with monitoring sites on the map in Appendix 3. Monthly data for 2014 can be found in Appendix 4. Results for sites 2-4, 7 and 9-22 are calculated based on the national database bias adjustment factor of 0.91 for Gradko International Limited, spreadsheet version 03/15. Results for sites 5, 6 and 8 are calculated based on 3 months data and the local study (Belfast) bias adjustment factor of 0.95, spreadsheet version 03/15. Sites 5, 6 and 8 were decommissioned April 2014.

Table 2.3 Results of Nitrogen Dioxide Diffusion Tubes 2010 – 2014 in Magherafelt DC

Magherafelt Office							
Site ID	OS Grid Ref	Within AQMA	Annual Mean Concentrations (µg/m³). Adjusted for bias				
			2010	2011	2012	2013	2014
2	X 8977 Y9073	Y	37	47*	48*	44*	47*
3	X8531 Y9043	N	38	32	33	30	33
4	X8989 Y9078	Y	18	19	19	19	20
5	X9251 Y9318	N	20	23	23	20	25
6	X9887 Y9085	N	20	21	21	23	24
7	X8982 Y9069	Y	22	24	23	23	24
8	X8960 Y9046	N	34	25	26	22	24
9	X8974 Y9073	Y	54*	38	41*	42*	42*
10	X8979 Y9074	Y	59*	51*	50*	50*	49*
11	X8979 Y9071	Y	40*	30	30	29	30
12	X8989 Y9075	Y	39	31	32	33	30
13	X8989 Y9077	Y	N/A	N/A	N/A	25	26
14	X8995 Y9083	N	N/A	N/A	N/A	21	22
15	X8994 Y9084	N	N/A	N/A	N/A	19	20
16	X8993 Y9089	N	N/A	N/A	N/A	18	19
17	X8997 Y9082	N	N/A	N/A	N/A	29	31
18	X8999 Y9085	N	N/A	N/A	N/A	31	33
19	X9003 Y9087	N	N/A	N/A	N/A	34	32
20	X9004 Y9089	N	N/A	N/A	N/A	41*	42*
21	X9008 Y9093	N	N/A	N/A	N/A	37	38
22	X9013 9097	N	N/A	N/A	N/A	24	25
*Indicates exceedences							

Analysis of the diffusion tubes in 2010 was carried out by Gradko International Limited. Results are calculated based on the national database bias adjustment factor of 0.90.

Analysis of the diffusion tubes in 2011 was carried out by Gradko International Limited. Results are calculated based on the national database bias adjustment factor of 0.89.

Analysis of the diffusion tubes in 2012 was carried out by Gradko International Limited. Results are calculated based on the national database bias adjustment factor of 0.97. An Air Quality Management Area was declared in the District of Magherafelt on 14th February 2012 in respect of Church Street and lower King Street. This area has been shown on the map in Appendix 2 with monitoring sites on the map in Appendix 3.

Analysis of the diffusion tubes in 2013 was carried out by Gradko International Limited. Results are calculated based on the national database bias adjustment factor of 0.95 (extracted from Spreadsheet Version Number 03/14).

Analysis of the diffusion tubes in 2014 was carried out by Gradko International Limited. Results for sites 2-4, 7 and 9-22 are calculated based on the national database bias adjustment factor of 0.91 for Gradko International Limited (extracted from Spreadsheet Version Number 03/15). Results for sites 5, 6 and 8 are calculated based on 3 months data and the local study (Belfast) bias adjustment factor of 0.95 (extracted from Spreadsheet Version Number 03/15).

Former Dungannon and South Tyrone Borough Council

Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes in 2014 in Dungannon.

Dungannon Office

Site ID	Site Type	Within AQMA	Data Capture %	Triplicate or co-located	Confirm if data has been distance corrected	Annual Mean Concentrations 2014 (µg/m³) Adjusted for bias
Dunclare Way	Urban Background	Y	100	N	Y	7
Ardgannon	Urban Background	N	100	N	Y	11
Church Street	Roadside	Y	100	Triplicate	Y	36
Newell Road	Roadside	N	100	Triplicate	Y	52*
Charlemont St. Moy	Roadside	N	100	Triplicate	Y	55*
Killyman St. Moy	Roadside	Y	100	Triplicate	Y	25
The Quays Moy	Urban Background	N	100	Triplicate	Y	8
Stewartstown Rd, Coalisland	Roadside	Y	100	Triplicate	Y	33
Clogher	Roadside	Y	100	Triplicate	Y	33
Fivemiletown	Roadside	Y	100	Triplicate	Y	23

*Indicates exceedences

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes 2010 – 2014 in Dungannon & South Tyrone BC

Dungannon Office

Site ID	Site Type	Within AQMA	Annual Mean Concentrations (µg/m³). Adjusted for bias				
			2010	2011	2012	2013	2014
Market Square	Roadside	Y	26	22	22	20	N/A
Ardgannon	Roadside	N	13	6	12	12	12
Church Street Mews	Roadside	Y	43*	39	37	37	36
Church St. Takeaway	Background	N	36	25	30	30	N/A
Church Street St. Annes	Background	N	29	27	24	26	N/A
Church St Junction	Roadside	Y	47*	44*	45*	44*	N/A
Newell Road	Roadside	N	56*	46*	55*	52*	52*
Charlemont St., Moy	Roadside	Y	60*	55*	56*	56*	55*
Dungannon Rd, Coalisland	Roadside	Y	40	37	34	35	N/A
Stewartstown Rd, Coalisland	Roadside	Y	48*	40	35	34	33

*Indicates exceedences

Former Cookstown District Council

Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes in 2014

Cookstown Office						
Site ID	Site Type	Within AQMA	Data Capture %	Data with <9 months has been annualised?	Confirm if data has been distance corrected	Annual Mean Concentrations 2014 (µg/m³) (Bias adjustment factor = 0.92)
Lawford St Moneymore	Roadside	N	100	N/A	N	34
William Street Cookstown	Kerbside	N	100	N/A	N	25
James Street Cookstown	Roadside	N	92	N/A	N	30
Church Street Cookstown	Kerbside	N	100	N/A	N	26
Killymoon Street, Cookstown	Kerbside	N	100	N/A	N	33
Smith Street Moneymore	Kerbside	N	100	N/A	N	26
Stonard Street Moneymore	Kerbside	N	100	N/A	N	31
Conyngham Street,Moneymore	Kerbside	N	92	N/A	N	16
*Indicates exceedences						

Table 2.7 Results of Nitrogen Dioxide Diffusion Tubes (2012 to 2014)

Cookstown Office					
Site ID	Site Type	Within AQMA	Annual Mean Concentrations (µg/m³). Adjusted for bias		
			2012	2013	2014
Lawford St Moneymore	Roadside	N	35	31	34
William Street Cookstown	Kerbside	N	23	23	25
James Street Cookstown	Roadside	N	34	28	30
Church Street Cookstown	Kerbside	N	28	23	26
Killymoon Street, Cookstown	Kerbside	N	32	29	33
Smith Street Moneymore	Kerbside	N	27	22	26
Stonard Street Moneymore	Kerbside	N	34	32	31
Conyngham Street,Moneymore	Kerbside	N	N/A	16	16
*Indicates exceedences					

The results were adjusted for bias using figures obtained from the DEFRA Website under the Local Air Quality Management Section. The website lists the bias adjustment figures that should be applied to the diffusion tubes based on individual laboratories and the type of analysis undertaken. The overall 2014 figure for Gradko Laboratories and the 20% TEA method in water was 0.92. This is based on 22 studies. This was the figure used as it seemed most representative of the method in general.

The website can be found at the following address:

http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html

As can be seen from the results listed in Table 2.5 the bias adjusted factors were well below the air quality objective of
40 ugm-3. As a result of this, the department does not intend to declare an AQMA based on this result. When compared to the previous two years the results would seem to be roughly similar especially with regard to the 2012 results.

Automatic Monitoring Data
Mid Ulster District Council does not have any automatic monitoring sites.

2.2.2 PM_{10}

Mid Ulster District Council does not monitor for PM10 within the District.

2.2.3 Sulphur Dioxide

Mid Ulster District Council does not monitor for Sulphur Dioxide within the District.

2.2.4 Benzene

Mid Ulster District Council does not monitor for Benzene within the District.

2.2.5 Other pollutants monitored

Mid Ulster District Council does not monitor for any other pollutant within the District.

2.2.6 Summary of Compliance with AQS Objectives

Mid Ulster District Council has examined the results from monitoring in the district. Concentrations outside of the AQMA's are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Mid Ulster District Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

Mid Ulster District Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

3.3 Roads with a High Flow of Buses and/or HGVs.

Mid Ulster District Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

Mid Ulster District Council confirms that there are no new/newly identified busy junctions/busy roads.

3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

Mid Ulster District Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

Mid Ulster District Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

Mid Ulster District Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

Mid Ulster District Council confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

Mid Ulster District Council confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

4.2.2 Moving Trains

Mid Ulster District Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

4.3 Ports (Shipping)

Mid Ulster District Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

5.1.1 New or Proposed Installations for which an Air Quality Assessment has been Carried Out

Mid Ulster District Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced

Mid Ulster District Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

Mid Ulster District Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.2 Major Fuel (Petrol) Storage Depots

There are no major fuel (petrol) storage depots within the Local Authority area.

5.3 Petrol Stations

Mid Ulster District Council confirms that there are no petrol stations meeting the specified criteria**.**

5.4 Poultry Farms

Mid Ulster District Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Mid Ulster District Council confirms that there are no new biomass combustion plant in the District.

6.2 Biomass Combustion – Combined Impacts

Mid Ulster District Council confirms that there are no new biomass combustion plant in the District.

6.3 Domestic Solid-Fuel Burning

Mid Ulster District Council confirms that there are no areas of significant domestic fuel use in the District.

7 Fugitive or Uncontrolled Sources…

Mid Ulster District Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

Former Magherafelt District Council

Recent routine monitoring of NO2 levels in an area of Magherafelt town in part of Church Street and King Street have shown levels of exceedence of the standard set in Technical Guidance document LAQM.TG(09). A document entitled 'Detailed Assessment for NO2 Levels on Church Street and King Street, Magherafelt September 2011' was submitted to DOENI with the conclusion that there was a breach of the objective limit of 40ug/m^3 in this location, and recommending that the council should declare an AQMA as required by legislation and the technical guidance. The findings of the Detailed Assessment have been reviewed by the Air and Environmental Quality Unit of DOENI and the conclusions and recommendation accepted. An Air Quality Management Area has been formally declared in the District of Magherafelt on 14th February 2012 in respect of Church Street and lower King Street. This area has been shown on the map in Appendix 2.

To date concentrations within the AQMA continue to exceed the objective for NO2 at sites 2, 9 & 10 and as a result the AQMA should remain. The concentration at site 20 exceeds the objective for NO2 since monitoring commenced in 2013. All other concentrations outside of the AQMA are all below the objectives. As a result of historic results, monitoring at sites 5,6 & 8 ceased on 2nd April 2014.

Former Dungannon & South Tyrone Borough Council

Monitoring at 10 locations within Dungannon and South Tyrone Borough Council's area has demonstrated that there are **2** sites where NO_2 levels exceeded the objective limit of 40ug/m^3 ; Newell Road, Dungannon and Charlemont Street in Moy.

There are already Air Quality Management Areas in place for these 2 sites. Action Plans for the existing AQMAs at Newell Road, Dungannon and Charlemont Street, Moy were submitted in January 2015.

As was stated in the Progress Report in 2014 the Air Quality Management Areas at Church Street (Dungannon) and Stewartstown Road (Coalisland) had not breached the air quality objective in 3 consecutive years (2011, 2012, & 2013). These 2 AQMAs were revoked by Dungannon & South Tyrone Borough Council in November 2014.

No detailed assessments are required for NO_2 at this time.

Cookstown District Council

Cookstown District Council has no Air Quality Management Areas currently declared in the District. Air quality monitoring data for the 2014 year does not indicate the need to declare an AQMA at this time.

8.2 Conclusions from Assessment of Sources

Magherafelt DC
An Air Quality Management Area has been declared in the District of Magherafelt on 14th February 2012 in respect of Church Street and lower King Street. This area has been shown on the map in Appendix 2 and should remain in place.

Dungannon & South Tyrone BC
This Updating and Screening Assessment has determined that there are no impacts on local air quality from the assessment of sources in sections 3,4,5,6 & 7 of this Updating and Screening Assessment.

Cookstown DC
The assessment of new and existing sources did not identify any potential exceedances of air quality objectives in the district. This department does not therefore intend to conduct detailed assessments or declare any AQMA's based on the assessment of these sources.

8.3 Proposed Actions

Magherafelt DC

DOENI has accepted the content and conclusions of Detailed Assessment MDC/DA/02 submitted in September 2012. An AQMA has been formally declared (14th February 2012) and an Action Plan is to be submitted.

As a result of new school premises and new traffic movements adjacent to the AQMA, additional sites (13-22) continue to be monitored to establish if the designated area requires to be extended.

Construction of the A31 Magherafelt by-pass has now commenced. The by-pass will consist of a 5.9km single carriageway to the east of Magherafelt town. The Department for Regional Development has commissioned an Environmental Statement. In the section dealing with Environmental Impacts and Mitigation, the following is included regarding air quality;

'The EIA has demonstrated that many more people would benefit from reductions in concentrations of key pollutants with implications for local air quality and human health than would experience increases as a result of the diversion of strategic traffic from the existing road through the town to the proposed by-pass. It has also

demonstrated that the increases would result in concentration markedly below levels established as an indicator of risk to human health.

The evaluation of emissions of nitrous oxides, particulates and carbon monoxide as a contributor to regional air quality has concluded these would be small and not significant in the context of overall emissions'.

Magherafelt District Council concurs with the views expressed above and is confident that the use of the by-pass will result in a reduction of NO2 levels leading to improved health outcomes and enabling the AQMA to be revoked. Monitoring will continue at the current locations to ensure that future decisions are based on sufficient and robust evidence.

Dungannon & South Tyrone BC

This Updating and Screening Assessment has not identified the need to proceed to a detailed assessment. No new additional monitoring is required and the next course of action to be completed by Mid Ulster District Council is to submit a Progress Report in April 2016.

Cookstown DC

This Updating and Screening Assessment has not identified the need to proceed to a detailed assessment for any pollutant. This department's next course of action is to submit a Progress Report in 2016.

9 References

i. The Environment (Northern Ireland) Order 2002

ii. Air Quality Regulations (Northern Ireland) 2003

iii. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2000

iv. DEFRA Local Air Quality Management Technical Guidance LAQM.TG(09)

v. Magherafelt District Council 1st Stage Review and Assessment of Air Quality 2001

vi. Magherafelt District Council 2nd Stage Review and Assessment of Air Quality 2002

vii. Magherafelt District Council Progress Report on Air Quality Management 2005

viii. Magherafelt District Council Air Quality Update and Screening Assessment 2006

ix. Magherafelt District Council Progress Report on Air Quality Management 2007

x. Magherafelt District Council Local Air Quality Management Grant Evaluation Form 2008

xi. Magherafelt District Council Progress Report on Air Quality Management 2008

xii. Magherafelt District Council Local Air Quality Management Grant Evaluation Form 2009

xiii. Magherafelt District Council Air Quality Update and Screening Assessment 2009

xiv. Magherafelt District Council Local Air Quality Management Grant Evaluation Form 2010

xv. Magherafelt District Council Progress Report on Air Quality Management 2010

xvi. Magherafelt District Council Local Air Quality Management Grant Evaluation Form 2011

xvii. Magherafelt District Council Detailed Assessment for NO2 Levels on Church Street and King Street, Magherafelt 2011

xviii. Magherafelt District Council Local Air Quality Management Grant Evaluation Form 2012

xix. Magherafelt District Council Air Quality Update and Screening Assessment 2012

xx. Magherafelt District Council Local Air Quality Management Grant Evaluation Form 2013

xxi. Magherafelt District Council Air Quality Progress Report 2013

xxii. Magherafelt District Council Air Quality Progress Report 2014

xxiii. Cookstown District Council 1st Stage Review and Assessment - August 2001

xxiv. Cookstown District Council 2nd/3rd Stage Review and Assessment Report- August 2004.

xxv. Cookstown District Council – Updating and Screening Assessment – August 2006

xxvi. Cookstown District Council – Updating and Screening Assessment – Aug 2009

xxvii. Cookstown District Council – Updating and Screening Assessment – Aug 2012

xxviii. Cookstown District Council Progress Report – 2007

xxix. Cookstown District Council Progress Report – 2008

xxx. Cookstown District Council Progress Report – 2010

xxxi. Cookstown District Council Progress Report – 2011

xxxii. Cookstown District Council Progress Report – 2013

10 Appendices

Appendix 1: QA/QC Data

Appendix 2: Area designated as Air Quality Management Area

Appendix 3: Non-automatic monitoring sites in AQMA

Appendix 4: Nitrogen dioxide diffusion tube monthly data for 2014

Appendix 1: QA/QC Data

Magherafelt District Council

Diffusion Tube Bias Adjustment Factors

Gradko International Limited, St. Martins House, 77 Wales Street, Winchester, Hampshire, SO23 0RH have supplied and analysed our NO2 diffusion tubes from 2007.

2010 results are calculated based on the national database bias adjustment factor of 0.90. Bias adjustment factors were obtained from the Air Quality Review and Assessment website.

2011 results are calculated based on the national database bias adjustment factor of 0.89. Bias adjustment factors were obtained from the Air Quality Review and Assessment website.

2012 results are calculated based on the national database bias adjustment factor of 0.97.Bias adjustment factors were obtained from the Air Quality Review and Assessment website.

2013 results are calculated based on the national database bias adjustment factor of 0.95. Bias adjustment factors were obtained from the Air Quality Review and Assessment website.

2014 results for sites 2-4, 7 and 9-22 are calculated based on the national database bias adjustment factor of 0.91. Results for sites 5, 6 and 8 are calculated based on 3 months data and the local study (Belfast) bias adjustment factor of 0.95. Bias adjustment factors were obtained from the Air Quality Review and Assessment website.

Factor from Local Co-location Studies (if available)

Not applicable to Magherafelt District Council.

Discussion of Choice of Factor to Use

Guidance on the most suitable bias adjustment factor to be applied was taken from Technical Guidance.

PM Monitoring Adjustment

Not applicable to Magherafelt District Council, see section 1.4 of this report.

Short-term to Long-term Data adjustment

Short-term data obtained by Magherafelt District Council was not adjusted to long-term data.

QA/QC of automatic monitoring

Not applicable to Magherafelt District Council.

QA/QC of diffusion tube monitoring

Gradko International Limited is assessed annually by UKAS to establish conformance of the Laboratory Quality Procedures to the requirements of ISO/IEC 17025 Standard and have continually demonstrated a good performance in the WASP scheme for analysis of NO2 diffusion tubes, operated by the Health and Safety Laboratory.

Dungannon & South Tyrone BC

QA:QC Data and Gradko WASP Data

Diffusion Tube Bias Adjustment Factors

The NO_2 diffusion tubes were prepared and analysed by Environmental Sciences Group (ESG) Didcot from the beginning of January 2013. This laboratory takes part in the NO_2 Network QA/QC Field Intercomparison survey. ESG's diffusion tubes are prepared by coating the grids in 50% TEA in Acetone. Dungannon and South Tyrone Borough Council obtained the appropriate bias factor from the DEFRA Website. http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html A bias factor of **0.81** was taken from the drop down menus available on the excel spreadsheet matrix (version number 03/15).

Factor from Local Co-location Studies (if available)

Dungannon and South Tyrone Borough Council did not use a Bias Factor from a local Co-location study. Dungannon does not have an automatic NO_2 analyser in the borough to carry out a co-location assessment. Also, although a co-location factor may be available from neighbouring councils, it was felt that the national bias factor was drawn from a greater range of sites and could therefore be considered overall more representative of the sites monitored in the borough.

Discussion of Choice of Factor to Use

Dungannon and South Tyrone Borough Council used the Bias Factor from the Defra Website. http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html. This was calculated by using the matrix available on the site by selecting the appropriate laboratory, year of monitoring and significant methodology.

QA/QC of diffusion tube monitoring

Table 1: Laboratory summary performance for WASP NO2 PT Rounds 121-124 and AIR NO_2 PT rounds AR001, 3, 4 and 6

The following table lists those UK laboratories undertaking LAQM activities that have participated in recent WASP/AIR 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.

WASP Round	WASP R121	WASP R122	WASP R123	WASP R124	AIR PT AR001	AIR PT AR003	AIR PT AR004	AIR PT AR006
Round conducted in the period	April – June 2013	July – September 2013	October – December 2013	January – March 2014	April – May 2014	July – August 2014	October – November 2014	January – February 2015
Aberdeen Scientific Services	100 %	100 %	NR [2]	75 %	100 %	100 %	100 %	
Cardiff Scientific Services	100 %	100 %	100 %	100 %	NR [2]	NR [2]	NR [2]	
Edinburgh Scientific Services	100 %	75 %	100 %	100 %	100 %	100 %	100 %	
Environmental Services Group, Didcot [1]	100 %	100 %	100 %	??	100 %	100 %	100 %	
Exova (formerly Clyde Analytical)	NR [2]	NR [2]	NR [2]	50 %	NR [2]	NR [2]	NR [2]	
Glasgow Scientific Services	25 %	100 %	100 %	100 %	100 %	100 %	100 %	
Gradko International [1]	100 %	100 %	100 %	100 %	100 %	100 %	100 %	
Kent Scientific Services	75 %	100 %	100 %	100 %	NR [2]	NR [2]	NR [2]	
Kirklees MBC	100 %	100 %	100 %	100 %	100 %	100 %	100 %	
Lambeth Scientific Services	0 %	50 %	75 %	25 %	50 %	100 %	100 %	
Milton Keynes Council	100 %	75 %	75 %	75 %	100 %	100 %	75 %	
Northampton Borough Council	100 %	100 %	100 %	100 %	100 %	0 %	0 %	
Somerset Scientific Services	100 %	75 %	100 %	100 %	100 %	100 %	100 %	
South Yorkshire Air Quality Samplers	100 %	100 %	100 %	100 %	100 %	100 %	100 %	
Staffordshire County Council	100 %	100 %	100 %	100 %	100 %	25 %	100%	
Tayside Scientific Services (formerly Dundee CC)	100 %	100 %	100 %	100 %	NR [2]	100 %	100 %	
West Yorkshire Analytical Services	100 %	50 %	100 %	75 %	75 %	100 %	75 %	

[1] Participant subscribed to two sets of test samples (2 x 4 test samples) in each WASP PT round.
[2] NR Not reported.

Cookstown DC: QA:QC Data

Diffusion Tube Bias Adjustment Factors

The diffusion tube analysis for the Council in 2014 was carried out by Gradko International, Wincester, Hampshire, England. The tubes were exposed for a month at a time before being sent for laboratory analysis. The preparation method used was an absorbent of %20 TEA (Triethanolamine)/Water. Analysis was carried out by U.V. Spectrophotometry using a UVSO4 Camspec M550.

The results were adjusted for bias using figures obtained from the DEFRA Website. under the Local Air Quality Management Section. The website lists the bias adjustment figures that should be applied to the diffusion tubes based on individual laboratories and the type of analysis undertaken. The overall 2014 figure for Gradko Laboratories and the 20% TEA method in water was 0.92. This is based on 22 overall co-location studies. This was the figure used as it seemed most representative of the method in general.

The website can be found at the following address:
http://www.uwe.ac.uk/aqm/review/R&Asupport/diffusiontube290909.xls

Factor from Local Co-location Studies (if available)

This factor is not available in the Cookstown District.

Discussion of Choice of Factor to Use

Given that no locally available relevant co-location studies were available it was decided to use the national overall lo-location figure of 0.92 as this was representative of 22 separate co-location studies and was thought to represent a good ‘average’ figure.

1) Appendix 2: Non-automatic monitoring sites

Non Automatic Monitoring Sites in AQMA in Magherafelt

Non Automatic Monitoring Sites in Dungannon

1. Dunclare Way

NO_2 Monitoring Point
(Passive Diffusion Tube)

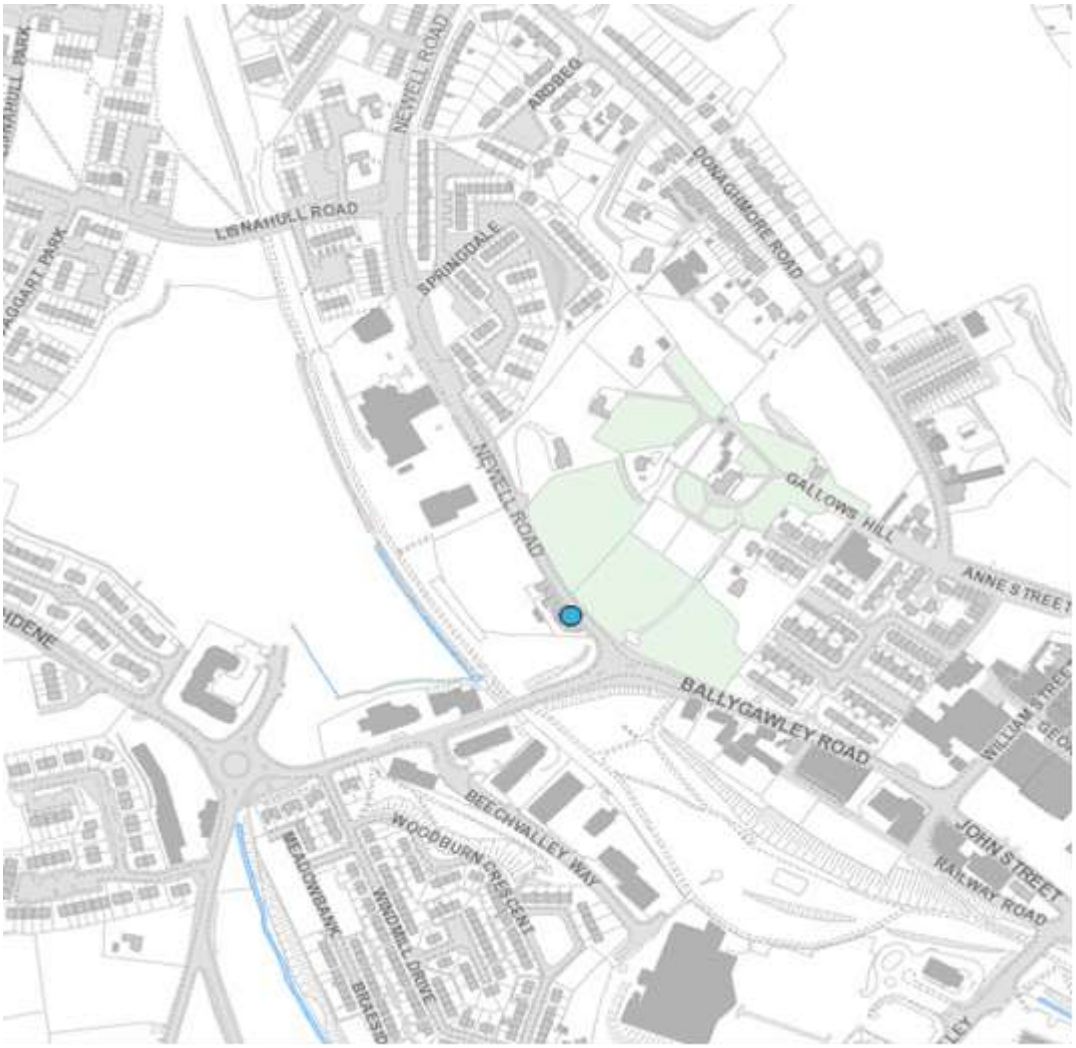
2. Ardgannon

NO_2 Monitoring Point
(Passive Diffusion Tube)

3. Church Street

NO_2 Monitoring Point
(Passive Diffusion Tube)

4. Newell Road



NO_2 Monitoring Point
(Passive Diffusion Tube)

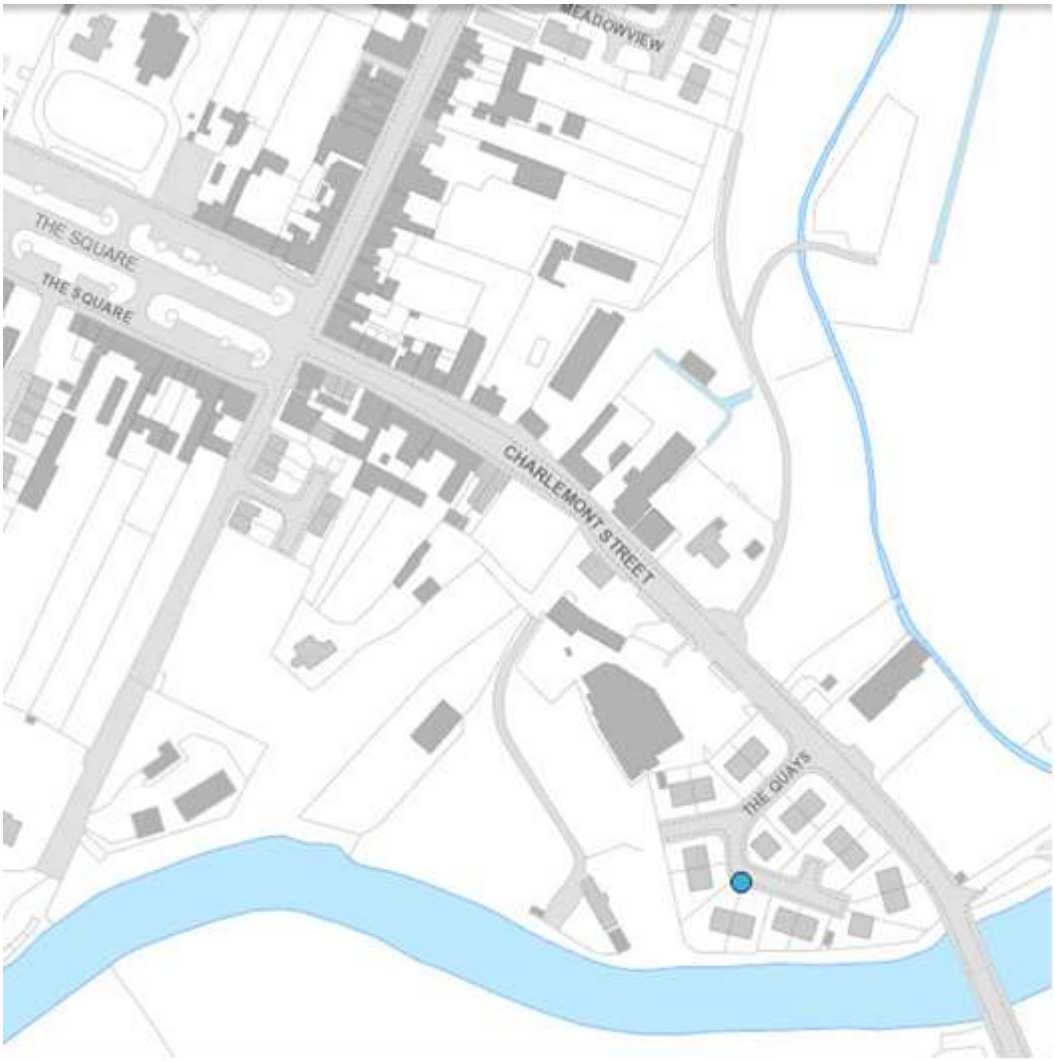
5. Charlemont St, Moy

NO_2 Monitoring Point
(Passive Diffusion Tube)

6. Killyman Street, Moy

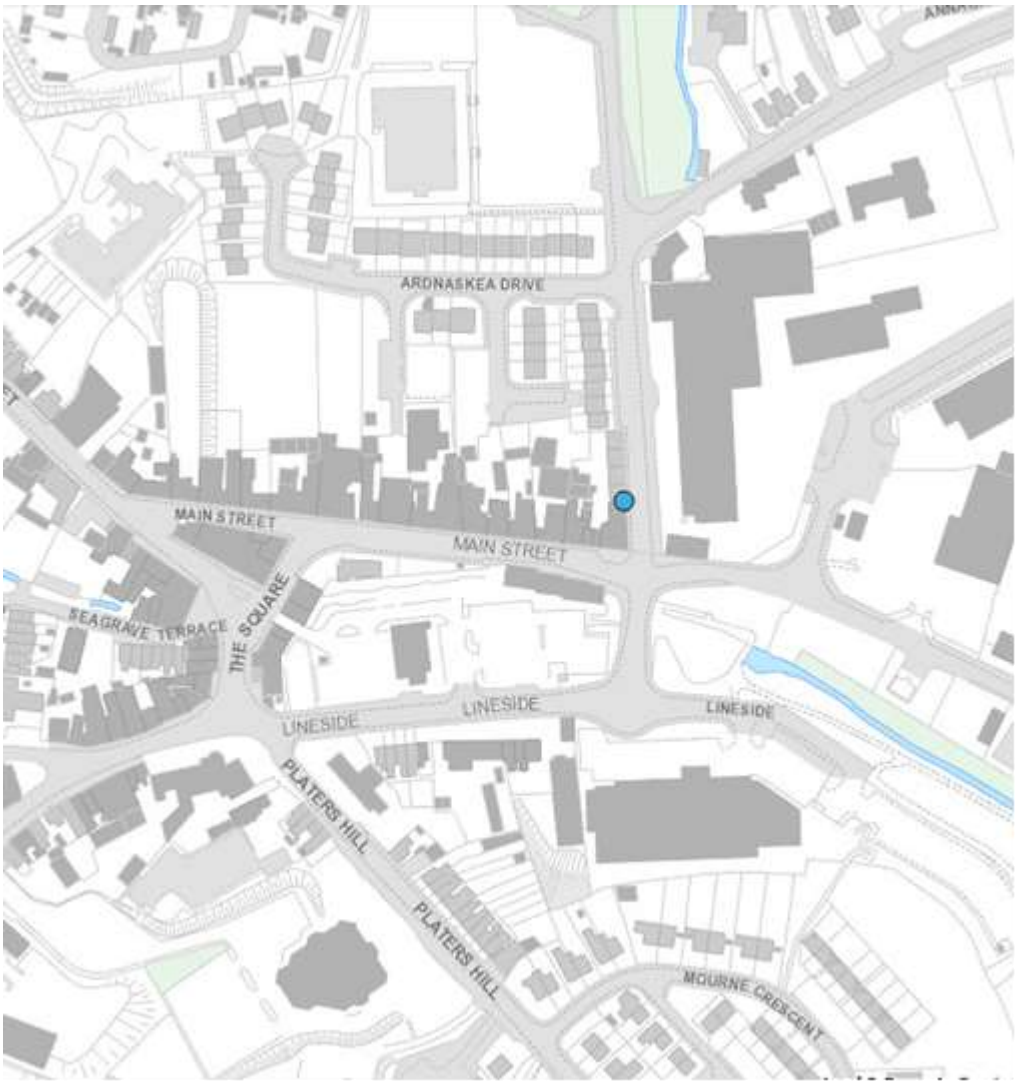
NO_2 Monitoring Point
(Passive Diffusion Tube)

7. The Quays, Moy



NO_2 Monitoring Point
(Passive Diffusion Tube)

8. Stewartstown Road, Coalisland



NO_2 Monitoring Point
(Passive Diffusion Tube)

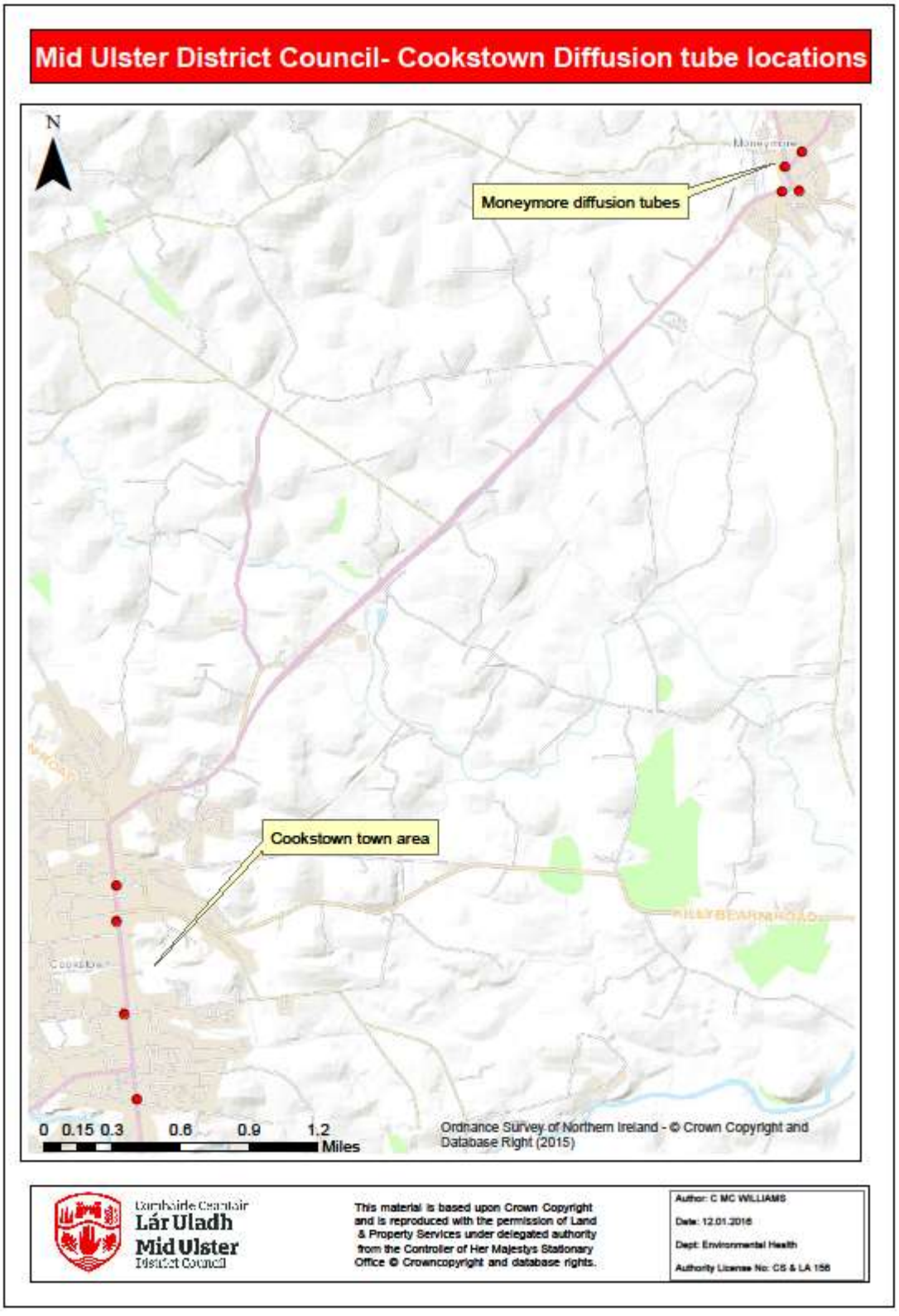
9. Main Street, Clogher

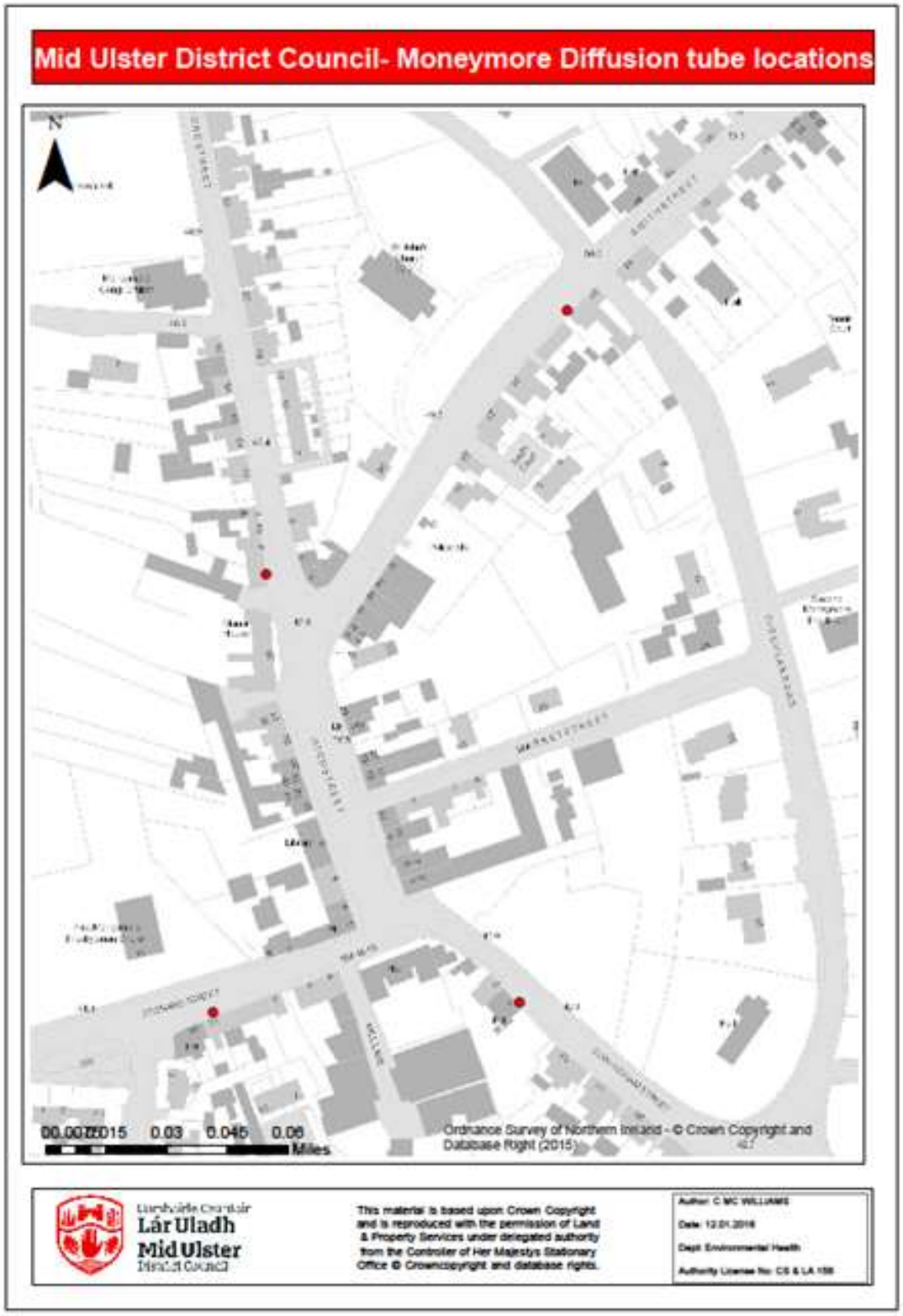
NO_2 Monitoring Point
(Passive Diffusion Tube)

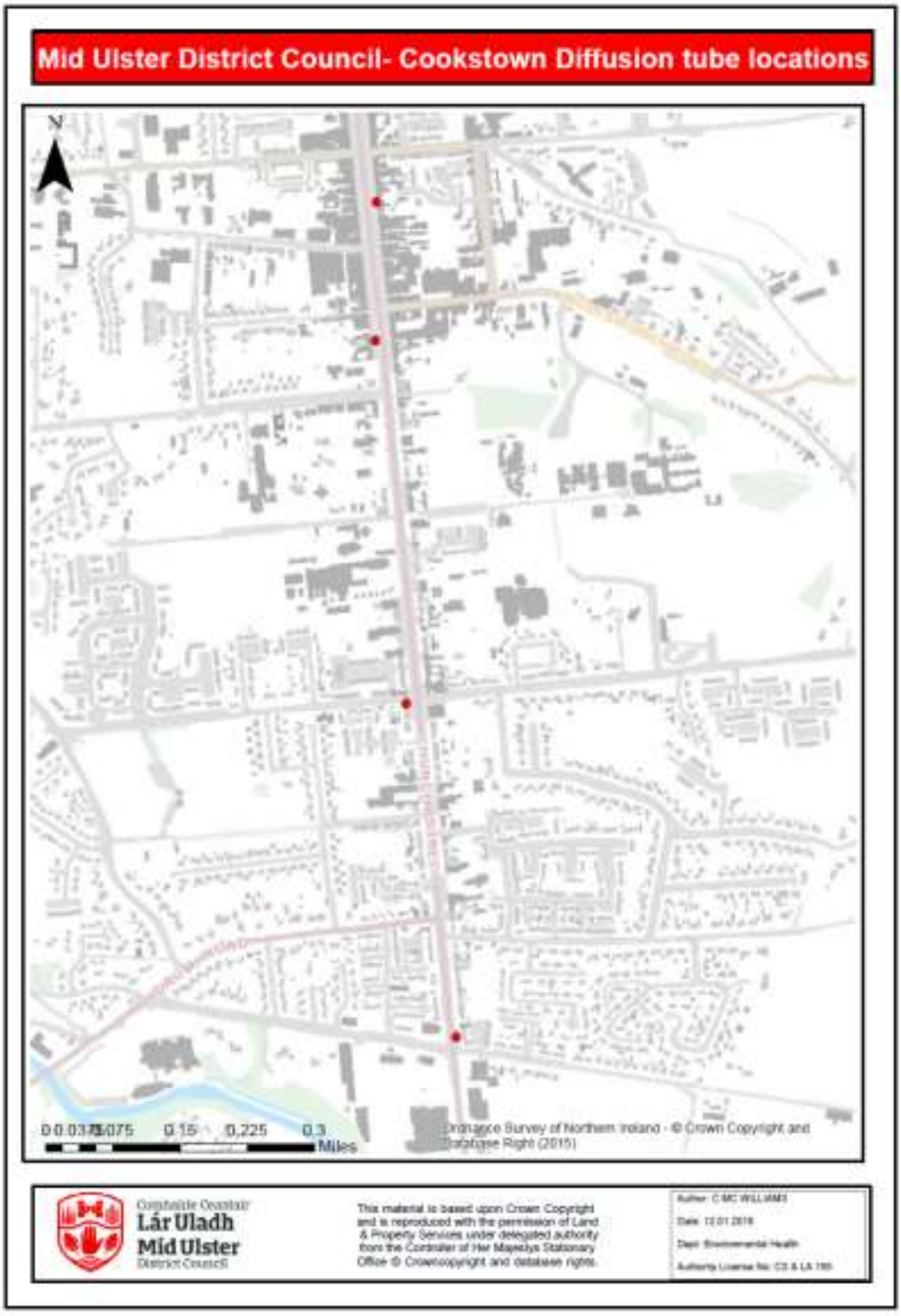
10. Main Street, Fivemiletown

NO_2 Monitoring Point
(Passive Diffusion Tube)

Non Automatic Monitoring Sites in Cookstown




Mid Ulster District Council- Moneymore Diffusion tube locations
N
0.015 0.03 0.045 0.06
Miles
Ordnance Survey of Northern Ireland - © Crown Copyright and Database Right (2015)
Lár Uladh
Mid Ulster
This material is based upon Crown Copyright and is reproduced with the permission of Land & Property Services under delegated authority from the Controller of Her Majestys Stationary Office © Crowncopyright and database rights.


Mid Ulster District Council- Cookstown Diffusion tube locations
N
0 0.0375 0.075 0.15 0.225 0.3
Miles
Ordnance Survey of Northern Ireland - © Crown Copyright and Database Right (2015)
Comhairle Ceantair
Lár Uladh
Mid Ulster
District Council
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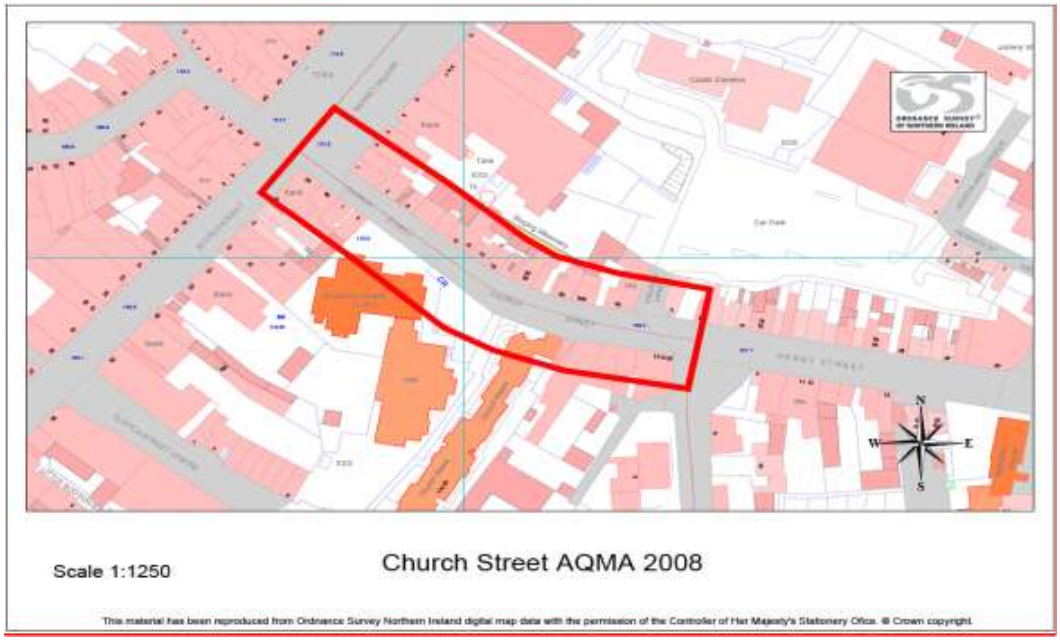
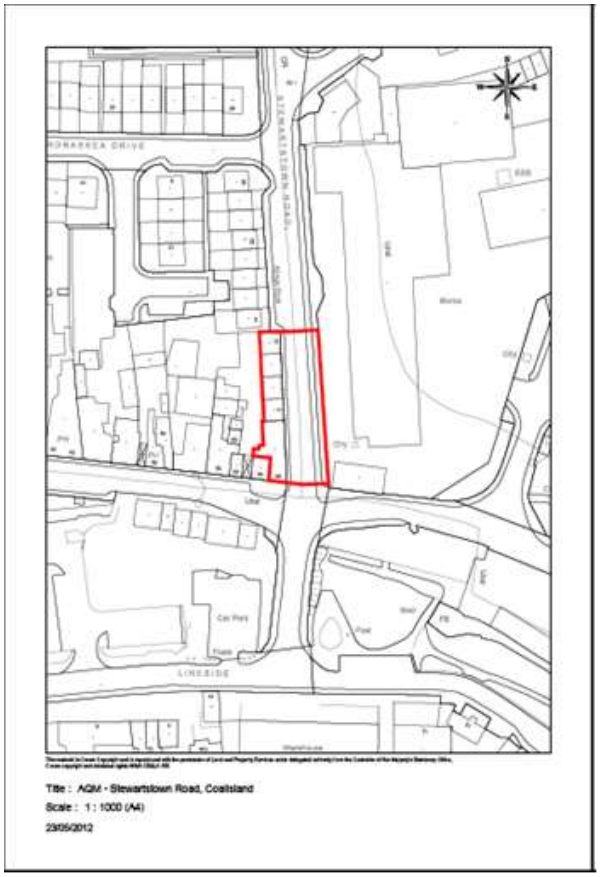
2) Appendix 3:

Revoked AQMA's in the Dungannon & South Tyrone BC area.





3) Appendix 4:

Nitrogen dioxide diffusion tube monthly data for 2014

gradko environmental
(A division of Gradko International Ltd.)
St. Martins House, 77 Wales Street Winchester, Hampshire SO23 0RH
tel: 01962 860334 fax: 01962 841539 e-mail:diffusion@gradko.co.uk

2187

LABORATORY ANALYSIS REPORT

NITROGEN DIOXIDE IN DIFFUSION TUBES BY U.V.SPECTROPHOTOMETRY

REPORT NUMBER I00497R

BOOKING IN REFERENCE I00497
DESPATCH NOTE SOR012155
CUSTOMER Magherafelt District Council Attn: Susan Martin
Environmental Health Dept,
50 Ballyronan Road,
Magherafelt,
Co Londonderry.
BT45 6EN

DATE SAMPLES RECEIVED 06/02/2014

Location	Sample Number	Exposure Data Date On	Date Off	Time (hr.)	µg/m³ ^	ppb *	TOTAL µg NO_2
2	284721	02/01/2014	05/02/2014	816.00	45.63	23.82	2.71
3	284722	02/01/2014	05/02/2014	816.00	36.62	19.11	2.17
4	284723	02/01/2014	05/02/2014	816.00	32.76	17.10	1.94
5	284724	02/01/2014	05/02/2014	816.00	27.79	14.51	1.65
6	284725	02/01/2014	05/02/2014	816.00	23.80	12.42	1.41
7	284726	02/01/2014	05/02/2014	816.00	31.00	16.18	1.84
8	284727	02/01/2014	05/02/2014	816.00	27.30	14.25	1.62
9	284728**	02/01/2014	05/02/2014	816.00	56.05	29.26	3.32
10	284729	02/01/2014	05/02/2014	816.00	48.10	25.11	2.85
11	284730	02/01/2014	05/02/2014	816.00	36.78	19.19	2.18
12	284731	02/01/2014	05/02/2014	816.00	31.64	16.51	1.88
13	284732	02/01/2014	05/02/2014	816.00	35.55	18.55	2.11
14	284733	02/01/2014	05/02/2014	816.00	33.71	17.59	2.00
15	284734	02/01/2014	05/02/2014	816.00	25.85	13.49	1.53
16	284735	02/01/2014	05/02/2014	816.00	33.38	17.42	1.98
17	284736	02/01/2014	05/02/2014	816.00	38.93	20.32	2.31
18	284737	02/01/2014	05/02/2014	816.00	38.01	19.84	2.25
19	284738	02/01/2014	05/02/2014	816.00	35.22	18.38	2.09
20	284739	02/01/2014	05/02/2014	816.00	45.65	23.81	2.71
21	284740	02/01/2014	05/02/2014	816.00	42.10	21.97	2.50
22	284741	02/01/2014	05/02/2014	816.00	32.63	17.03	1.94
Laboratory Blank				816.00	0.12	0.06	0.007

Comment: Results are not blank subtracted

Tubes marked ** were diluted to read within our UKAS accredited calibration range.

Results have been corrected to a temperature of 293 K (20°)

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. Those results obtained using exposure data shall be indicated by a ^ symbol. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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UKAS TESTING 2187

LABORATORY ANALYSIS REPORT

Overall NLU.	5.2% +/-	**Limit of Detection**	0.010µgNO_2
Tube Preparation	20% TEA / Water		
Analysed on	UV26 Camspec M550		
		Analyst Name	Laure Digby
Date of Analysis	10/02/2014	**Date of Report**	10/02/2014

Analysis carried out in accordance with documented in-house Laboratory Method GLM7

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. Thus results obtained using exposure data should be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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LABORATORY ANALYSIS REPORT

NITROGEN DIOXIDE IN DIFFUSION TUBES BY U.V.SPECTROPHOTOMETRY

REPORT NUMBER 10C22R

BOOKING IN REFERENCE 10C22
DESPATCH NOTE SOR012155
CUSTOMER Maghersfelt District Council Attn: Susan Martin
Environmental Health Dept.
50 Ballyronan Road,
Maghersfelt
Co Londonderry
BT45 6EN

DATE SAMPLES RECEIVED 18/03/2014

Location	Sample Number	Exposure Data Date On	Date Off	Time (hr.)	µg/m³ *	ppb *	TOTAL µg NO_2
2	298405**	05/02/2014	12/03/2014	840.00	64.43	33.83	3.93
3	298407	05/02/2014	12/03/2014	840.00	38.95	20.33	2.38
4	298408	05/02/2014	12/03/2014	840.00	28.24	14.74	1.72
5	298409	05/02/2014	12/03/2014	840.00	27.51	14.25	1.67
6	298410	05/02/2014	12/03/2014	840.00	26.02	13.58	1.59
7	298411	05/02/2014	12/03/2014	840.00	28.50	14.88	1.74
8	298412	05/02/2014	12/03/2014	840.00	27.17	14.18	1.66
9	298415**	05/02/2014	12/03/2014	840.00	58.07	30.31	3.55
10	298414**	05/02/2014	12/03/2014	840.00	53.43	27.85	3.26
11	298415	05/02/2014	12/03/2014	840.00	42.23	22.04	2.58
12	298416	05/02/2014	12/03/2014	840.00	38.03	19.85	2.32
13	298417	05/02/2014	12/03/2014	840.00	36.97	19.30	2.26
14	298418	05/02/2014	12/03/2014	840.00	28.42	14.83	1.74
15	298419	05/02/2014	12/03/2014	840.00	29.38	15.34	1.79
16	298420	05/02/2014	12/03/2014	840.00	30.92	16.14	1.89
17	298421	05/02/2014	12/03/2014	840.00	41.77	21.80	2.55
18	298422	05/02/2014	12/03/2014	840.00	43.60	22.70	2.66
19	298423	05/02/2014	12/03/2014	840.00	40.86	21.32	2.49
20	298424**	05/02/2014	12/03/2014	840.00	59.59	31.10	3.64
21	298425	05/02/2014	12/03/2014	840.00	45.71	25.42	2.97
22	298426	05/02/2014	12/03/2014	840.00	37.21	19.42	2.27
Laboratory Blank				840.00	0.13	0.07	0.008

Comment: Results are not blank subtracted
Tubes marked ** were diluted to read within our UKAS accredited calibration range.

Results have been corrected to a temperature of 293 K (20°)

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. Those results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data on this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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LABORATORY ANALYSIS REPORT

Overall M.U.	5.2% +/-	**Limit of Detection**	0.010ugNO_2
Tube Preparation : 20% TEA / Water			
Analysed on UV05 Cainspec M550			
		Analyst Name	Laura Digby
Date of Analysis	24/05/2014	**Date of Report**	25/05/2014

Analysis carried out in accordance with documented in-house Laboratory Method GLM7

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures, calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. Those results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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LABORATORY ANALYSIS REPORT

NITROGEN DIOXIDE IN DIFFUSION TUBES BY U.V.SPECTROPHOTOMETRY

REPORT NUMBER I01231R

BOOKING IN REFERENCE I01231
DESPATCH NOTE SOR015052
CUSTOMER Magherafelt District Council Attn: Susan Martin
Environmental Health Dept,
50 Ballyronan Road,
Magherafelt
Co Londonderry.
BT45 6EN

DATE SAMPLES RECEIVED 03/04/2014

Location	Sample Number	Exposure Data Date On	Date Off	Time (hr.)	µg/m³ *	ppb *	TOTAL µg NO_2
2	312828	12/03/2014	02/04/2014	504.00	49.37	25.77	1.81
3	312829	12/03/2014	02/04/2014	504.00	34.36	17.93	1.26
4	312830	12/03/2014	02/04/2014	504.00	19.48	10.15	0.71
5	312831	12/03/2014	02/04/2014	504.00	24.88	12.98	0.91
6	312832	12/03/2014	02/04/2014	504.00	25.44	13.26	0.93
7	312833	12/03/2014	02/04/2014	504.00	24.04	12.55	0.88
8	312834	12/03/2014	02/04/2014	504.00	22.65	11.77	0.83
9	312835	12/03/2014	02/04/2014	504.00	45.15	23.57	1.66
10	312836	12/03/2014	02/04/2014	504.00	53.98	28.12	1.97
11	312837	12/03/2014	02/04/2014	504.00	30.48	15.91	1.12
12	312838	12/03/2014	02/04/2014	504.00	36.31	18.95	1.33
13	312839	12/03/2014	02/04/2014	504.00	30.29	15.81	1.11
14	312840	12/03/2014	02/04/2014	504.00	26.29	13.72	0.96
15	312841	12/03/2014	02/04/2014	504.00	24.27	12.67	0.89
16	312842	12/03/2014	02/04/2014	504.00	23.24	12.13	0.85
17	312843	12/03/2014	02/04/2014	504.00	36.52	19.06	1.34
18	312844	12/03/2014	02/04/2014	504.00	39.29	20.51	1.44
19	312845	12/03/2014	02/04/2014	504.00	16.91	8.83	0.62
20	312846	12/03/2014	02/04/2014	504.00	42.46	22.17	1.56
21	312847	12/03/2014	02/04/2014	504.00	38.30	19.99	1.40
22	312848	12/03/2014	02/04/2014	504.00	29.74	15.52	1.09
Laboratory Blank				504.00	0.25	0.13	0.009

Comment: Results are not blank subtracted
Tubes 312831, 312834 and 312832 were received without white caps on. Results may be compromised.

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures, calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. These results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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tel.: 01962 868833 fax: 01962 841559 e-mail:diffusion@gradko.co.uk

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LABORATORY ANALYSIS REPORT

Results have been corrected to a temperature of 293 K (20°)

Overall M.U.	5.2% +/-	**Limit of Detection**	0.010µgNO$_2$
Tube Preparation: 20% TEA / Water			
Analysed on UV05 Camspec M550			
		Analyst Name	Laura Digby
Date of Analysis	09/04/2014	**Date of Report**	09/04/2014

Analysis carried out in accordance with documented in-house Laboratory Method GLM7

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. These results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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tel.: 01962 860331   fax: 01962 841339   e-mail:diffusion@gradko.co.uk

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LABORATORY ANALYSIS REPORT

NITROGEN DIOXIDE IN DIFFUSION TUBES BY U.V.SPECTROPHOTOMETRY

REPORT NUMBER I01586R

BOOKING IN REFERENCE I01586
DESPATCH NOTE SORC15032
CUSTOMER Magherafelt District Council   Attn. Susan Martin
Environmental Health Dept,
50 Ballyronan Road,
Magherafelt
Co Londonderry.
BT45 6EN

DATE SAMPLES RECEIVED 01/05/2014

Location	Sample Number	Exposure Data Date On	Date Off	Time (hr.)	µg/m³ *	ppb *	TOTAL µg NO_2
2	336160	02/04/2014	30/04/2014	672.00	49.19	25.67	2.40
3	336161	02/04/2014	30/04/2014	672.00	34.92	18.22	1.71
4	336162	02/04/2014	30/04/2014	672.00	22.03	11.50	1.08
7	336163	02/04/2014	30/04/2014	672.00	25.32	13.21	1.24
9	336164	02/04/2014	30/04/2014	672.00	38.31	19.99	1.87
10	336165	02/04/2014	30/04/2014	672.00	56.51	29.49	2.76
11	336166	02/04/2014	30/04/2014	672.00	31.00	16.18	1.51
12	336167	02/04/2014	30/04/2014	672.00	30.50	15.92	1.49
13	336168	02/04/2014	30/04/2014	672.00	24.00	12.53	1.17
14	336169	02/04/2014	30/04/2014	672.00	23.97	12.51	1.17
15	336170	02/04/2014	30/04/2014	672.00	18.96	9.91	0.93
16	336171	02/04/2014	30/04/2014	672.00	20.10	10.49	0.98
17	336172	02/04/2014	30/04/2014	672.00	31.26	16.32	1.53
18	336173	02/04/2014	30/04/2014	672.00	33.19	17.32	1.62
19	336174	02/04/2014	30/04/2014	672.00	33.73	17.60	1.65
20	336175	02/04/2014	30/04/2014	672.00	40.28	21.02	1.97
21	336176	02/04/2014	30/04/2014	672.00	40.74	21.26	1.99
22	336177	02/04/2014	30/04/2014	672.00	26.13	13.64	1.28
Laboratory Blank				672.00	0.12	0.06	0.006

Comment: Results are not blank subtracted
Results have been corrected to a temperature of 293 K (20°)

Overall M.U. 5.2% +/-   **Limit of Detection** 0.01 µgNO_2

Tube Preparation : 20% TEA / Water

Analysed on UV05 Camspec M550

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. Those results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

Form LQF32b Issue 4 – September 2012   Report Number I01586R   Page 1 of 2

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LABORATORY ANALYSIS REPORT

		Analyst Name	Laura Digby
Date of Analysis	07/05/2014	**Date of Report**	07/05/2014

Analysis carried out in accordance with documented in-house Laboratory Method GLM7

The Diffusion Tubes have been tested within the scope of Gradko International Ltd Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. Those results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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LABORATORY ANALYSIS REPORT

NITROGEN DIOXIDE IN DIFFUSION TUBES BY U.V.SPECTROPHOTOMETRY

REPORT NUMBER I02056R

BOOKING IN REFERENCE I02056
DESPATCH NOTE SOR015032
CUSTOMER Magherafelt District Council Attn: Susan Martin
Environmental Health Dept.
50 Ballyronan Road,
Magherafelt,
Co Londonderry.
BT45 3EN

DATE SAMPLES RECEIVED 30/05/2014

Location	Sample Number	Exposure Data Date On	Date Off	Time (hr.)	µg/m³ *	ppb ^	TOTAL µg NO_2
2	351232	30/04/2014	28/05/2014	672.00	47.77	24.93	2.33
3	351233	30/04/2014	28/05/2014	672.00	29.92	15.62	1.46
4	351234	30/04/2014	28/05/2014	672.00	19.90	10.39	0.97
7	351235	30/04/2014	28/05/2014	672.00	24.01	12.53	1.17
9	351236	30/04/2014	28/05/2014	672.00	42.37	22.10	2.07
10	351237	30/04/2014	28/05/2014	672.00	50.68	26.46	2.48
11	351238	30/04/2014	28/05/2014	672.00	29.27	15.27	1.43
12	351239	30/04/2014	28/05/2014	672.00	26.91	14.04	1.31
13	351240	30/04/2014	28/05/2014	672.00	25.13	13.12	1.23
14	351241	30/04/2014	28/05/2014	672.00	22.10	11.54	1.08
15	351242	30/04/2014	28/05/2014	672.00	20.09	10.48	0.98
16	351243	30/04/2014	28/05/2014	672.00	16.18	8.49	0.89
17	351244	30/04/2014	28/05/2014	672.00	31.27	16.32	1.53
18	351245	30/04/2014	28/05/2014	672.00	34.57	18.04	1.69
19	351246	30/04/2014	28/05/2014	672.00	37.71	19.68	1.84
20	351247	30/04/2014	28/05/2014	672.00	38.19	19.93	1.87
21	351248	30/04/2014	28/05/2014	672.00	40.54	21.16	1.98
22	351249	30/04/2014	28/05/2014	672.00	25.52	13.32	1.25
Laboratory Blank				672.00	0.14	0.07	0.007

Comment: Results are not blank subtracted
Tube 351241 was received crack. Results may be compromised.
Results have been corrected to a temperature of 293 K (20°)
Overall M.U. 5.2% +/- Limit of Detection 0.01 µgNO_2
Tube Preparation : 20% TEA / Water

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments of precise the exposure periodicities and periods provided by the client are not within the scope of our UKAS accreditation. Above results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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LABORATORY ANALYSIS REPORT

Analysed on UV05 Camspec M550

		Analyst Name	Laura Digby
Date of Analysis	09/09/2014	Date of Report	10/09/2014

Analysis carried out in accordance with documented in-house Laboratory Method GLM7

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. These results obtained using exposure data should be fashioned by an assessor. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced except in full, without the written permission of Gradko International Ltd.

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UKAS TESTING 2187

LABORATORY ANALYSIS REPORT

NITROGEN DIOXIDE IN DIFFUSION TUBES BY U.V.SPECTROPHOTOMETRY

REPORT NUMBER I02481R

BOOKING IN REFERENCE I02481
DESPATCH NOTE SORD15052
CUSTOMER Magherafelt District Council Attn: Susan Martin
Environmental Health Dept,
50 Ballyronan Road,
Magherafelt,
Co Londonderry.
BT45 6EN

DATE SAMPLES RECEIVED 02/07/2014

Location	Sample Number	Exposure Data: Date On	Date Off	Time (hr.)	µg/m³ *	TOTAL: ppb *	µg NO_2
2	367337**	28/05/2014	01/07/2014	816.00	56.99	29.22	3.32
3	367338	28/05/2014	01/07/2014	816.00	30.90	16.13	1.83
4	367339	28/05/2014	01/07/2014	816.00	13.56	7.08	0.80
7	367340	28/05/2014	01/07/2014	816.00	21.01	10.97	1.25
9	367341	28/05/2014	01/07/2014	816.00	42.31	22.08	2.51
10	367342**	28/05/2014	01/07/2014	816.00	57.38	29.95	3.40
11	367343	28/05/2014	01/07/2014	816.00	27.85	14.58	1.60
12	367344	28/05/2014	01/07/2014	816.00	27.97	14.60	1.66
13	367345	28/05/2014	01/07/2014	816.00	20.99	10.95	1.24
14	367346	28/05/2014	01/07/2014	816.00	18.17	9.48	1.08
15	367347	28/05/2014	01/07/2014	816.00	16.93	8.84	1.00
16	367348	28/05/2014	01/07/2014	816.00	13.72	7.16	0.81
17	367349	28/05/2014	01/07/2014	816.00	28.22	14.73	1.67
18	367350	28/05/2014	01/07/2014	816.00	35.92	18.27	2.19
19	367351	28/05/2014	01/07/2014	816.00	46.04	24.03	2.73
20	367352	28/05/2014	01/07/2014	816.00	44.77	25.37	2.66
21	367353	28/05/2014	01/07/2014	816.00	40.78	21.28	2.42
22	367354	28/05/2014	01/07/2014	816.00	20.46	10.68	1.21
Laboratory Blank				816.00	0.02	0.01	0.001

Comment: Results are not blank subtracted
Tubes marked ** were diluted to read within our UKAS accredited calibration range.
Results have been corrected to a temperature of 293 K (20°)
Overall M.U. 5.2% +/- Limit of Detection 0.010µgNO_2
Tube Preparation 20% TEA / Water

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments. Analysing the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. These results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager, Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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UKAS
2167

LABORATORY ANALYSIS REPORT

Analysed on UV05 Carlsperi M550

		Analyst Name	Laura Digby
Date of Analysis	07/07/2014	**Date of Report**	07/07/2014

Analysis carried out in accordance with documented in-house Laboratory Method GLM7

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. Those results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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UKAS 2187

LABORATORY ANALYSIS REPORT

NITROGEN DIOXIDE IN DIFFUSION TUBES BY U.V.SPECTROPHOTOMETRY

REPORT NUMBER 102961R

BOOKING IN REFERENCE 102961
DESPATCH NOTE SOR015032
CUSTOMER Magherafelt District Council Attn: Susan Martin
Environmental Hearth Dept
50 Ballyronan Road,
Magherafelt
Co Londonderry,
BT45 6EN

DATE SAMPLES RECEIVED 01/08/2014

		Exposure Data					TOTAL
Location	Sample Number	Date On	Date Off	Time (hr.)	µg/m³ *	ppb *	µg NO_2
2	402512	01/07/2014	30/07/2014	696.00	45.63	23.81	2.31
3	402513	01/07/2014	30/07/2014	696.00	33.03	17.24	1.67
4	402514	01/07/2014	30/07/2014	696.00	17.76	9.27	0.90
7	402515	01/07/2014	30/07/2014	696.00	20.90	10.91	1.06
9	402516	01/07/2014	30/07/2014	696.00	38.81	20.25	1.96
10	402517	01/07/2014	30/07/2014	696.00	48.21	25.63	2.49
11	402518	01/07/2014	30/07/2014	696.00	27.74	14.48	1.40
12	402519	01/07/2014	30/07/2014	696.00	27.89	14.55	1.41
13	402520	01/07/2014	30/07/2014	696.00	20.10	10.51	1.02
14	402521	01/07/2014	30/07/2014	696.00	12.64	6.68	0.64
15	402522	01/07/2014	30/07/2014	696.00	12.19	6.36	0.62
16	402523	01/07/2014	30/07/2014	696.00	13.22	6.90	0.67
17	402524	01/07/2014	30/07/2014	696.00	23.68	12.35	1.20
18	402525	01/07/2014	30/07/2014	696.00	30.60	15.97	1.55
19	402526	01/07/2014	30/07/2014	696.00	33.83	17.66	1.71
20	402527	01/07/2014	30/07/2014	696.00	41.84	21.84	2.12
21	402528	01/07/2014	30/07/2014	696.00	35.44	18.50	1.79
22	402529	01/07/2014	30/07/2014	696.00	22.96	11.98	1.16
	Laboratory Blank			696.00	0.02	0.01	0.001

Comment: Results are not blank subtracted
Results have been corrected to a temperature of 293 K (20°)

Overall M.U. 5.2% +/- **Limit of Detection** 0.013µgNO_2

Tube Preparation 20% TEA / Water

Analysed on UV05 Camspec M550

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. Those results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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LABORATORY ANALYSIS REPORT

		Analyst Name	Laura Digby
Date of Analysis	07/05/2014	**Date of Report**	07/05/2014

Analysis carried out in accordance with documented In-house Laboratory Method GLM7

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. These results obtained using exposures that shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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LABORATORY ANALYSIS REPORT

NITROGEN DIOXIDE IN DIFFUSION TUBES BY U.V.SPECTROPHOTOMETRY

REPORT NUMBER I03386R

BOOKING IN REFERENCE I03386
DESPATCH NOTE SOR015032
CUSTOMER Magherafelt District Council Attn: Susan Martin
Environmental Health Dept,
50 Ballyronan Road
Magherafelt,
Co Londonderry
BT45 6EN

DATE SAMPLES RECEIVED 29/08/2014

Location	Sample Number	Exposure Data: Date On	Date Off	Time (hr.)	µg/m³ *	ppb *	TOTAL µg NO_2
2	388513	30/07/2014	27/08/2014	672.00	50.85	26.54	2.48
3	388514	30/07/2014	27/08/2014	672.00	36.97	18.78	1.76
4	388515	30/07/2014	27/08/2014	672.00	14.02	7.32	0.68
7	388516	30/07/2014	27/08/2014	672.00	23.32	12.17	1.14
9	388517	30/07/2014	27/08/2014	672.00	43.39	22.65	2.12
10	388518	30/07/2014	27/08/2014	672.00	55.67	29.05	2.72
11	388519	30/07/2014	27/08/2014	672.00	29.66	15.48	1.45
12	388520	30/07/2014	27/08/2014	672.00	34.23	17.87	1.67
13	388521	30/07/2014	27/08/2014	672.00	25.98	13.56	1.27
14	388522	30/07/2014	27/08/2014	672.00	15.75	8.23	0.77
15	388523	30/07/2014	27/08/2014	672.00	13.59	7.09	0.66
16	388524	30/07/2014	27/08/2014	672.00	11.09	5.84	0.55
17	388525	30/07/2014	27/08/2014	672.00	28.05	14.64	1.37
18	388526	30/07/2014	27/08/2014	672.00	31.31	16.34	1.53
19	388527	30/07/2014	27/08/2014	672.00	34.69	18.10	1.69
20	388528	30/07/2014	27/08/2014	672.00	45.23	23.60	2.21
21	388529	30/07/2014	27/08/2014	672.00	38.48	20.08	1.88
22	388530	30/07/2014	27/08/2014	672.00	23.09	12.05	1.13
Laboratory Blank				672.00	0.10	0.05	0.005

Comment: Results are not blank subtracted
Results have been corrected to a temperature of 293 K (20°)

Overall M.U. 7.8% +/- **Limit of Detection** 0.047 µgNO_2

Tube Preparation : 20% TEA / Water

Analysed on UV 04 Camspec M550

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures and results and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. These results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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LABORATORY ANALYSIS REPORT

		Analyst Name	Chelsea Gemmell
Date of Analysis	05/09/2014	**Date of Report**	05/09/2014

Analysis carried out in accordance with documented in-house Laboratory Method GLM7

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures, calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. These results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager, Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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LABORATORY ANALYSIS REPORT

NITROGEN DIOXIDE IN DIFFUSION TUBES BY U.V.SPECTROPHOTOMETRY

REPORT NUMBER I03939R

BOOKING IN REFERENCE I03939
DESPATCH NOTE SOR015032
CUSTOMER Magherafelt District Council Attn: Susan Martin
Environmental Health Dept.,
50 Ballyronan Road,
Magherafelt,
Co Londonderry
BT45 6EN

DATE SAMPLES RECEIVED 03/10/2014

Location	Sample Number	Exposure Data: Date On	Date Off	Time (hr.)	µg/m³ *	ppb *	TOTAL µg NO_2
2	437221	27/08/2014	02/10/2014	864.00	47.45	24.77	2.58
3	437222	27/08/2014	02/10/2014	864.00	34.61	18.06	2.17
4	437223	27/08/2014	02/10/2014	864.00	19.84	10.25	1.23
7	437224	27/08/2014	02/10/2014	864.00	24.12	12.69	1.51
9	437225	27/08/2014	02/10/2014	864.00	35.66	18.61	2.24
10	437226	27/08/2014	02/10/2014	864.00	45.71	22.81	2.74
11	437227	27/08/2014	02/10/2014	864.00	31.85	16.52	1.99
12	437228	27/08/2014	02/10/2014	864.00	34.76	18.15	2.18
14	437229	27/08/2014	02/10/2014	864.00	22.51	11.76	1.41
15	437230	27/08/2014	02/10/2014	864.00	20.07	10.47	1.26
16	437231	27/08/2014	02/10/2014	864.00	19.11	9.96	1.20
17	437232	27/08/2014	02/10/2014	864.00	27.78	14.49	1.74
18	437233	27/08/2014	02/10/2014	864.00	33.35	17.41	2.09
19	437234	27/08/2014	02/10/2014	864.00	32.00	16.70	2.01
20	437235	27/08/2014	02/10/2014	864.00	34.59	18.05	2.17
21	437236	27/08/2014	02/10/2014	864.00	39.04	20.38	2.45
22	437237	27/08/2014	02/10/2014	864.00	26.70	13.93	1.68
Laboratory Blank				864.00	0.02	0.01	0.001

Comment: Results are not blank subtracted
Results have been corrected to a temperature of 293 K (20°)

Overall M.U. 5.2% n/a **Limit of Detection** 0.010µgNO_2

Tube Preparation : 20% TEA / Water

Analysed on UV05 Camspec M550

Analyst Name Laura Digby

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures, calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. These results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager, Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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LABORATORY ANALYSIS REPORT

Date of Analysis	07/10/2014	**Date of Report**	08/10/2014

Analysis carried out in accordance with documented in-house Laboratory Method GLM7

The Diffusion Tubes have been dealt within the scope of Gradko International Ltd. Laboratory Quality Procedures: calculations and assessments involving the exposure periods and periods provided by the client are not within the scope of our UKAS accreditation. Those results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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LABORATORY ANALYSIS REPORT

NITROGEN DIOXIDE IN DIFFUSION TUBES BY U.V.SPECTROPHOTOMETRY

REPORT NUMBER I04378R

BOOKING IN REFERENCE I04378
DESPATCH NOTE SOR015032
CUSTOMER Magherafelt District Council Attn: Susan Martin
Environmental Health Dept,
50 Ballyronan Road,
Magherafelt,
Co Londonderry.
BT45 6EN

DATE SAMPLES RECEIVED 29/10/2014

Location	Sample Number	Exposure Data Date On	Date Off	Time (hr.)	µg/m³ *	ppb *	TOTAL µg NO_2
2	451908	02/10/2014	28/10/2014	624.00	56.41	29.44	2.56
3	451909	02/10/2014	28/10/2014	624.00	38.84	20.27	1.76
4	451910	02/10/2014	28/10/2014	624.00	24.96	13.03	1.13
7	451911	02/10/2014	28/10/2014	624.00	28.20	14.72	1.28
8	451912	02/10/2014	28/10/2014	624.00	55.12	28.77	2.60
10	451913	02/10/2014	28/10/2014	624.00	58.53	30.55	2.65
11	451914	02/10/2014	28/10/2014	624.00	37.11	19.37	1.68
12	451915	02/10/2014	28/10/2014	624.00	37.24	19.44	1.69
13	451916	02/10/2014	28/10/2014	624.00	20.76	13.97	1.21
14	451917	02/10/2014	28/10/2014	624.00	28.90	15.08	1.31
15	451918	02/10/2014	28/10/2014	624.00	24.57	12.82	1.11
16	451919	02/10/2014	28/10/2014	624.00	23.56	12.29	1.07
17	451920	02/10/2014	28/10/2014	624.00	38.07	19.87	1.73
18	451921	02/10/2014	28/10/2014	624.00	37.72	19.69	1.71
19	451922	02/10/2014	28/10/2014	624.00	32.82	17.13	1.49
20	451923	02/10/2014	28/10/2014	624.00	48.02	25.06	2.18
21	451924	02/10/2014	28/10/2014	624.00	43.34	22.62	1.97
22	451925	02/10/2014	28/10/2014	624.00	31.20	16.29	1.42
Laboratory Blank				624.00	0.22	0.12	0.010

Comment: Results are not blank subtracted
Results have been corrected to a temperature of 293 K (20°)

Overall M.U. 5.2% +/- **Limit of Detection** 0.010 µgNO_2

Tube Preparation : 20% TEA / Water

Analysed on UV05 Camspec M550

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. Those results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager, Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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LABORATORY ANALYSIS REPORT

		Analyst Name	Laura Digby
Date of Analysis	03/11/2014	**Date of Report**	04/11/2014

Analysis carried out in accordance with documented In-house Laboratory Method GLM7

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. Those results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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LABORATORY ANALYSIS REPORT

NITROGEN DIOXIDE IN DIFFUSION TUBES BY U.V.SPECTROPHOTOMETRY

REPORT NUMBER I05064R

BOOKING IN REFERENCE I05064
DESPATCH NOTE SOR015032
CUSTOMER Magherafelt District Council Attn: Susan Martin
Environmental Health Dept
50 Ballyronan Road,
Magherafelt,
Co Londonderry
BT45 6EN

DATE SAMPLES RECEIVED 08/12/2014

Location	Sample Number	Exposure Data Date On	Date Off	Time (hr.)	µg/m³ *	ppb *	TOTAL µg NO_2
2	417213	28/11/2014	04/12/2014	888.00	16.12	23.55	2.91
3	417214	28/11/2014	04/12/2014	888.00	37.81	18.73	2.44
4	417215	28/11/2014	04/12/2014	888.00	25.68	13.40	1.68
7	417216	28/11/2014	04/12/2014	888.00	28.86	15.06	1.86
9	417217	28/11/2014	04/12/2014	888.00	38.38	20.03	2.48
10	417218**	28/11/2014	04/12/2014	888.00	59.86	31.24	3.86
11	417219	28/11/2014	04/12/2014	888.00	36.05	18.87	2.35
12	417220	28/11/2014	04/12/2014	888.00	37.21	19.42	2.40
13	417221	28/11/2014	04/12/2014	888.00	33.14	17.30	2.14
14	417222	28/11/2014	04/12/2014	888.00	26.99	14.09	1.74
15	417223	28/11/2014	04/12/2014	888.00	28.44	14.84	1.84
16	417224	28/11/2014	04/12/2014	888.00	26.21	13.68	1.69
17	417225	28/11/2014	04/12/2014	888.00	33.40	17.43	2.16
18	417226	28/11/2014	04/12/2014	888.00	33.27	17.36	2.15
19	417227	28/11/2014	04/12/2014	888.00	27.19	14.19	1.76
20	417228	28/11/2014	04/12/2014	888.00	42.28	22.07	2.73
21	417229	28/11/2014	04/12/2014	888.00	40.20	20.98	2.59
22	417230	28/11/2014	04/12/2014	888.00	27.04	14.11	1.75
	Laboratory Blank			888.00	0.11	0.06	0.007

Comment: Results are not blank subtracted
Tubes marked ** were diluted to read within our UKAS accredited calibration range.
Results have been corrected to a temperature of 293 K (20°)
Overall MLU. 5.2% +/- Limit of Detection 0.010µgNO_2
Tube Preparation : 20% TEA / Water

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. Those results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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UKAS 2187

LABORATORY ANALYSIS REPORT

Analysed on UV05 Camspec M550

		Analyst Name	Laura Digby
Date of Analysis	10/12/2014	**Date of Report**	12/12/2014

Analysis carried out in accordance with documented in-house Laboratory Method GLM7

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. Those results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager, Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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LABORATORY ANALYSIS REPORT

NITROGEN DIOXIDE IN DIFFUSION TUBES BY U.V.SPECTROPHOTOMETRY

REPORT NUMBER J00257R

BOOKING IN REFERENCE J00257
DESPATCH NOTE SOR015032
CUSTOMER Magherafelt District Council Attn: Susan Martin
Environmental Health Dept,
50 Ballyronan Road,
Magherafelt,
Co Londonderry.
BT45 6EN

DATE SAMPLES RECEIVED 12/01/2015

Location	Sample Number	Exposure Data Date On	Date Off	Time (hr.)	µg/m³ ^	ppb ^	TOTAL µg NO_2
2	464827**	04/12/2014	05/01/2015	840.00	58.70	30.64	3.58
3	464828	04/12/2014	05/01/2015	840.00	42.87	22.27	2.60
4	464829	04/12/2014	05/01/2015	840.00	26.27	13.68	1.60
7	464830	04/12/2014	05/01/2015	840.00	33.68	17.66	2.07
9	464831**	04/12/2014	05/01/2015	840.00	54.72	28.25	3.30
10	464832**	04/12/2014	05/01/2015	840.00	57.35	29.93	3.50
11	464833	04/12/2014	05/01/2015	840.00	39.51	20.62	2.41
12	464834	04/12/2014	05/01/2015	840.00	38.69	20.19	2.36
13	464835	04/12/2014	05/01/2015	840.00	29.51	15.56	1.82
14	464836	04/12/2014	05/01/2015	840.00	29.32	15.30	1.79
15	464837	04/12/2014	05/01/2015	840.00	23.21	12.12	1.42
16	464838	04/12/2014	05/01/2015	840.00	22.80	11.90	1.39
17	464839	04/12/2014	05/01/2015	840.00	43.48	22.65	2.65
18	464840	04/12/2014	05/01/2015	840.00	41.14	21.47	2.51
19	464841	04/12/2014	05/01/2015	840.00	45.76	23.88	2.79
20	464842**	04/12/2014	05/01/2015	840.00	72.33	37.75	4.42
21	464843**	04/12/2014	05/01/2015	840.00	49.97	26.05	3.05
22	464844	04/12/2014	05/01/2015	840.00	30.22	15.77	1.85
Laboratory Blank				840.00	0.02	0.01	0.001

Comment: Results are not blank subtracted
Tubes marked ** were diluted to read within our UKAS accredited calibration range.
Results have been corrected to a temperature of 293 K (20°)
Overall M.U. 5.2% +/- **Limit of Detection** 0.010 µgNO_2
Tube Preparation : 20% TEA / Water

The Diffusion Tubes have been tested within the scope of Gradko International Ltd. Laboratory Quality Procedures, calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. These results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be addressed to the Laboratory Manager, Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

REPORT OFFICIALLY CHECKED

Gradko International Ltd
This signature confirms the authenticity of these results
Signed.....
L. Gates, Laboratory Supervisor

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environmental
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tel: 01962 868551 fax: 01962 841339 e-mail:diffusion@gradko.co.uk

2187

LABORATORY ANALYSIS REPORT

Analysed on UV05 Carrspec M550

		Analyst Name	Laura Digby
Date of Analysis	15/01/2015	**Date of Report**	16/01/2015

Analysis carried out in accordance with documented in-house Laboratory Method GLM7

The Diffusion Tubes have been worked within the scope of Gradko International Ltd. Laboratory Quality Procedures calculations and assessments involving the exposure procedures and periods provided by the client are not within the scope of our UKAS accreditation. These results obtained using exposure data shall be indicated by an asterisk. Any queries concerning the data in this report should be directed to the Laboratory Manager Gradko International Ltd. This report is not to be reproduced, except in full, without the written permission of Gradko International Ltd.

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Gradko International Ltd
This signature confirms the authenticity of these results
Signed.....
L. Gates, Laboratory Supervisor

Dungannon & South Tyrone Borough Council

NO2 DIFFUSION TUBE RESULTS 2014 (µg/m^3)										
	Dunclare Way	**Clogher**	**Church St**	**Fivemiletown**	**The Quays, Moy**	**Killyman Street, Moy**	**Newell Road**	**Moy Hill, Moy**	**Ardgannon**	**Stewartstown Road (Coalisland)**
JANUARY	12	34	50	31	12	33	59	74	21	54
FEBRUARY	10	40	46	30	9	31	62	72	15	45
MARCH	11	-	48	30	12	35	65	65	14	45
APRIL	8	38	-	27	10	31	62	68	13	39
MAY	7	42	-	27	9	31	66	67	11	42
JUNE	5	47	33	25	8	27	67	53	9	19
JULY	5	36	33	19	6	25	55	59	-	33
AUGUST	8	45	39	24	10	28	66	71	8	20
SEPTEMBER	11	52	50	37	13	37	76	-	15	26
OCTOBER	9	42	42	19	11	32	71	65	13	47
NOVEMBER	17	42	50	40	17	40	61	76	22	56
DECEMBER	10	33	53	29	8	27	63	76	16	60
AVERAGE	9	41	44	28	10	31	64	68	14	41
Bias Adjusted Ave (0.81)	7	33	36	23	8	25	**52**	**55**	11	33

Diffusion Tube Results Cookstown District Council 2014

Cookstown District Council												
Diffusion Tube Location												**Bias Adjusted Average (0.92)**
Lawford Street	42	41	38	37	38	32	33	34	37	39	37	**37**
William Street	29	28	26	31	28	28	26	21	27	31	24	**25**
James Street	39	40	35	32	31	30	32	24	30	N/A	37	**30**
Church Street	29	35	32	29	32	26	26	22	29	36	17	**26**
Killymoon Street	38	36	38	31	29	33	27	31	37	42	45	**32**
Smith Street	27	30	30	32	29	24	25	21	29	31	32	**26**
Conyngham Street	N/A	40	23	17	18	15	15	17	18	22	22	**19**
Stonard Street	22	19	42	45	40	28	36	31	41	45	36	**32**