



2009 Air Quality Progress Report for *Coleraine Borough Council*

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



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Executive Summary

Under The Environment (Northern Ireland) Order 2002, local authorities are obliged to regularly review and assess air quality in their boroughs. The review and assessment plays an important role in the continuing process of Local Air Quality Management, whereby the local authorities aim to achieve the Air Quality Objectives for the following seven air pollutants: carbon monoxide, benzene, 1,3- butadiene, lead, nitrogen dioxide, sulphur dioxide and particles (PM10).

The review and assessment process consists of 2 stages. The first stage, known as the updating and screening assessment identifies all relevant changes since the earlier work was carried out and then uses simple tools to check if there is a current risk of the relevant pollution objectives being exceeded. If this is the case the 2nd stage, known as the Detailed Assessment, must then be carried out. If the Detailed Assessment concludes that the relevant Air Quality Objective will be exceeded then an Air Quality Management Area must be declared.

This document addresses the current and future situation with regard to all the pollutants currently contained within the Air Quality Strategy. For all of the pollutants, previous monitoring concluded that there was no likelihood of any of the standards being breached.

This document has confirmed that nothing significant has occurred to alter those conclusions. There is no requirement for a detailed assessment for any of the pollutants addressed.

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1 Introduction

1.1 Description of Local Authority Area

The Borough of Coleraine, which covers approximately 190 square miles, has a static population of approximately 56, 000, although large numbers of tourists swell the population during the summer months. The Borough stretches along the coastline from Downhill and Castlerock in the west to Portballintrae in the east, embracing the main coastal resorts of Portrush and Portstewart and inland to the rural towns of Kilrea and Garvagh. The River Bann borders the eastern edge of the Borough and flows through the town of Coleraine. The northern edge of the Borough is mainly coastal. The Coleraine farmland landscape extends along the north coast from Castlerock to Portrush and southwards along the River Bann valley towards Kilrea and Garvagh. Coleraine is located on the mainline rail link from Belfast to Derry with a spur line to Portrush and is approximately 55 miles from Belfast and 35 miles from Derry. Coleraine boasts an impressive history originating in the first known human settlement on the island some 8,000 years ago. Coleraine is also a university town, being home to the headquarters campus of Ireland's largest university, the University of Ulster.

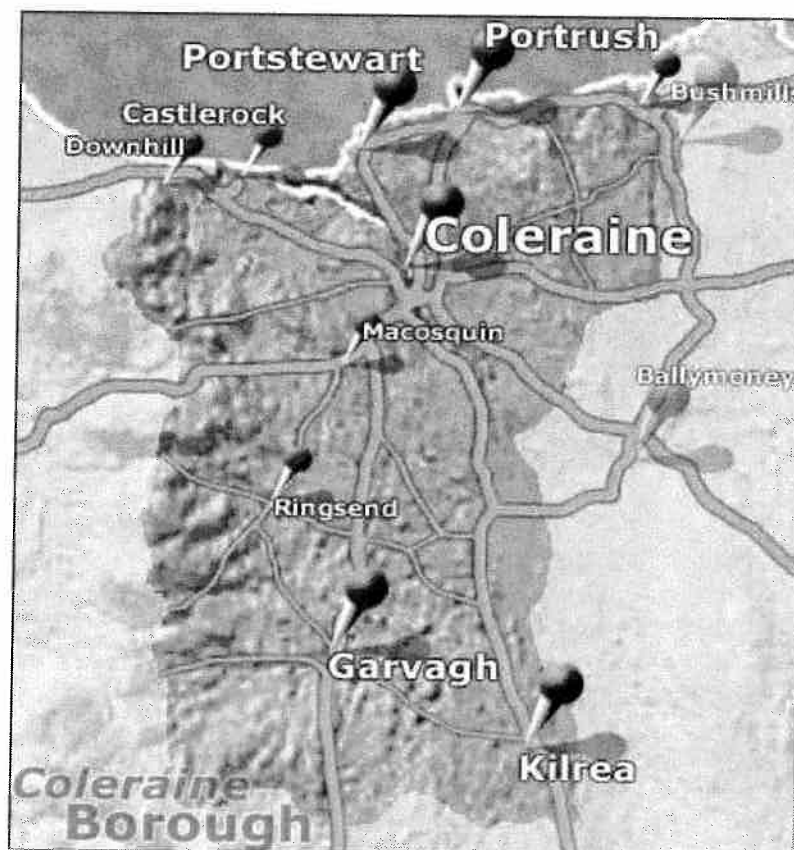


Figure 1. Coleraine Borough Council Area

1.2 Purpose of Progress Report

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

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

Progress Reports have been introduced into the LAQM system following a detailed evaluation of the review and assessment process. Following consultation, the Government concluded that it was too “stop-start” and that gaps of several years might occur between air quality reviews. Updating and Screening Assessments are now required at intervals of three years whilst Progress Reports are required in years when Updating and Screening Assessments or Detailed Assessments are not being carried out.

Progress Reports are designed to ensure continuity in the LAQM process and are intended to assist district councils by: –

- helping to retain a profile for LAQM within the Council, including the retention of staff with knowledge of air quality issues.
- providing a means for communicating air quality information for members and the public.
- maximising the usefulness and interpretation of the monitoring effort being carried out by the District Council.
- maximising the value of the investment in monitoring equipment.
- making the next round of review and assessment that much easier, as there will be a readily available up to date source of information.
- helping District Councils respond to requests for up-to-date information on air quality.
- providing information to assist in other policy areas, such as transport and land use planning.
- providing a ready source of information on air quality for developers carrying out environmental assessments for new schemes.
- demonstrating progress with implementation of air quality Action Plans and/or air quality strategies.
- providing a timely indication of the need for further measures to improve air quality, rather than delaying until the next full round of review and assessment.

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 microgrammes per cubic metre $\mu\text{g}/\text{m}^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

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

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

1.4 Summary of Previous Review and Assessments

The cornerstone of the LAQM process is the review and assessment of air quality. This is a statutorily required process whereby local air quality is assessed against national air quality standards and objectives. Updating and Screening Assessments cover new monitoring data, new objectives, new sources or significant changes to existing sources and any other local changes that may affect air quality. Where objectives are breached or are predicted to be breached, an Air Quality Management Area (AQMA) is declared. An Action Plan must then be produced stating how the district council will drive air quality towards the objective.

The Updating and Screening Assessment (completed in 2009) concluded that there has been a decrease in the level of NO₂ at the site which gave concern as a result of previous monitoring.

The Updating and Screening Assessment did not identify the need to proceed to a Detailed Assessment for any pollutant or identified any need for additional monitoring, or changes to the existing monitoring programme. However, Coleraine Borough Council decided to increase the number of sites at which Nitrogen Dioxide is monitored in order to ensure that air quality objectives are not exceeded. The Borough has no existing AQMAs.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Coleraine Borough Council does not currently carry out any automatic monitoring.

2.1.2 Non-Automatic Monitoring

Nitrogen dioxide (NO₂) and nitric oxide (NO) are both oxides of nitrogen, and are collectively referred to as nitrogen oxides. All combustion processes produce nitrogen oxide emissions, largely in the form of nitric oxide, which is then converted to nitrogen dioxide mainly as a result of reactions with ozone in the atmosphere. Exposure to high concentrations of nitrogen dioxide is reported to sensitise asthmatics to allergens such as irritant chemicals, house dust mites and pollen.

In urban areas, particularly close to major roads, motor vehicles account for the largest proportion of nitrogen oxide emissions. The contribution of road transport to nitrogen oxide emissions has declined significantly in recent years as a result of various national policy measures, and further reductions are expected up until 2010 and beyond. Coleraine Borough Council is currently monitoring nitrogen dioxide at 30 sites around the district using passive diffusion tubes.

Diffusion tubes are a type of passive sampler; they absorb the pollutant to be monitored directly from the surrounding air. 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 where there is relevant public exposure and where possible, are close to the nearest receptor to the busy road or road junction of interest. The sites are subject to periodic review.

The tubes are exposed for a month at a time before being sent for laboratory analysis. Results obtained from diffusion tubes need to be corrected for possible positive bias (over-read), or negative bias (under-read). Gradko undertook the supply and analysis of the tubes for 2009. The preparation method used was an absorbent of 20% TEA (Triethanolamine) in acetone. The bias adjustment factor for this laboratory and technique in 2009 is .90. This factor is based on 33 studies and is taken from the UWE website at

<http://www.uwe.ac.uk/aqm/review/R&Asupport/diffusiontube310310.xls>

The monitoring sites referred to in this report are shown in the maps detailed in Appendix B. All maps are subject to Ordnance Survey copyright.

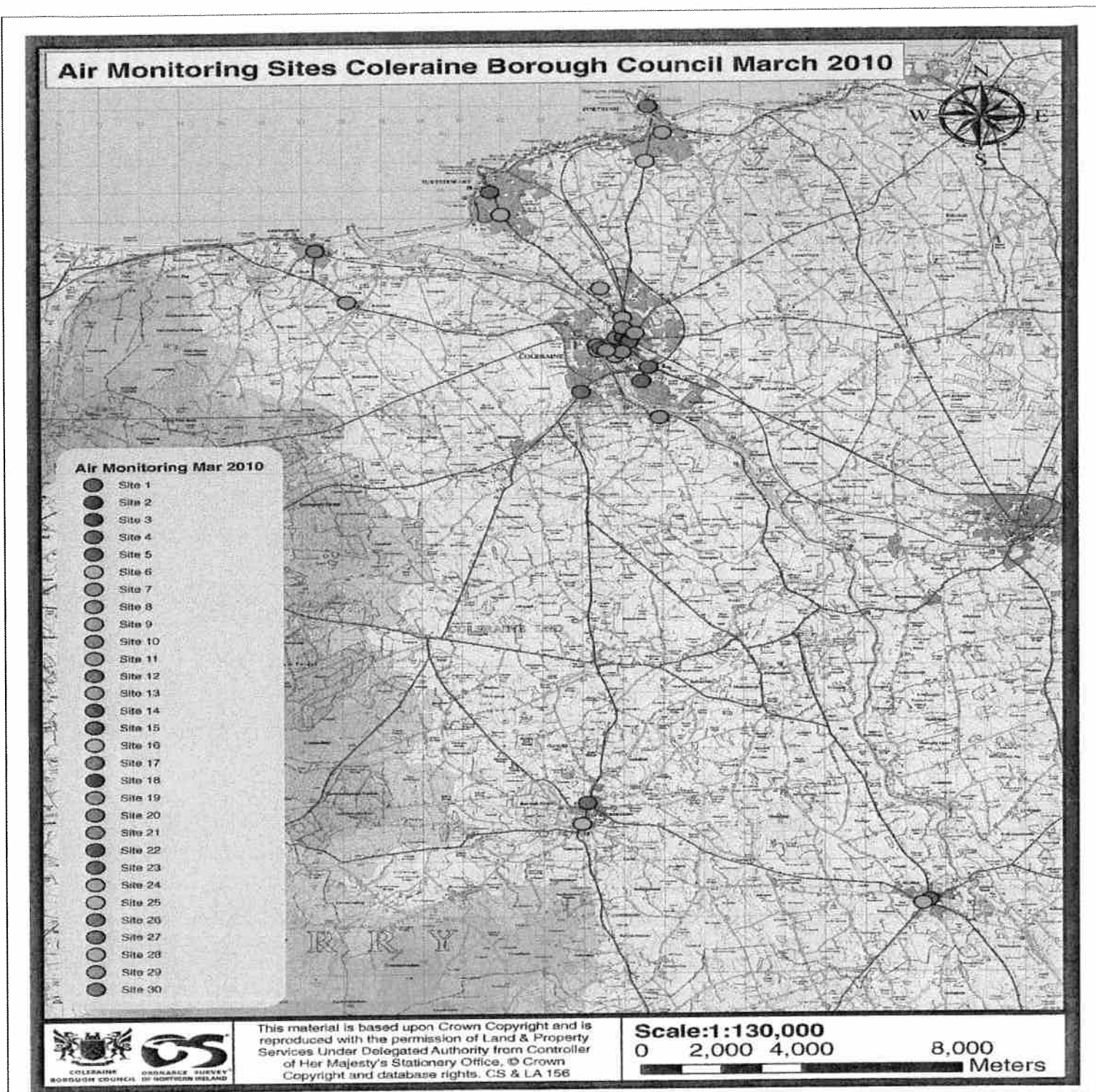


Figure 2.1 Nitrogen Dioxide monitoring sites

Table 2.2 Details of Non- Automatic Monitoring Sites

Site reference number	Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA	Relevant Exposure (Y/N) with distance (m) to relevant exposure	Distance to kerb of nearest road	Worst case location
13	Outside 114 Coleraíne Road, Portstewart	Kerbside	282003 437106	NO ₂	N	Y (4m)	1m	Y
14	Outside O'Hara Court, Portstewart	Kerbside	281742 437925	NO ₂	N	Y (3m)	1m	Y
15	Corner of Antrim Gardens, Main Street, Portrush	Kerbside	285684 440929	NO ₂	N	Y (3m)	1m	Y
7	Crocknamack Roundabout, Portrush	Kerbside	286048 439997	NO ₂	N	Y (2m)	1m	Y
16	Outside 118 Coleraíne Road, Portrush	Suburban	285608 438986	NO ₂	N	Y (4m)	1m	Y
9	UUC, Coleraíne	Urban background	284487 434466	NO ₂	N	Y (2m)	1m	Y
17	Millburn Road, Coleraíne	Roadside	285040 433065	NO ₂	N	Y (1m)	1m	Y
1	Bottom of Union Street, Coleraíne	Urban centre	284876 432701	NO ₂	N	Y (3m)	1m	Y
18	Corner of Brook Street, Coleraíne	Urban centre	285075 432722	NO ₂	N	Y (3m)	1m	Y
2	Top of Union Street, Coleraíne	Urban centre	285247 432709	NO ₂	N	Y (4m)	1m	Y
19	Outside 42 Bushmills Road, Coleraíne	Roadside	285350 432873	NO ₂	N	Y (3m)	1m	Y
3	Railway Road, Coleraíne	Urban centre	285197 432555	NO ₂	N	Y (1m)	1m	Y
20	Outside 75 Long Commons, Coleraíne	Roadside	285022 432209	NO ₂	N	Y (0.5m)	1m	Y
10	Outside Tesco, Coleraíne	Urban centre	284855 432048	NO ₂	N	Y (1m)	1m	Y
21	Hanover Place Post 34, Coleraíne	Roadside	284637 432268	NO ₂	N	Y (1m)	1m	Y
5	Strand Road, Coleraíne	Kerbside	284495 432337	NO ₂	N	Y (1m)	1m	Y
17	Lodge Road, Roundabout, Coleraíne	Roadside	285677 431651	NO ₂	N	Y (1m)	1m	Y
22	Mountsandel, Rugby Avenue Roundabout, Coleraíne	Roadside	285506 431161	NO ₂	N	Y (5m)	1m	Y
8	Glenara Court, Castleroe, Coleraíne	Rural	285950 429864	NO ₂	N	Y (4m)	1m	Y

Site reference number	Site Name	Site Type	OS Grid Reference	Pollutants Monitored	In AQMA	Relevant Exposure (Y/N) with distance (m) to relevant exposure	Distance to kerb of nearest road	Worst case location
23	Kilrea, Lower Diamond	Roadside	292590 412560	NO ₂	N	Y (3m)	0.5m	Y
24	Kilrea, Maghera Street	Roadside	292420 412440	NO ₂	N	Y (2m)	2m	Y
25	Outside 8 Carhill Road, Garvagh	Roadside	283972 415319	NO ₂	N	Y (4m)	1m	Y
26	Opposite SuperValu, Garvagh	Roadside	284105 416066	NO ₂	N	Y (0.5m)	1m	Y
27	Post 11, Lismurphy, Greenmount	Suburban	284003 430787	NO ₂	N	Y (5m)	0.5m	Y
28	Outside Killowen House, Coleraine	Roadside	284433 432263	NO ₂	N	Y (3m)	1m	Y
29	Dunboe Gardens, Post 24, Articlave	Roadside	278148 434046	NO ₂	N	Y (4m)	1m	Y
30	41 Sea Road, Castlerock	Suburban	277358 435877	NO ₂	N	Y (4m)	1m	Y
12	Bottom of Castlerock Road, Coleraine	Urban	248397 432451	NO ₂	N	Y (7m)	1m	Y
6	Dunnes Car Park, Coleraine	Urban	284619 432418	NO ₂	N	Y (4m)	1m	Y
11	End of Portstewart Road, Coleraine	Urban	285036 433417	NO ₂	N	Y (4m)	1m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

On the basis of previous rounds of review and assessment and identified requirements, Coleraine Borough Council currently monitor for Nitrogen Dioxide only. The Borough has no air quality management areas and thus has no continuous automatic monitoring equipment. The details of the diffusion tube results relevant for this assessment are shown below.

2.2.1 Nitrogen Dioxide

Coleraine Borough Council has assessed air quality for Nitrogen Dioxide since 2004. In 2008, the Borough changed tube supplier from Lambeth Scientific Services to Gradko. This resulted in an overlap of the two suppliers for a period of 10 months of the year. During the period of assessment only one site has exceeded the objective of $40\mu\text{g}/\text{m}^3$ in 2006. This exceedence was $.3\mu\text{g}/\text{m}^3$ and was not deemed to be significant enough to go to detailed assessment. Data in subsequent years has shown no exceedence in this or any other area. In order to continue to properly fulfil our statutory duty the department has decided to supplement the data with further tubes to this and other areas.

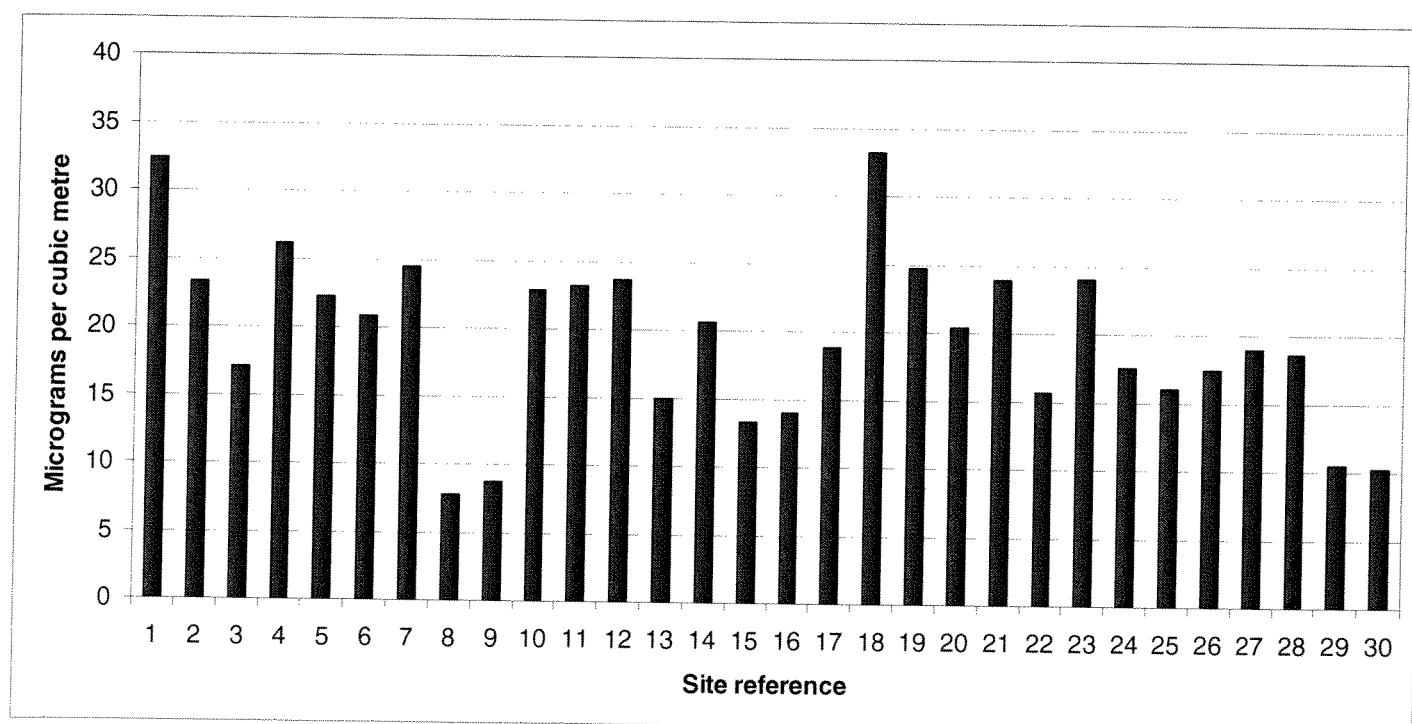


Figure 2.2 Nitrogen Dioxide Mean Concentration Measured at Diffusion Tube Monitoring Sites during 2009

Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes

Site reference number	Site Name	Within AQMA	Data Capture (%)	Annual Mean (adjusted)
13	Outside 114 Coleraine Road, Portstewart	N	100	14.92
14	Outside O'Hara Court, Portstewart	N	83	20.54
15	Corner of Antrim Gardens, Main Street, Portrush	N	100	13.33
7	Crocknamack Roundabout, Portrush	N	91	24.43
16	Outside 118 Coleraine Road, Portrush	N	100	13.98
9	UUC, Coleraine	N	100	8.742
17	Millburn Road, Coleraine	N	100	18.82
1	Bottom of Union Street, Coleraine	N	83	32.35
18	Corner of Brook Street, Coleraine	N	83	33.14
2	Top of Union Street, Coleraine	N	83	23.34
19	Outside 42 Bushmills Road, Coleraine	N	91	24.73
3	Railway Road, Coleraine	N	91	17.06
20	Outside 75 Long Commons, Coleraine	N	83	20.36
10	Outside Tesco, Coleraine	N	91	22.86
21	Hanover Place Post 34, Coleraine	N	100	23.84
5	Strand Road, Coleraine	N	100	22.28
17	Lodge Road, Roundabout, Coleraine	N	91	26.09
22	Mountsandel, Rugby Avenue Roundabout	N	91	15.68
8	Glenara Court, Castleroe, Coleraine	N	91	7.79
23	Kilrea, Lower Diamond	N	100	24.04
24	Kilrea, Maghera Street	N	100	17.57
25	Outside 8 Carhill Road, Garvagh	N	100	15.96
26	Opposite SuperValu, Garvagh	N	83	17.36
27	Post 11, Lismurphy, Greenmount	N	91	18.97
28	Outside Killowen House, Coleraine	N	91	18.53

Site reference number	Site Name	Within AQMA	Data Capture (%)	Annual Mean (adjusted)
29	Dunboe Gardens, Post 24, Articlave	N	100	10.52
30	41 Sea Road, Castlerock	N	91	10.19
12	Bottom of Castlerock Road, Coleraine	N	83	23.70
6	Dunnes Car Park, Coleraine	N	100	20.80
11	End of Portstewart Road, Coleraine	N	91	23.19

2.2.2 PM₁₀

In 2006 Coleraine Borough Council completed its updating and screening assessment of local air quality. The areas of Articlave, Liffock, Castlerock, 3 areas in Garvagh, Mettican, Kilrea, Larchfield and Macosquin were assessed for domestic fuel combustion. Housing counts were undertaken from maps and location visits. Information detailing the number of Housing Executive houses and heating type was obtained from the Northern Ireland Housing Executive – Heating Co-ordination Unit. The proportion of solid fuel users in private housing was obtained from the Northern Ireland Housing Condition Survey 2001 Main Report.

This assessment identified the need to conduct a fuel survey in the areas of Castlerock and Articlave. The objective of this fuel survey was to provide more accurate data on solid fuel use in homes in these areas. Data from this survey was used to calculate the effective density of coal burning houses and determine whether there was an exceedance of the criterion in the nomograms laid out in Technical Guidance LAQM.TG(03). This in turn determined whether there was a requirement to proceed to a detailed assessment for particulate matter in these areas.

Where detailed assessment is required the modelling requirements would be highly dependent upon the manner in which the coal-burning houses are distributed. Care was taken not to aggregate the emissions over a large area in which coal burning does not predominantly take place, as this would dilute the emission strength.

This survey identified that oil is the primary fuel used for home heating in private homes in both Articlave and Castlerock. Both areas fell under the threshold of 50 solid fuel burning homes in 500 x 500m and therefore further assessment is not required. Coleraine therefore does not currently monitor for particulate matter.

2.2.3 Sulphur Dioxide

The first round of review and assessment concluded that there were no Part A or B processes with the potential to emit significant quantities of sulphur dioxide. It identified 2 significant combustion systems with thermal power rating greater than 5MW. It also identified three 1x1 km grid squares in Coleraine, one in Portstewart and one in Portrush, with more than 300 houses burning coal. It recommended a second stage review for sulphur dioxide with respect to domestic combustion and the two industrial combustion systems. Further modeling concluded that the objective for sulphur dioxide would most likely be met.

2.2.4 Benzene

The first round of Review and Assessment concluded that there were no significant sources of benzene in the Coleraine area or in neighbouring areas and that there were no proposals for developments likely to emit this pollutant. It stated that national policies were expected to deliver the air quality objective by the end of 2003 and that the objective for benzene was likely to be achieved in the Coleraine area.

2.2.5 Other Pollutants Monitored

Coleraine Borough Council does not routinely monitor for any other pollutants.

2.2.6 Summary of Compliance with AQS objectives

Coleraine Borough Council has examined the results from monitoring in the Borough. Concentrations are all below the objectives, therefore there is no need to proceed to a detailed assessment.

3 New Local Developments

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

4 Local / Regional Air Quality Strategy

Coleraine Borough Council has developed and published an Air Quality Strategy which provides a policy framework to help deliver cleaner air and to ensure a less polluted environment both now and for future generations.

Given the transboundary nature of air pollutants, this strategy is aimed at complementing the common aims of the UK Government and the devolved administrations as set out in The Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007. In determining the strategic objectives, Coleraine Borough Council will carry out the following activities in order to implement the strategy and attain the vision:

- Carry out air monitoring for pollutant levels including continuance of the air quality monitoring programme relating to oxides of nitrogen and participation in radiation monitoring;
- To offer advice to the general public on air quality;
- To investigate complaints of pollution from industrial, commercial and domestic sources;
- To regulate emissions from industrial processes in the Borough by authorising and monitoring processes making a discharge to air in accordance with the Pollution Prevention and Control Regulations (Northern Ireland) 2003; and
- To work with other statutory agencies and stakeholders in ensuring compliance with legislative obligations and targets for air quality.

5 Planning Applications

The Environmental Health Department is consulted by the Planning Service in relation to all proposed developments within the Borough. Developments that may contribute to a reduction in air quality or where odours or noise are likely are required to undergo environmental assessment. Only where the Department is satisfied that the risk from pollution is adequately controlled and that the development will not cause air quality standards to be breached will approval of planning permission be recommended.

Major planning applications under consultation during the period of review include:

- The replacement of the Tesco's Shopping Centre within Coleraine town, with a significantly larger Tesco's Superstore and decked car parking.
- A scoping exercise for a non- hazardous Landfill in the Macosquin area has been undertaken. Airborne pollution arising from the proposed waste management facility is a material planning consideration and is covered through Environmental Impact Assessment. Landfill activities involve the need for the applicant to obtain a "permit" to operate an installation covered by the PPC Regulations (Regulation 9). The enforcing authority, the Environment and Heritage Service – Waste Management Unit will have the primary regulatory responsibility to ensure that the potential human health and environmental impacts identified are adequately evaluated and that necessary pollution prevention and control measures are implemented.
- It is proposed to redevelop a disused quarry in Coleraine for mixed residential/ commercial and industrial land uses. This involves the relocation of 2 concrete batching plants that are regulated under the Pollution Prevention and Control Regulations (Northern Ireland) 2003 by Coleraine Borough Council's Environmental Health Department.

- A coating industry in Coleraine has applied to install a Thermal Oxidiser for VOC abatement. The new plant involves the combustion of Volatile Organic Compounds (VOCs), with carbon dioxide and water being the primary by-products. The premises is currently permitted by Coleraine Borough Council's Environmental Health Department under the Pollution Prevention and Control Regulations (Northern Ireland) 2003 for the coating of metal and plastic processes. Emission levels of VOCs to atmosphere are required to be monitored and controlled via the permit.

5.1 Air Quality Planning Policies

Land use planning is currently the remit of the Planning Service for Northern Ireland, an agency within the Department of the Environment. The council is however a statutory consultee for the planning process and as such has regard to the Development Plans for Northern Ireland and the relevant air quality legislation in making recommendations to the Planning Service.

6 Local Transport Plans and Strategies

Coleraine Borough Council is not aware of any major local transport plans or strategies which are likely to impact on air quality.

7 Conclusions and Proposed Actions

7.1 Conclusions from New Monitoring Data

Monitoring carried out since the last round of review and assessment has identified one exceedence of the air quality objective at one site on one occasion in 2006. Recent monitoring has shown a decrease of levels at this site and more sites have been established nearby in order to better assess this exceedence.

No other sites have shown exceedences of the objective.

7.2 Proposed Actions

The Progress Report has not identified the need to proceed to a Detailed Assessment for any pollutant or identified any need for additional monitoring, or changes to the existing monitoring programme. Coleraine borough Council decided in 2008 to increase the number of sites at which Nitrogen Dioxide is monitored in order to ensure that air quality objectives are not exceeded. It is proposed to continue to monitor at these sites. The Borough has no existing AQMAs.

The next proposed action by this authority therefore will be to submit an Updating and Screening Assessment in 2011.

8 References

The Environment (Northern Ireland) Order 2002

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

Local Air Quality Management Policy Guidance LAQM.PGNI(03), Department of the Environment.

Local Air Quality Management Technical Guidance LAQM. TG(03), Defra, 2003.

Progress Report Guidance LAQM.PRGNI(04), Environment and Heritage Service, November 2004.

Air Quality Regulations (Northern Ireland) 2003

The Air Quality Limit Values Regulations (Northern Ireland) 2002, S.R. 2002 No.94

The Air Quality Limit Values (Amendment) Regulations (Northern Ireland) 2002, S.R. 2002 No. 357

Air Quality Review and Assessment website – Spreadsheet of Bias Adjustment Factors, <http://www.uwe.ac.uk/aqm/review>

Appendices

Appendix A: QA/QC Data

Appendix B: Site maps

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

Nitrogen Dioxide diffusion tube suppliers for the period 08/09 were Gradko. Coleraine Borough Council had used Lambeth Scientific Services up until October 2008 when the contract in place expired. Gradko have been supplying and analysing Nitrogen Dioxide diffusion tubes since October 2007.

Gradko preparation method is 20% TEA in water. Bias adjustment factor for this laboratory for 2009 is .90

Discussion of Choice of Factor to Use

Coleraine Borough Council does not currently have a co location study and therefore the national Bias Adjustment Factor was used. The QA/QC data for the national factors was taken into consideration.

QA/QC of diffusion tube monitoring

Table 1 Laboratories that have demonstrated satisfactory performance in the WASP scheme for analysis of NO₂ diffusion tubes, January 2008 – January 2009.

Laboratory	Performance on basis of RPI, OLD CRITERIA, best 4 out of the 5 rounds 100-104	Performance on basis of RPI, NEW CRITERIA, best 4 out of the 5 rounds 100-104
Gradko	Good	Good

Appendix B: Site location maps

