COLERAINE
BOROUGH COUNCIL

Environment (N.I.) Order 2002

Air Quality Review and Assessment

Progress Report 2007

COLERAINE BOROUGH COUNCIL

European Union
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1. INTRODUCTION.

The local air quality management (LAQM) system was introduced by the Environment (Northern Ireland) Order 2002 and subsequent Regulations. Under this legislation district councils are required to review the present quality of air and the likely future quality of air and assess whether the nationally prescribed objectives are likely to be achieved.

This Progress Report is a requirement of Government guidance issued in 2003 (LAQM. PGNI(03)) which set out the timescales for submission of the various reports on air quality. This report has been prepared in accordance with EHS guidance LAQM.PRGNI(04).

2. PURPOSE OF THE PROGRESS REPORT.

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. The timetable for progress reports within the review and assessment system is detailed in Appendix 1.

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.

3. SUMMARY OF FINDINGS FROM PREVIOUS REVIEW AND ASSESSMENT WORK.

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 (see Appendix 2). 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 last round of Updating and Screening Assessment (completed in 2006) concluded that:

1. **The risk of the objectives for the following pollutants being exceeded in the Coleraine Borough Council area was negligible:**
   Carbon Monoxide, Benzene, 1, 3 Butadiene, Lead, Nitrogen Dioxide, PM_{10}, Sulphur Dioxide

2. **That existing monitoring using NO_2 diffusion tubes be continued to monitor sensitive locations within the Borough**

3. **That a fuel survey be undertaken in the areas of Castlerock and Articlave to determine whether any exceedences of the PM_{10} objective are likely due to domestic solid fuel combustion. This was undertaken in 2006 and concluded that the risk of exceedence was unlikely.**

4. **In 2006 Coleraine Borough Council closed it's Sulphur dioxide/ Black Smoke monitor in Harpurs Hill. This was following the repeal of the EC Directive on sulphur dioxide and particulate matter (80/779/EEC) in 2005 which removed the statutory requirement of non-automatic networks. A**

resulting review of the UK Smoke and Sulphur Dioxide Network recommended the closure of the majority of bubbler sites as ambient sulphur dioxide levels are now well below the level of detection using the net acidity method. Further more it can no longer be assumed that sulphur dioxide is the main contributor to net acidity.

4. NEW MONITORING RESULTS.

4.1 Nitrogen Dioxide

Nitrogen dioxide (NO_2) 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 12 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.

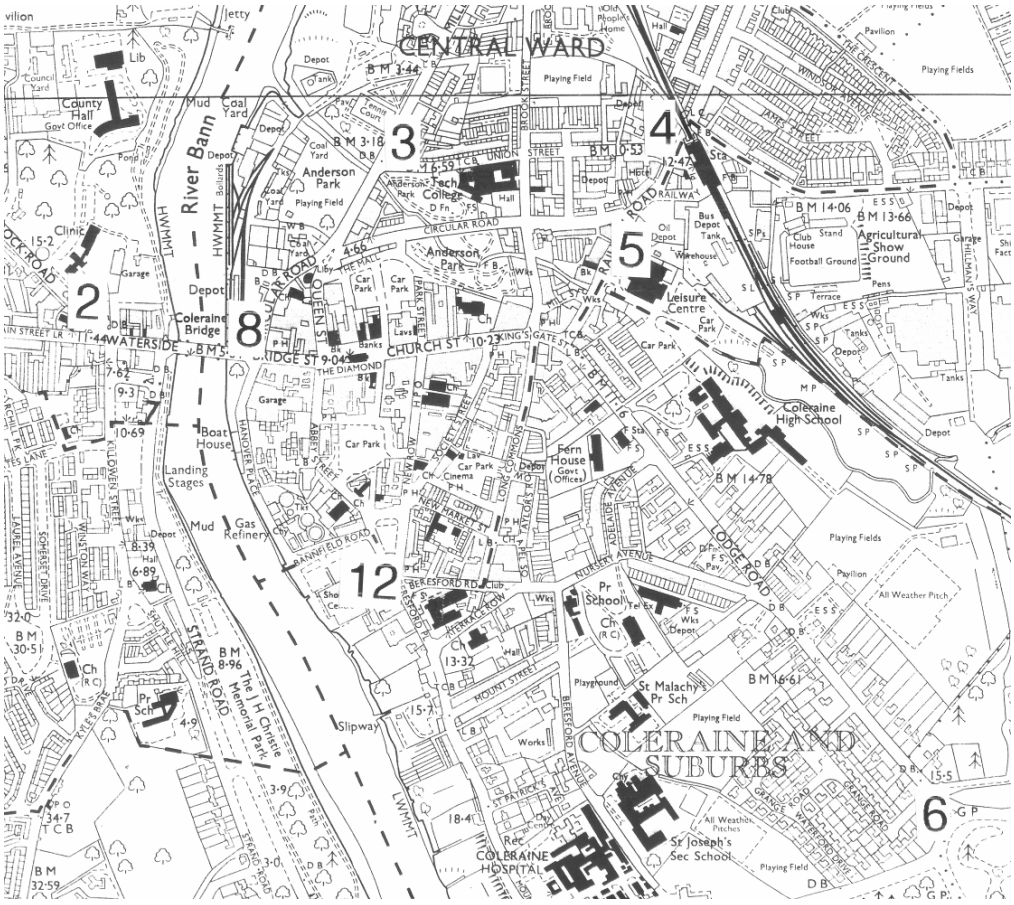
Monitoring sites are chosen to provide data on locations where there is relevant public exposure and where possible, are close to the nearest receptor to the busy road or road junction of interest. The sites are subject to periodic review.

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). Lambeth Scientific Services undertook the analysis of the tubes for 2006. The preparation method used was an absorbent of %50 TEA (Triethanolamine) in acetone. The bias adjustment factor for this laboratory and technique in 2006 is 1.335. This factor is based on 8 studies undertaken in Belfast City Council, Spelthorne Borough Council, East Hertfordshire District Council, 2 studies in the City of York Council and 3 studies in Reigate & Banstead Council. All nitrogen oxide results for 2006 have been corrected using this factor.

The monitoring sites referred to in this report are shown in the following maps. Details are also shown in Appendix 4. All maps are subject to Ordinance Survey copyright.

Figure 1:



Map showing sites: No 2. Castlerock Road, Coleraine

No 3. Lower Union Street, Coleraine

No 4. Upper Union Street, Coleraine

No 5. Railway Road, Coleraine

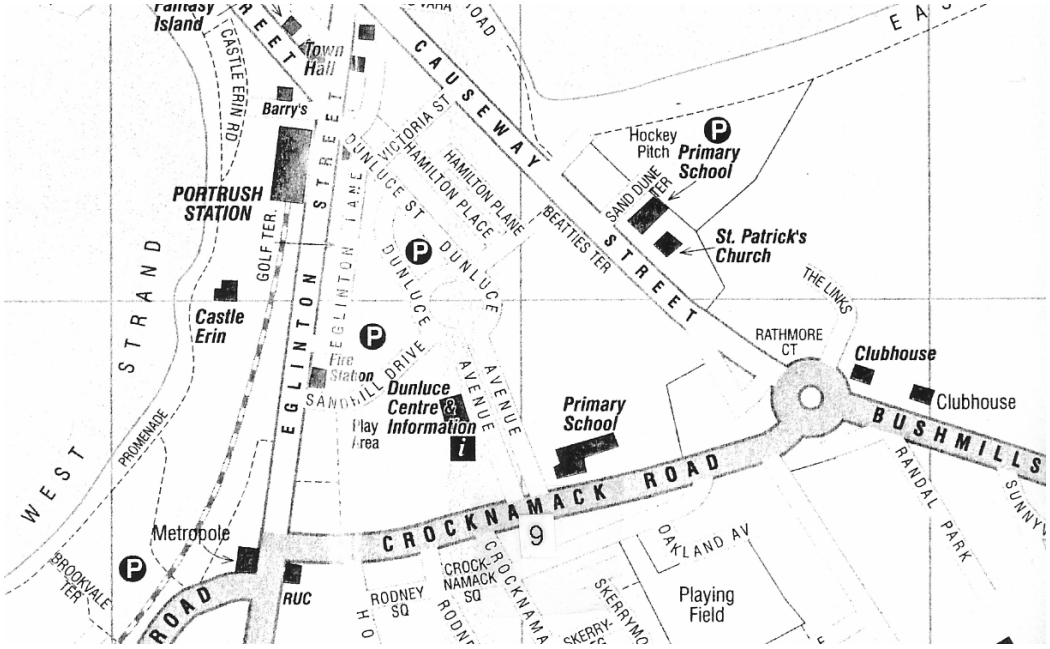
No 6. Lodge Road, Coleraine

No 7. Strand Road, Coleraine

No 8. Coleraine Bridge, Coleraine

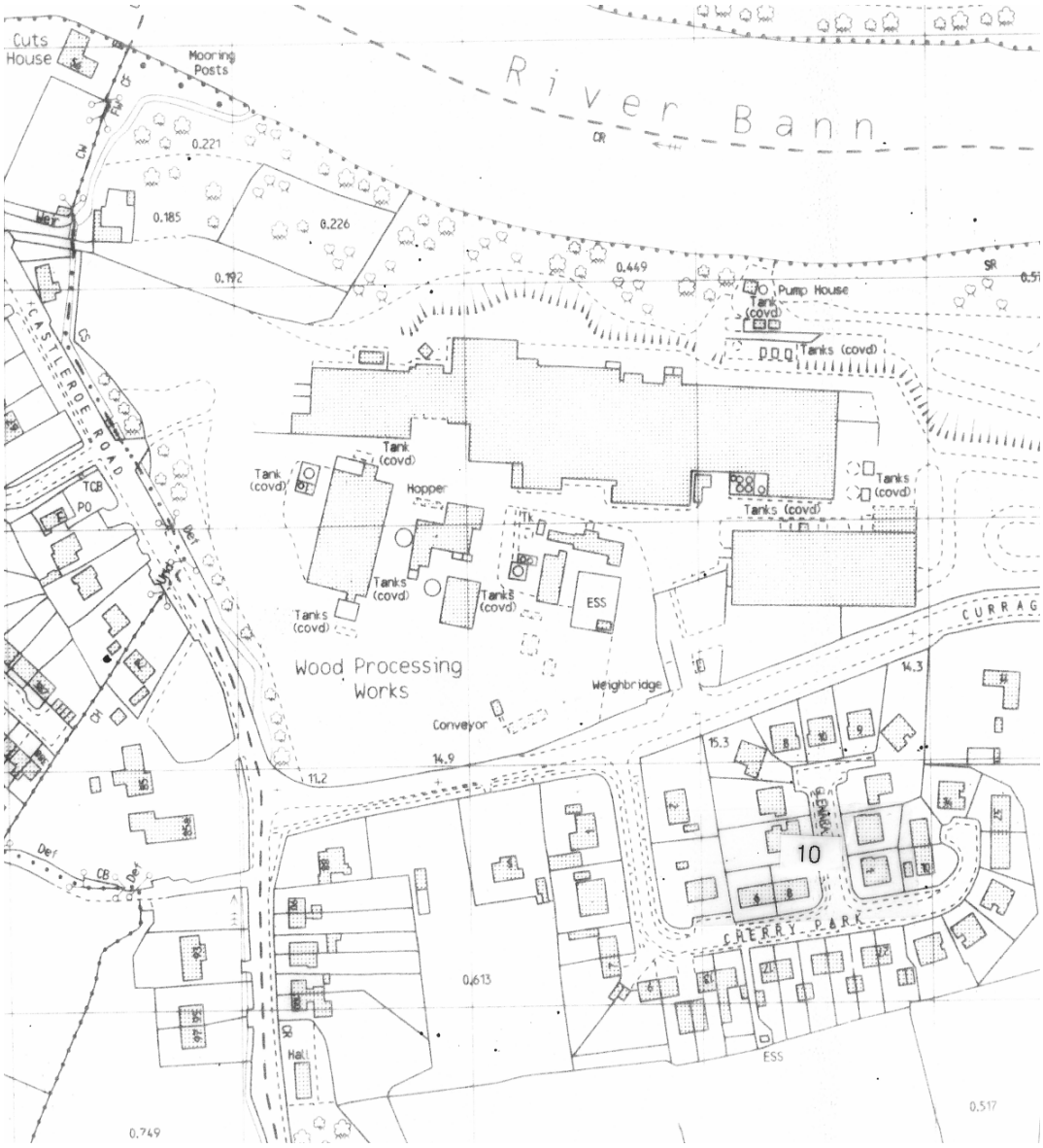
No 12. Blindgate Street, Coleraine

Figure 2:



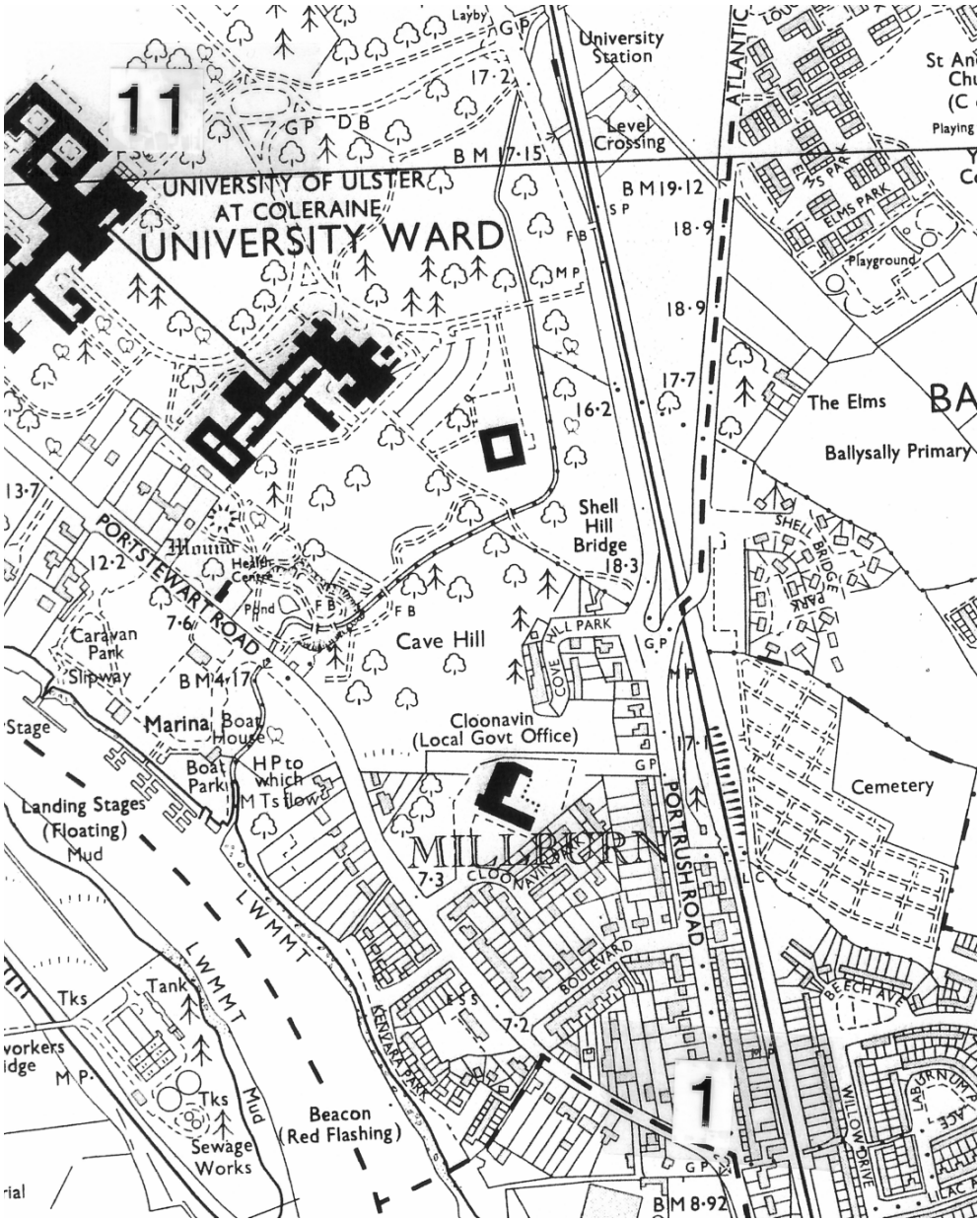
Map Showing sites: No 9 Crocknamack Road, Portrush

Figure 3:



Map showing sites: No 10. Castleroe Road, Coleraine

Figure 4:



Map showing sites: No 1. Portstewart Road, Coleraine

No 11. University of Ulster - Coleraine

4.1.1 Annual mean concentrations – Nitrogen Dioxide

Annual mean concentrations for 2006 and, where they are available, for preceding years are shown in the table below. In 2006 Site 1 (Lower Union Street) recorded an annual mean equivalent to the objective however it should be noted that historical data is extremely limited and is insufficient to indicate any definite trend. An elevated annual mean for this site may be due to increased traffic congestion during road works for the laying of the Firmus gas pipeline and improvements to the Union Street/ Railway Road junction.

No bias factor is available for 2003 and 2004 and these monitoring results have not been corrected for any bias.

Table 1: Nitrogen Dioxide Monitoring Results for 2003 - 2006 (µg/m^3)

Site	Site Number	2003	2004	2005	2006
Lower Union Street, Coleraine	1	26.2	22.8	30.6	40.3
Upper Union Street, Coleraine	2	18.2	14.7	19.5	26.3
Railway Road, Coleraine	3	15.2	12.9	18.1	22.7
Lodge Road Roundabout, Coleraine	4	21.4	14.7	19.6	29.3
Strand Road, Coleraine	5	15.8	14.3	19.2	27.7
Coleraine Bridge, Coleraine	6	16.0	12.1	17.8	25.6
Crocknamack Road, Portrush	7	19.0	15.9	19.0	27.9
Castleroe Road, Coleraine	8	7.6	5.5	10.5	14.1
University of Ulster - Coleraine	9	10.6	6.6	13.1	14.3
Blindgate Street, Coleraine	10	-	18.4	27.1	29.6
Portstewart Road, Coleraine	11	-	14.8	19.8	29.1
Castlerock Road, Coleraine	12	-	19.8	22.7	32.5

Figure 5:

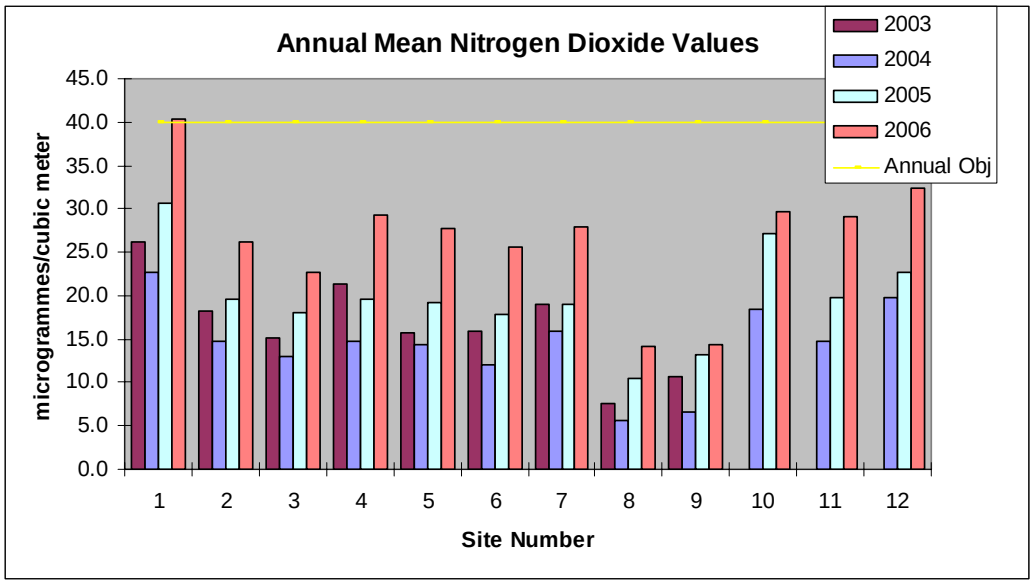
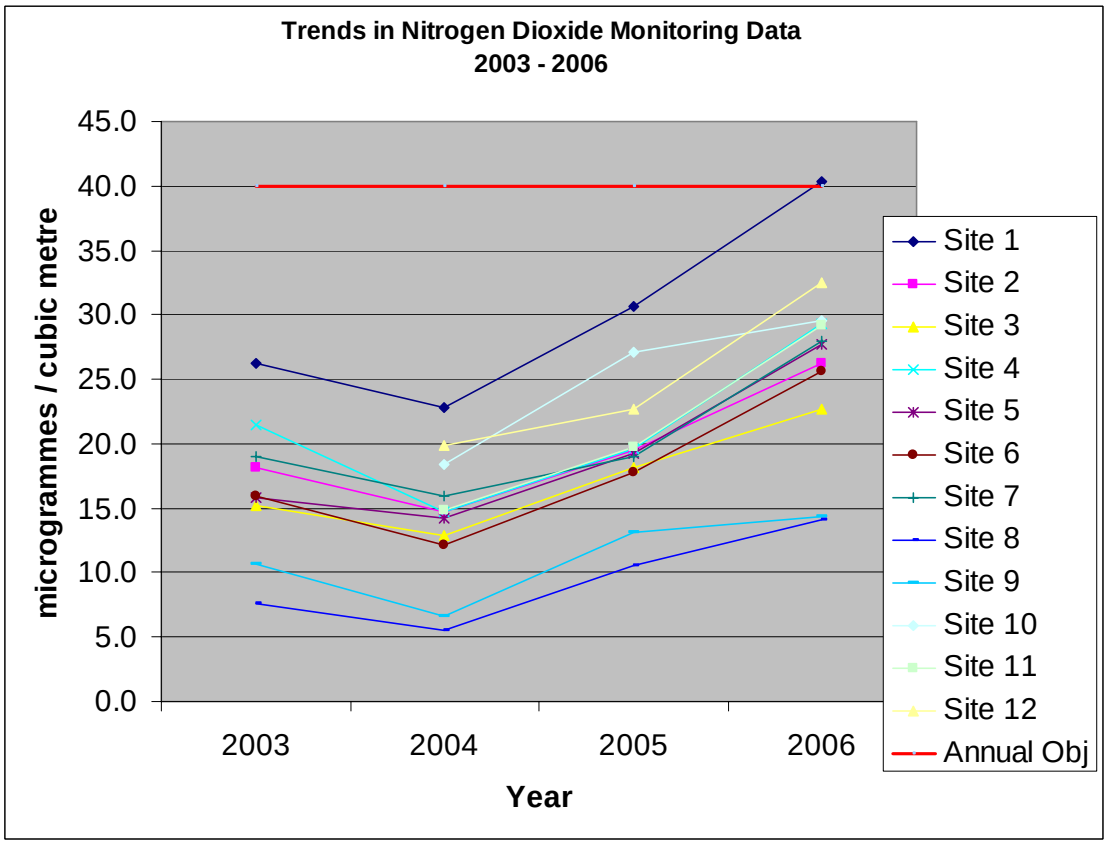


Figure 6:



4.2 Other pollutants

The UK National Air Quality Standards and Objectives also exist for the following pollutants:

- Carbon monoxide
- Benzene
- 1, 3 butadiene
- Lead
- Sulphur dioxide
- Particulate matter (PM_{10})

(See Appendix 2 for details of the standards)

No monitoring is carried out for these pollutants in the Borough as the last round of Updating and Screening Assessment indicates that it is highly unlikely that there is a risk of breach of these standards in this district.

5. NEW LOCAL DEVELOPMENTS.

5.1 New industrial processes

- No industrial processes (Part A or B) commenced operation or changed significantly during the period under review.

- No new Part C industrial premises began operation in 2006.

5.2 New road schemes

No new road schemes that may have a significant detrimental effect on air quality were completed or were planned in 2005/2006.

Road works undertaken in 2005/2006 that may have a positive impact on air quality incude:

- Works to the Strand Road Roundabout included widening all approaches to three lanes and reforming the central island to improve traffic flow.

- Work on resurfacing the roadway, improving traffic movements and assisting pedestrians at BallycastleRoad/Newmills Road/Ballyarton Road by introducing two mini roundabouts, pedestrian refuges and a zebra crossing.

- Traffic Calming Scheme works in the Killowen area including the introduction of a mini roundabout, pedestrian refuges, footway build-outs and junction platforms.

- In Kilrea a Traffic Calming Scheme involving the erection of Gateway Signs and the provision of coloured surfacing to emphasise existing speed limits at all entries to the town.

In 2007 the Roads Service intends to commence construction of a climbing lane on the A37 Londonderry to Coleraine Road. The 2.3 kilometre long climbing lane will start at Drumalief Road and continue up the west side of Keady Mountain towards Coleraine, improving overtaking opportunities for Coleraine bound traffic.

5.3 New retail development

There are no new retail developments within the Coleraine Borough Council area that are expected to have a significant impact on air quality.

5.4 New mixed development (residential/ commercial)

There are no new mixed developments within the Coleraine Borough Council area that are expected to have a significant impact on air quality.

5.5 New landfill development

There are no new landfill developments within the Coleraine Borough Council area during the period under review.

5.6 New mineral development

There are no new mineral developments within the Coleraine Borough Council area during the period under review.

6. 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.

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 wooden conservatory manufacturer proposal to replace an existing dust cyclone extraction system with a dust bagging extraction system and extend production areas.

- 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.

7. ADDITIONAL INFORMATION

- In March 2005, Firmus Energy was formally awarded supply and distribution licences for the development of a natural gas network in Coleraine.

http://www.firmusenergy.co.uk/

Natural gas is clean burning and emits lower levels of potentially harmful by-products into the air, making it one of the less polluting fossil fuels available. The future connection of domestic and industrial premises to the natural gas network has potential for a positive impact on air quality in the Coleraine area.

8. CONCLUSIONS.

Monitoring data gathered in 2006 illustrates that the findings of the last round of Updating and Screening Assessment continue to be valid and that the Coleraine Borough generally has good air quality. In 2006 Site 1 (Lower Union Street) recorded an annual mean equivalent to the objective for nitrogen dioxide, however it should be noted that historical data is too limited to indicate any definite trends and during this period of review road works resulted in increased congestion in this area.

There has not been any change in local circumstances since the last round of Updating and Screening Assessment to indicate a possible exceedance of the air quality standards and objectives and any potential changes relate to increases in traffic as a result of temporary road works or increased residential and commercial development.

Further information concerning this report or local air quality issues in general may be obtained from Rory Donnelly on 028 7034 7171 or e-mail Rory.Donnelly@colerainebc.gov.uk.

9. 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
- 'Coleraine Borough Council Roads Report June 2006', Roads Service.
- http://www.firmusenergy.co.uk/
- Air Quality Review and Assessment website – Spreadsheet of Bias Adjustment Factors, http://www.uwe.ac.uk/aqm/review

Appendix 1: Timetable for Progress Reports within Review and Assessment System

LAQM Activity	Completion Date	Which Authorities?
Detailed assessment	April 2007	Those District Councils which have identified the need for one in their April 2006 updating and screening assessment
Progress Report	April 2007	Those District Councils which identified that there was no need for a detailed assessment in their April 2006 updating and screening assessment
Progress Report	April 2008	All District Councils
Updating and screening assessment	April 2009	All District Councils
Detailed assessment	April 2010	Those District Councils which have identified the need for one in their April 2009 updating and screening assessment
Progress report	April 2010	Those District Councils which have identified that there was no need for a detailed assessment in their April 2009 updating and screening assessment

Appendix 2 - Proposed Objectives included in the Air Quality Regulations (NI) 2003 for the purpose of Local Air Quality Management.

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 μgm^{-3}	Running annual mean	31.12.2003
	3.25 μgm^{-3}	Running annual mean	31.12.2010
1,3 Butadiene	2.25 μgm^{-3}	Running annual mean	31.12.2003
Carbon Monoxide	10.0 mgm^{3}	Maximum daily running 8-hour mean	31.12.2003
Lead	0.5 μgm^{-3}	Annual mean	31.12.2003
	0.25 mgm3	Annual mean	31.12.2008
Nitrogen Dioxide[1]	200 μgm^{-3} no to be exceeded more than 18 times a year	1 hour mean	31.12.2005
	40 μgm^{-3}	annual mean	31.12.2005
Particles (PM_{10})[2] **Gravimetric**[3]	50 μgm^{-3} not to be exceeded more than 35 times a year	24 hour mean	31.12.2004
	40 μgm^{-3}	annual mean	31.12.2004
Sulphur Dioxide	350 μgm^{-3} not to be exceeded more than 24 times per year	1 hour mean	31.12.2004
	125 μgm^{-3} not to be exceeded more than 3 times per year	24 hour mean	31.12.2004
	266 μgm^{-3} not to be exceeded more than 35 times per year	15 minute mean	31.12.2005

Notes

1. **The objectives for nitrogen dioxide are provisional.**
2. **There are likely to be new particles objectives for 2010, not in regulation at present, expected after the review of the EU's first Air Quality Daughter Directive (2004).**
3. **Measured using the European gravimetric transfer standard or equivalent.**

Appendix 3 – <u>Location of Nitrogen Dioxide Diffusion Tube Sites</u>

Address	**Grid Ref**	**Description**
Lower Union St, Coleraine	2848 4328	Kerbside
Upper Union St, Coleraine	2851 4328	Kerbside
Railway Rd, Coleraine	2852 4327	Urban centre
Lodge Rd, Coleraine	2858 4314	Kerbside
Strand Rd, Coleraine	2845 4325	Kerbside
Coleraine Bridge, Coleraine	2846 4325	Urban centre
Crocknamack Rd, Portrush	2861 4400	Urban background
Castleroe Rd, Coleraine	2859 4299	Urban background
University of Ulster – Coleraine	2845 4328	Urban background
Blindgate Street, Coleraine	2849 4321	Urban centre
Portstewart Rd, Coleraine	2851 4334	Kerbside
Castlerock Rd, Coleraine	2843 4325	Kerbside

Appendix 4 - Nitrogen Dioxide Tube Sites

All nitrogen dioxide tubes are located on lampposts at a height of between 1.5 and 4 metres, to deter interference by the general public.

1. Lower Union Street, Coleraine

The Lower Union Street kerbside site is located 19 metres from the junction of Millburn Road and Union Street. Union Street forms part of the one way system directing traffic through the centre of the town.

2. Upper Union Street, Coleraine

This kerbside site is located outside 41 Union Street and about 26 metres from the busy junction of Union Street and Railway Road, in the town centre. The Coleraine Station railway is about 150 metres from this site.

3. Railway Road, Coleraine

This site in the town centre is located outside the Coleraine Leisure Centre. It is about 230 metres from the Coleraine Station railway and 3 metres from a bus stop.

4. Lodge Road, Coleraine

The Lodge Road site is located 4 metres from the roadside at the roundabout of the Lodge road, the Ring road and Newbridge road. Newbridge Road (A26) brings traffic from Belfast and the south east into Coleraine town. The Ring road directs traffic around the outskirts of the town.

5. Strand Road, Coleraine

This Strand road site is located less than 1 metre from the kerbside. This town centre location is 94 metres from the busy junction of Strand Road and Castlerock Road.

6. Dunnes Carpark, Coleraine Bridge

This urban centre site is located about 3 metres from Coleraine Bridge. Coleraine Bridge provides both vehicular and pedestrian access east-west across the Bann River in the town centre. The Dunnes Carpark site is about 50 metres from the main pedestrian mall and shopping precinct.

7. Crocknamack Road, Portrush

This site is located at the kerbside outside 32 Crocknamack Road. It is distanced from any major sources of nitrogen dioxide and therefore is broadly representative of urban background levels.

8. Castleroe Road, Coleraine

The Castleroe site is located outside 2 Glenara Court in the quiet residential area of Cherry Park. Cherry Park is situated approximately 3 miles from the Coleraine town centre. The Castleroe site is also located about 90 metres from Spanboard Products Ltd. As part of the process of manufacturing particleboard and related products, Spanboard combust waste wood to heat driers and thermal oil for pressing.

9. University of Ulster - Coleraine

This site is located in the car park of the Coleraine campus of the University of Ulster. It is approximately 1.5 miles from the town centre and is representative of urban background levels. It is located about 600 metres from the University railway station.

10. Blindgate Street, Coleraine

This kerbside site is located in the town centre. It is situated at the junction of Beresford Road and Blindgate Street. This busy junction forms part of the one way system around the centre of Coleraine town. This junction also connects with Mountsandel Road which brings southerly traffic into the town. Measurements began at this site in March 2004.

11. Portstewart Road, Coleraine

This kerbside site is located outside 1 Portstewart Road about 7 metres from the Portstewart Road and Millburn Road intersection. Millburn Road is the main road from Coleraine to Portrush. The site on Portstewart Road is located in an urban residential area on the out skirts of the town centre. Measurements began at this site in March 2004.

12. Castlerock Road, Coleraine

The site on Castlerock Road is located less than 1 metre from the kerbside and 19 metres from the busy junction of Castlerock Road and Killowen Street. It is also about 100 metres from the junction of Castlerock Road and Strand Road. Castlerock road handles a large portion of the west-east traffic into the town centre. Measurements began at this site in March 2004.