MAGHERAFELT DISTRICT COUNCIL

PROGRESS REPORT ON AIR QUALITY MANAGEMENT

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AIR QUALITY PROGRESS REPORT

1 BACKGROUND

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:

POLLUTANT	**2ND STAGE REVIEW AND ASSESSMENT NEEDED**
Carbon dioxide	No
Benzene	No
1,3 Butadiene	No
Lead	No
Nitrogen dioxide	Yes
Sulphur dioxide	Yes
PM_{10}	Yes

A 2nd Stage Review and Assessment 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 SO_2, NO_2 or PM_{10}.

Funding has however been received from the Environment and Heritage Service to carry out further monitoring of the above pollutants on an on-going basis in order to monitor trends over time and validate the conclusions drawn in previous reviews.

2 Review and assessment of Nitrogen Dioxide

2.1 Monitoring results

NO_2 diffusion tubes have been placed at three locations in the Magherafelt District Council area since 1999, and in seven locations since 2002. The results of this monitoring exercise are summarised below.

Table 2.1 Annual average concentrations measured by diffusion tubes at kerbside locations in the Magherafelt area 1999 -2004 (µg/m^3)

Year	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7
1999	38	35	25	-	-	-	-
2000	40	29	27	-	-	-	-
2001	33	31	29	16	-	-	-
2002	32	35	33	19	18	22	25
2003	30	36	32	17	20	25	22
2004	36	37	30	15	16	18	22

See Appendix 1 for site location details and location maps, and discussion section below.

2.2 Discussion

Analysis of the diffusion tubes was carried out by Lambeth Scientific Services Ltd. In line with the approach adopted by NETCEN in their report dated May 2002, when it was reported that there was a high variability in laboratory bias, both positive and negative, no bias correction has been made on the above data.

As can be seen, the annual mean objective level of 40 µg/m^3 has not been exceeded at any site in the six year monitoring period.

In addition, the diffusion tubes are located at kerbside locations and it would be reasonable to anticipate that concentrations at receptor locations would be significantly lower than the figures obtained. Sites 1 and 2 are located in areas of most dense traffic use in Magherafelt town (with minimal residential use), Site 3 is located adjacent to the busiest road junction in Maghera (again with minimal residential use), Sites 4 and 7 are located in areas away from peak traffic use in Magherafelt town, whilst Sites 5 and 6 are located in areas outside the main towns.

2.3 Predicted exceedance of objective limit at Hillhead Road.

Reference was made in the NETCEN Report to a predicted exceedance in 2005 of the 40 µg m^3 objective at Hillhead Road. It was stated that the proposed A6 Toome by-pass would ease the weight of traffic on that road significantly. The by-pass is now in operation and takes the bulk of traffic away from it's original route thus reducing the impact of traffic on receptors close to the monitoring location. The new route runs through an area of open land in which there are no nearby receptors at present.

The NETCEN Report predicted that given the use of the Toome by-pass, an exceedance would not be likely. Results from Site 6 (adjacent to Toome eel fishery) indicate a significant lowering of the annual average concentration in 2004 as opposed to the previous two years results.

Consideration will be given in the future to using an additional diffusion tube at a suitable location along the route of the by-pass or re-locating the tube at present at Site 6.

2.4 Conclusion

The results obtained show that no exceedances have occurred at any of the sample tube locations. It can therefore be concluded that the air quality objective for NO_2 continues to be met throughout the Magherafelt area in each of the years considered.

3 Review and assessment of PM_{10}

3.1 Monitoring results

A 3rd stage review was not required for PM_{10} from vehicular, industrial and domestic sources, or from sources of fugitive dust. Data has nevertheless been collected from the 8 Port Bubbler located at Greenvale Leisure Centre (see Appendix 2 for location details) on a continuous basis. Greenvale Leisure Centre is located in the centre of the 1 Km square grid highlighted for special study at the 1st stage review. The results of this monitoring exercise are summarised below.

Table 3.1 Annual average concentrations (µg/m³) / exceedances of 50 µg/m³ measured by 8 Port Bubbler at Greenvale Leisure Centre 2000 –2004

Year	Annual mean	Exceedance of 24 hour mean objective of 50 µg/m³ (max. per year 35)
2000	11.0	0
2001	10.2	3
2002	6.8	2
2003	8.6	8
2004	6.5	1

3.2 Discussion

The threshold for the area was highlighted at 1st and 2nd stage review as being 18µg/m³. The figures shown above are consistently well below this level, with generally a downwards trend reflecting the gradual replacement of coal burning appliances in the area.

Exceedances of the 24 hour mean objective are also well within acceptable limits.

Two additional potential sources of PM_{10} have been introduced into the area, but would not be expected to contribute significantly to an unacceptable fugitive dust situation (see Section 5.5 for site addresses).

The A6 Toome by-pass has re-routed traffic away from relevant receptors and is seen as a being a benefit as regards dispersal of pollutants. The total traffic numbers using the by-pass and roads in the general area remain substantially the same.

3.3 Conclusion

The present levels of PM_{10} as measured meet the objectives laid down and the trend is generally downward, reflecting the changes in domestic fuel use.

4 Review and assessment of Sulphur Dioxide

4.1 Monitoring results

An 8 Port bubbler is located in Greenvale Leisure Centre (see Appendix 2). Monitoring takes place on an on-going basis and the results are summarised below.

Table 4.1 Annual average of SO_2 2000 – 2004 (µg/m^3)

Year	Annual mean
2000	12.1
2001	12.9
2002	11.3
2003	11.1
2004	8.6

4.2 Discussion

The data shown above is of very limited use as the strategy objectives are for short term exposure. However, use can be made of the same conversions as used by NETCEN as derived from the GB Pollutant Specific Guidance, ie:

99.9th percentile (15 minute mean) = 1.8962 x maximum daily mean
99.7th percentile (1 hour mean) = 1.3691 x maximum daily mean

The maximum daily mean recorded in Magherafelt in the above years was 33 µg/m^3. Using the above figures, this provides a 99.9th percentile of the 15 minute mean of 62.57 µg/m^3 and a 99.7th percentile of the 1 hour mean of 45.18 µg/m^3. These figures are below the objectives for SO2, ie:

- 15 min. mean – 266 µg/m^3 not to be exceeded more than 35 times a year
- 1 hour mean – 350 µg/m^3 not to be exceeded more than 24 times a year

4.3 Conclusion

Air quality objectives for SO_2 continue to be met at the sample location in the centre of the 1 km^2 grid selected at the 1st stage review for consideration at 2nd stage. It is a fair assumption that the relevant objectives are also being met throughout the district in the absence of additional pollutant sources being introduced into the area.

5 New local developments.

Further to data contained in the 1st and 2nd stage review and assessment documents, the following developments should be taken into account when considering air quality in the area in the future. There are no immediate environmental concerns from these developments at present.

5.1 Part A processes

- McCann's Quarry, 92 Mayogall Road, Knockloughrim
- McCann's Quarry, 3 Drumard Road, Gulladuff (extension to existing quarry)

5.2 Part C processes

- SDC Trailers Ltd, 116 Deerpark Road, Toomebridge

5.3 New A6 Toome by-pass

- discussed in NO_2 and PM_{10} sections. Monitoring for these pollutants may be considered in future studies at locations along the route of the new road.

5.4 New industrial estate at Hillhead Road, Toomebridge

- The infrastructure of the industrial estate is in place to some extent but uptake of sites by industry has been slow. The area will be kept under review for inclusion in future studies for relevant pollutants.

5.5 Fugitive dust emission sources

The following are locations at which sand and gravel will soon be extracted:

- Crocknamohil Road, Draperstown
- Brackalislea Road, Draperstown

5.5 Extension to Meadowlane Shopping Centre, Magherafelt

- Traffic flows and total traffic numbers will be affected by the development of existing car parking space for retail use. Assessment will be made of necessary monitoring when the development is complete.

Appendix 1

NO_2 diffusion tubes – site location details

Site 1

- Grid reference - 8961 9053
- Adjacent No 19 Queen Street, Magherafelt
- Main route through town, buildings on both sides of road

Site 2

- Grid reference – 8974 9092
- Adjacent No 3 Church Street, Magherafelt
- Main route through town, located between two roundabouts, buildings on both sides of road

Site 3

- Grid reference – 8528 0044
- Adjacent No 58 Main Street, Maghera
- Adjacent to staggered junction at most frequently used part of town

Site 4

- Grid reference 8988 9071
- Wesleyan Mews, Magherafelt (approx 10m from side of Church Street)
- Off main road leading to residential cul-de-sac

Site 5

- Grid reference 9254 9318
- Adjacent No 15 Boyne Row, Castledawson
- Roadside location between terraced houses on both sides of road

Site 6

- Grid reference 9887 9085
- Adjacent No 2 Hillhead Road, Toomebridge (close to eel fishery)
- Area formerly adjacent to main arterial route (new A6 Toome by-pass has taken bulk of traffic away from this location).

Site 7

- Grid reference 8982 9069
- Adjacent No 6 King Street, Magherafelt
- Moderately used route into town centre, built up on both sides of road

Appendix 2

PM_{10} and SO_2 combined

8 Port Bubbler – Site location details

- Grid reference 8960 9017
- Greenvale Leisure Centre
- Area mainly residential with a number of nearby schools; residential area off set from town centre