

# **Banbridge District Council**

## **Air Quality Review & Assessment** **Stage 2 and 3**

Supplementary Report on PM<sub>10</sub> Fugitive Emissions from  
RMC Catherwood Quarry and SO<sub>2</sub> Emissions from  
Domestic Fuel Use in Banbridge

10 February 2005

## **1.0 Introduction**

Following the completion of the Stage 1 Review and Assessment of air quality in the Banbridge District Council District, Nitrogen Dioxide (NO<sub>2</sub>), Particulate Matter (PM<sub>10</sub>) and Sulphur Dioxide (SO<sub>2</sub>) were identified as requiring further assessment.

The subsequent Stage 2/3 Review and Assessment incorporated modelling carried out by Netcen, (AEA Technology Plc) to assist with the assessment process. Conclusions were as follows:

### **Nitrogen Dioxide**

DMRB modelling predicted no exceedances of the objectives levels. Also emissions data collected via diffusion tubes, correlate with predictions in the DMRB Model. It was concluded, therefore, that nitrogen dioxide can be ruled out for further assessment at this stage.

### **Particulate Matter (PM<sub>10</sub>)**

It was determined that Fugitive Emissions of Particulate Matter could not be ruled out at the Stage 2/3 Review and Assessment, with particular reference to the quarrying operations at RMC Catherwood, Skeltons Road, Banbridge.

### **Sulphur Dioxide**

It was concluded that, while the modelling of domestic fuel combustion suggests that concentrations Sulphur Dioxide will be within the objective levels, exceedances of the (SO<sub>2</sub>) objectives can not be ruled out without monitoring data to validate the modelling. The stage 2/3 Review and Assessment also concluded that the SO<sub>2</sub> 15 minute mean concentration, estimated from maximum fuel consumption, is close to objective levels and therefore further data regarding domestic fuel use should be gathered in order to substantiate the results.

This report is a supplementary document incorporating additional information on further assessment of fugitive Particulate Matter (PM<sub>10</sub>) from RMC Catherwood and Sulphur Dioxide (SO<sub>2</sub>) emissions from domestic fuel usage. It is envisaged that this document will conclude the Stage 2/3 Review and Assessment on local air quality for Banbridge District Council.

The first complete round of Review and Assessment of local air quality in the District Council area therefore concludes that the risk of breach of the existing prescribed pollutant objectives is negligible, and there is no requirement for further detailed assessment at this time. Banbridge District Council does not propose to declare any AQMAs at this time.

## 2.0 PM<sub>10</sub> Emissions from RMC Catherwood Quarry

RMC Catherwood Quarry (Tullyhinan Quarry) is located approximately 5km north-east of Banbridge and is situated in a rural locality, incorporating agricultural land on undulating drumlins. Access to the site is mainly from the A1 dual carriageway via Skeltons Road.

Quarrying activities at the site are predominantly associated with the provision of graded stone for the construction industry and the manufacture of concrete. There is no Roadstone Coating process in operation at the quarry, or any other ancillary processes which requires the heating and/or drying of quarry materials by means of thermal combustion.

The mineral stone being quarried at RMC Catherwood is described as 'Greywacke Sandstone' which is a hard stone material with a dense molecular structure. The density of the mineral makes it a particularly heavy mineral with a rapid drop out rate and it is therefore not likely to be carried long distances by prevailing winds. (The prevailing wind in this area is from the south-west).

The nearest sensitive receptor to the quarry is a single storey residential property approximately 125 metres from the closest boundary on the northern side of the quarry. (All other private dwellings are situated over 300m from the quarry). It is separated from the quarry by agricultural land (pasture). The property lies in the path of the prevailing winds and deposition from fugitive emissions at this location could not be ruled out at the initial assessment as an extension to the quarry face was proposed.

The following assessment is based on the criteria for the review and assessment of PM<sub>10</sub> as outlined in Technical Guidance LAQM TG(03). The technical guidance document outlines various approaches to reviewing and assessing the impact of emissions from fugitive sources. These are summarised below;

1. The first consideration in the assessment is to determine the distance of the nearest sensitive receptor to the actual source of the emissions. The distance from the boundary to the receptor is not applicable, unless there are operations taking place at the boundary. See (LAQM TG (03) 8-20, par 8.67).
2. The guidelines state that specific distances from the source of the emissions will have a dramatic effect on the concentrations of particulate matter as it is carried along by the wind. This indicates that concentrations will drop off rapidly as the distance from the source increases. See (LAQM TG (03) 8-20, par 8.67)
3. That it will not be required to proceed any further with the Stage 3 Assessment if the background levels of PM<sub>10</sub> are lower than specified levels. (LAQM TG (03) 8-20, par 8.67)

The closest potential source of particulate matter (PM<sub>10</sub>) from Catherwood Quarry is the quarry face, which is located approximately 270m from the nearest sensitive receptor. The guidance document states that if the distance is between 200m and 400m, it is not required to move further beyond a Stage 3 Assessment if the background PM<sub>10</sub> levels for the area are lower than 26µg/m<sup>3</sup>. Data taken from the LAQM website indicates that the current background PM<sub>10</sub> concentration for the Banbridge area is 14.9 µg/m<sup>3</sup>. This is below the level stated in LAQM TG (03) document.

In addition to the above, other factors which support the conclusion are as follows;

1. No recent history of complaints from local residence regarding dust deposition
2. Visual investigation in the vicinity of the quarry concluded that dust deposition was minimal.
3. Using BATNEEC techniques, RMC Catherwood is working on preventing further fugitive emissions under the mitigation measures outlined in an Environmental Impact Statement prepared by their consultants Kirk McClure Morton.

It is therefore considered that it is not necessary to progress to a further stage of Review and Assessment for this pollutant.

### **3.0 Sulphur Dioxide (SO<sub>2</sub>) Emissions**

It was concluded in the Stage 2/3 Review and Assessment that exceedences of the Sulphur Dioxide (SO<sub>2</sub>) objectives could not be ruled out due to the absence of monitoring data necessary to validate the modelling of domestic fuel combustion. A recommendation of the Stage 2/3 report, was to complete an SO<sub>2</sub> emissions monitoring programme and use the data gathered in order to bias adjust an additional dispersion model.

In addition, the Stage 2/3 Review and Assessment also concluded that the SO<sub>2</sub> 15 minute mean objective may be close to exceeding the prescribed levels and therefore further data regarding domestic fuel use should be gathered in order to substantiate these results.

Banbridge District Council consider that, due to the availability of further information , additional modelling of the SO<sub>2</sub> emissions from domestic fuel use is not necessary at this time.

Subsequent to the submission of the Stage 2/3 Review and Assessment , further data has been gathered on the number of households burning coal within the Banbridge area. The Housing Executive (Northern Ireland) has declared that 92 households are currently being converted to oil fired central heating. 57 of these households are within the 1km<sup>2</sup> grid designated for the fuel use survey, which was modelled in 2003 as part of the Stage 2 Assessment for SO<sub>2</sub> emissions. The remaining 35 households are just outside the grid. The Council is of the opinion that the overall impact of coal burning on SO<sub>2</sub> emissions will be significantly reduced in Banbridge and that there is less likelihood of a breach of the prescribed 15 minute mean objective.

The conclusion reached by Banbridge District Council regarding domestic SO<sub>2</sub> emissions is supported by further corroborative data collected by Netcen (AEA Technology UK). This indicates that other local authorities in Northern Ireland found that, where further assessment was not necessary regarding PM<sub>10</sub> emissions, further assessments for SO<sub>2</sub> emissions were generally also not required.

Banbridge District Council therefore concludes that there is no necessity to undertake further assessment of SO<sub>2</sub> emissions at this time.

#### **4.0 Conclusion and Recommendations**

Banbridge District Council concludes that it is not necessary to proceed to a further level of assessment for Sulphur Dioxide (SO<sub>2</sub>) and PM<sub>10</sub> emissions.

The Local Air Quality Management Officer appointed to the district councils across the Southern Group area, has commenced work on the Strategy Plans for improving air quality in Banbridge. He will assist the Council with the formation and implementation of the strategy. The aims of the strategy are to prepare the Council for proposed amendments to the pollutant emission limits due in 2005 (NO<sub>x</sub> and SO<sub>2</sub>) and 2010 (PM<sub>10</sub>) and to introduce environmental projects to the general public, industry and statutory authorities in order to improve air quality within the Banbridge District.