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## **AIR QUALITY – SECOND REVIEW & ASSESSMENT REPORT**

### **1 SUMMARY**

- 1.1 To update Members on the progress of the second review and assessment of air quality within Rochford District and to provide a resolution for how the results will be acted upon.

### **2 INTRODUCTION**

- 2.1 The Environment Act 1995 requires Local Authorities to periodically review and assess the air quality within their District, in respect of national air quality objectives for seven pollutants (Appendix 1 contains the objectives for the two pollutants relevant to this review). Rochford's first air quality review was completed in December 2000 and concluded that there were no likely exceedances of these national air quality objectives.
- 2.2 In February this year, the Environmental Services Committee was advised of the results of the Updating and Screening Assessment, which formed the first stage of the second review. This identified those aspects that had changed since the first review and those that required further assessment. The Committee resolved that the recommended air quality monitoring and detailed assessment be carried out.
- 2.3 The air quality monitoring and detailed assessment have now both been completed and the results are reported below. A copy of the detailed assessment has been left in the Members' Library.

### **3 SECOND AIR QUALITY REVIEW**

#### **Updating & Screening Assessment**

- 3.1 The Updating and Screening Assessment produced by consultants Casella Stanger predicted exceedance of the PM<sub>10</sub> (24-hour mean) Objective at residential properties close to Rawreth Industrial Estate due to 'fugitive' dust emissions and also predicted the NO<sub>2</sub> (annual mean) Objective would only just be met at Bedloes Corner, Rawreth and the Eastwood Road/High Street junction, Rayleigh due to road traffic emissions.
- 3.2 Furthermore, the Updating and Screening Assessment predicted exceedances of the provisional PM<sub>10</sub> (24-hour mean and annual mean) Objectives for the year 2010 at all busy road junctions. As the 2010 figures are currently provisional, the detailed assessment did not include analysis of the results obtained against those objectives.
- 3.3 In addition to the above programme, NO<sub>2</sub> was also monitored at the junction of North Street, South Street and West Street in preparation for the proposed future large scale development in the area and the potential increase in vehicular movements.

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**Air Quality Monitoring – NO<sub>2</sub>**

- 3.4 A 12-month monitoring period began in March 2004 for NO<sub>2</sub> at each of the three road junctions detailed. Each site consists of 3 diffusion tubes mounted securely together at a location adjacent to the junction. The results gathered from this monitoring draw from the first 5 months of this period (March-July 2004).
- 3.5 The diffusion tubes used are supplied and analysed by Essex University Laboratories (EUL). The results obtained by EUL have been annualised using the appropriate calculations from the Department for Environment, Food and Rural Affairs' (DEFRA) Technical Guidance LAQM.TG (03).
- 3.6 The results, when extrapolated and assessed against the NO<sub>2</sub> annual mean objective for 2005, show that there is a potential exceedance of the 40µg/m<sup>3</sup> annual mean NO<sub>2</sub> objective at the Eastwood Road/High Street junction, Rayleigh.

**Air Quality Monitoring – PM<sub>10</sub>**

- 3.7 PM<sub>10</sub> monitoring took place between May and August 2004 to gather 3 months' worth of data during the drier summer months. A Partisol 2025 gravimetric analyser, with associated weather station, was established in the rear garden of a residential property that borders a waste transfer site on Rawreth industrial Estate.
- 3.8 Casella undertook the supply and analysis of the filters in accordance with the appropriate technical standard.
- 3.9 During the 3 month monitoring period, the recorded PM<sub>10</sub> levels exceeded the 50µg/m<sup>3</sup> 24-hour mean objective on seven occasions. Two of these occasions have been attributed to elevated background levels. The period mean was 31.4µg/m<sup>3</sup> and the measured range of levels was 11.3µg/m<sup>3</sup> to 57.6µg/m<sup>3</sup>.
- 3.10 The period results were annualised through assessment against long-term background sites in Southend and Thurrock and then through a calculation from DEFRA's Technical Guidance LAQM.TG (03).
- 3.11 The national air quality objectives allow for 35 exceedances of the 50µg/m<sup>3</sup> 24-hour mean per year. The predicted number of exceedances at the monitoring site in 12 months is 71, more than double the permitted number.

**Other Factors**

- 3.12 Rawreth Industrial Estate road, but excluding Westfield Close, is an adopted highway and therefore Rochford District Council is responsible for cleaning it. Currently it is cleaned every 6 months. Cleaning the estate road more frequently, particularly during the summer months, will help to reduce the volume of resuspended dust.

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- 3.13 Such a step may encourage those firms who occupy unmade yards or who operate inherently dusty operations to take greater care in minimising the release of fugitive dust emissions.
- 3.14 Furthermore, one waste transfer station on the estate to whom a number of dust complaints have been attributed by residents has applied to Essex County Council for planning permission to erect a canopy over its operations. If permission is granted, it is hoped that this will further minimise fugitive dust emissions.

### **Conclusions**

- 3.15 The results show that there is a potential exceedance of the annual mean NO<sub>2</sub> objective at the Eastwood Road/High Street junction. The report recommends that a detailed assessment is carried out whereby all three monitoring sites stay in operation to assess compliance with the objective, with additional NO<sub>2</sub> monitoring using more sophisticated equipment (chemiluminescent analysis) at the nearest receptor to the Eastwood Road/High Street junction.
- 3.16 The annualised PM<sub>10</sub> results at Rawreth Industrial Estate indicate a substantial exceedance of the 2004 24-hour mean objective. The report recommends that further monitoring takes place at the nearest relevant receptor during the winter months in order to provide a more complete assessment of compliance with the objective.
- 3.17 The report also recommends that the Council considers declaring an Air Quality Management Area (AQMA) on the basis of the findings of this report.
- 3.18 The Environment Act 1995, Section 83 requires that an AQMA is declared for each area where a detailed assessment indicates that an air quality objective is not, or is unlikely to be, met. Such an AQMA has defined boundaries and covers all those receptors affected by the relevant pollutant. Before an AQMA can be declared, consultation must be carried out.
- 3.19 If an AQMA is declared, the Local Authority must compose an action plan, which in partnership with relevant other organisations (such as Essex County Council, Environment Agency) will make cost-effective, timetabled improvements to air quality within that AQMA. Such an action plan may rely on policy changes as well as direct action.
- 3.20 At this point, steps can be taken to improve the air quality around Rawreth Industrial Estate with respect to PM<sub>10</sub> which, if implemented prior to a further period of monitoring, may remove any necessity to declare an AQMA in relation to the current air quality objectives.
- 3.21 This Council has to report to DEFRA the findings of its detailed assessments and explain its planned actions. If any feedback has been received from DEFRA it will be reported to the meeting.

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**4 RISK IMPLICATIONS**

**4.1 Strategic Risk**

Protecting the natural and built environment is one of the core themes of the Community Strategy. Air quality is a key part of the natural environment.

**4.2 Regulatory Risk**

DEFRA approve the decisions made by Local Authorities. Should a proposal to act on the findings of a detailed assessment in respect of air quality management not meet their approval, DEFRA can then issue a Directive instructing the Local Authority to take certain steps (e.g. declare an AQMA)

**5 ENVIRONMENTAL IMPLICATIONS**

5.1 There have been complaints about dust in the vicinity of Rawreth Industrial Estate. The proposed monitoring will confirm whether the predicted exceedances are accurate and whether the declaration of an AQMA is required.

5.2 The steps outlined earlier in the report will help to improve the overall cleanliness of the area.

**6 RESOURCE IMPLICATIONS**

6.1 There are financial costs of £10,500 to carry out additional PM<sub>10</sub> monitoring during 2004/05, which will be met from virements from existing budgets. The NO<sub>2</sub> diffusion tube monitoring costs can be met from existing resources. A bid will be made in the draft budget estimates for 2005/06 for the additional costs of the remaining works (NO<sub>2</sub> chemiluminescent analysis).

6.2 In addition to the financial costs there will also be human resource implications. The PM<sub>10</sub> monitoring will require an estimated 3 hours each week of the 3 month monitoring period and NO<sub>2</sub> monitoring will require 4 hours every 3-4 weeks

6.3 The cost of extra street cleansing is relatively small and can be met from existing budgets.

**7 PARISH IMPLICATIONS**

7.1 Monitoring takes place within the boundaries of Rawreth Parish Council, Rochford Parish Council and Rayleigh Town Council.

**8 RECOMMENDATION**

8.1 It is proposed that the Committee **RESOLVES**

(1) That NO<sub>2</sub> monitoring be continued at all three existing sites.

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- (2) That additional NO<sub>2</sub> monitoring be carried out at the nearest receptor to the Eastwood Road/High Street junction to enable modelling of the effects of the NO<sub>2</sub> levels.
  - (3) That a further 3 months of PM<sub>10</sub> monitoring is carried out early in 2005 at the nearest relevant receptor to Rawreth Industrial Estate.
  - (4) That provision be made of an additional £10,500 funded from virements from existing budgets for 2004/5 for PM<sub>10</sub> monitoring and a bid also made in the draft revenue estimates for 2005/6 for £6,000, in order to carry out the additional NO<sub>2</sub> monitoring.
  - (5) That a further report be made to this Committee at the end of the second period of PM<sub>10</sub> monitoring by mid-2005.

Graham Woolhouse  
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### **Background Papers**

Updating and Screening Assessment - October 2003  
DEFRA Technical Guidance LAQM. TG(03)  
DEFRA Policy Guidance LAQM. PG(03)

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**APPENDIX 1**

**Table 1**

<b>Objectives included in the Air Quality Regulations 2000 and (Amendment) Regulations 2002 for the purpose of Local Air Quality Management</b>			
<b>Pollutant</b>	<b>Concentration</b>	<b>Measured as</b>	<b>Date to be achieved by</b>
Nitrogen Dioxide (NO <sub>2</sub> )	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean	31/12/05
	40 µg/m <sup>3</sup>	Annual mean	31/12/05
Particulate Matter (PM <sub>10</sub> )	50 µg/m <sup>3</sup> not to be exceeded more than 35 times a year	24-hour mean	31/12/04
	40 µg/m <sup>3</sup>	Annual mean	31/12/04

**Table 2**

<b>Provisional Objectives for England, Wales, Northern Ireland (not included in Regulations)</b>			
<b>Pollutant</b>	<b>Concentration</b>	<b>Measured as</b>	<b>Date to be achieved by</b>
Particulate Matter (PM <sub>10</sub> )	50 µg/m <sup>3</sup> not to be exceeded more than 7 times a year	24-hour mean	31/12/10
	20 µg/m <sup>3</sup>	Annual mean	31/12/10