BLAENAU GWENT COUNTY BOROUGH COUNCIL

Contents

1.0 Introduction

Part IV of the Environment Act 1995 Act requires each local authority periodically to review air quality in its area. The Air Quality Regulations 2000 (as amended) set out air quality objectives that have to be achieved by the end of 2005. Consequently, local authorities have to consider the existing quality of air and the likely future quality of air at the end of 2005, and assess whether the prescribed limits are likely to be achieved by the target date.

The specific pollutants which are prescribed in the Air Quality Regulations 2000 and whose levels therefore have to be reviewed and assessed are:

- Benzene,
- 1,3-butadiene,
- Carbon monoxide,
- Lead,
- Nitrogen dioxide,
- Particulates (PM_{10}) and
- Sulphur dioxide.

In June 2003 each pollutant of concern was examined in the light of specific the Guidance Notes LAQM.TG (03), and it was concluded that in Blaenau Gwent it was unlikely that any of the Air Quality Objectives set out in the Air Quality Regulations 1997 would be exceeded by the end of 2005.

The next full Review and Assessment is due in 2006 and in each of the intervening years we are required to provide a progress report for the Welsh Assembly Government that looks at any new developments that could affect air quality.

This document represents the first of the progress reports for Blaenau Gwent.

2.0 Benzene

Objectives

The Government and the Devolved Administrations have adopted a running annual mean concentration of 16.25μg/m^3

Traffic flows

An assessment carried out by Defra for the 2010 objective for benzene suggests that there may be a few locations close to busy roads, in areas with high background concentrations, that may be at risk of exceeding the objective.
In Blaenau Gwent we have low background concentrations and none of our roads fall within the Defra definition of busy .

Industrial sources

There are no industrial processes existing or planned that have the potential to emit significant quantities of benzene in this County Borough.
There are no industrial processes in neighbouring local authorities that significantly contribute to the ground level concentrations of benzene in this County Borough

Petrol stations

Defra and the Devolved Administrations have recently investigated the potential impact of emissions arising from petrol stations. There are two possible major sources of benzene from evaporative emissions at petrol stations. The first when petrol vapour is displaced when filling underground storage tanks, termed Stage 1 emissions. The second when petrol vapour is displaced from vehicle petrol tanks during refuelling, termed Stage 2 emissions. All petrol stations with a petrol throughout of greater than 1000m^3/annum were required to fit Stage 1 vapour recovery before 1 January 1999. Petrol stations with a throughout of less than 1000m^3/annum are very unlikely to have any significant effect on the local concentrations of benzene. Stage 1 emissions are therefore, unlikely to have any significant influence on concentrations of benzene in the vicinity of petrol stations. As yet there are no legal requirements to fit Stage 2 vapour recovery systems at petrol stations.
The guidance indicates that the presence of a petrol station is only likely to have a significant influence on the concentrations of benzene close to residential properties where:

- Petrol throughput is more than 2000m^3/annum.

and

- Petrol pumps are less then 10m from residential properties, either horizontally or vertically.

In this Borough we have no petrol stations that meet the above criteria

Discussion

A number of policy measures in place, or planned for the future, will continue to reduce emissions of benzene. Since January 2000. EU legislation has reduced the maximum benzene content of petrol to 1%, from the previous upper limit of 5%.

The European Auto-Oil programme will further reduce emissions for cars and light-duty vehicles, and emissions of benzene from the storage and distribution of petrol are controlled by vapour recovery systems.
Roadside levels of benzene next to even the busiest of congested roads are expected to be well below the air quality objective. As this authority has no major industrial processes, which handle, store or emit benzene there is no possible risk of exceeding the Air Quality Objective.

Conclusion

We are satisfied that benzene concentrations remain low and there is little risk of the Air quality Strategy Objective being exceeded by the end of the year 2010

3.0 1, 3 - Butadiene

Objectives

The Government and the Devolved Administrations adopted an Air Quality Standard for 1,3 - Butadiene of 2.25 $\mu g/m^3$ measured as a running annual mean concentration. The objective was for the standard to be achieved by the end of 2003.

Sources of 1,3-butadiene

The 1, 3 - butadiene in air derives solely from human activity. It is an important industrial chemical being used particularly in the manufacture of synthetic rubber for tyres. Apart from accidental releases from such industrial activities, the 1,3 - butadiene in the ambient air comes from combustion. This mainly derives from combustion of petrol and diesel fuel, but some also comes from house fires and the burning of other fossil fuels. 1,3 - butadiene is also present in cigarette smoke.

There is little or no preformed 1, 3 - butadiene in diesel or in petrol, either leaded or unleaded; the emissions in the exhaust gas

concentrations since 1995.

Industrial sources of 1,3 butadiene

There are no industrial processes existing or planned that have the potential to emit significant quantities of 1,3 Butadiene in this County Borough.
There are no industrial processes in neighbouring local authorities that significantly contribute to the ground level concentrations of 1,3 butadiene in this County Borough

Discussion

Defra considers that existing national policies are expected to deliver the prescribed air objective for 1,3 - butadiene by the end of 2003. Roadside levels of 1,3 - Butadiene, next to even the busiest of congested roads are expected to be well below the air quality objective. As this authority has no major industrial processes, which handle, store or emit 1,3 - butadiene there is no possible risk of exceeding the Air Quality Objective.

Conclusion

We are satisfied that 1,3- butadiene concentrations remain low and there is little

Conclusion

We are satisfied that carbon monoxide concentrations remain low and there is little risk of the Air quality Strategy Objective for carbon monoxide being exceeded.

5.0 Lead

Objective

The Government and Devolved administrations have adopted an annual mean concentration of 0.5 μg/m^3 as the air quality standard for lead with an objective to be achieved by the end of 2004. In addition a lower air quality objective of 0.25 μg/m^3

Discussion

The information supplied by the Environment Agency indicates that neither the 2004 nor the 2008 air quality objectives are likely to be exceeded as a consequence of the operations at the Yuasa Battery plant.

Conclusion

The Updating and Screening Assessment for Lead indicates that there is little risk of the 2004 and 2008 Air Quality Objectives being exceeded.

6.0 Nitrogen Dioxide

Objective

The Government and Devolved Administrations have adopted two air quality standards for nitrogen dioxide (NO_2), as an annual mean concentration of 40 µg/m3 and a 1-hour mean concentration of 200µg/m3 not to be exceeded more

Results of previous Review and Assessment

In the Updating and Screening Assessment undertaken in 2003 it was concluded that there was little risk of the 2005 and 2010 Air quality Strategy objectives for nitrogen dioxide being exceeded.

Background concentrations

Background levels of nitrogen dioxide within Blaenau Gwent are below 30 μ

We have 2 open air bus stations, one in Brynmawr the other in Tredegar. Both have less than 120 bus movements per day and both are more than 20 metres from residential property.

There is no airport in Blaenau Gwent

Discussion

As a result of the Updating Screening and Assessment completed in 2003 we were satisfied that it was unlikely that NO_2 limits would be exceeded at relevant locations near any of our existing or proposed road networks.
Since the assessment we have not been made aware of any road or industrial developments that would cause us to change our view.

Conclusion

We are satisfied that nitrogen dioxide concentrations remain low and there is little risk of the Air quality Strategy Objective for nitrogen dioxide being exceeded by the end of the year 2010

7.0 Particles (PM_{10})

Objective

The Government and Devolved Administrations have adopted two air quality objectives for fine particles (PM_{10}) , which are equivalent to the EU stage 1 limit value. The objectives are 40µg/m3 as the annual mean, and 50µg/m3 as the fixed 24 hour mean to be exceeded no more than 35 days per year, to be achieved by the end of 2004. equivalent.

The EU has also set indicative limit values for PM_{10}, which are to be achieved by 1st January 2010. These Stage 2 limit values are considerably more stringent, and are 20 ug/m³ as the annual mean, and 50 ug/m³ as the 24-hour mean to be exceeded on no more than 7 days per year. The Welsh Assembly Government has introduced provisional objectives to be achieved by the end of 2010 that are broadly in line with the Stage 2 limit values, although it is not intended that these objectives will be brought into Regulation for the purpose of Local Air Quality Management at this time.

Sources of PM_{10}

Particles in the air may arise from a wide variety of sources, either natural or man-made. Biological sources are ubiquitous, and particularly in rural areas considerable numbers of pollen grains, fungal spores and their fragments contribute to the total mass of airborne particles. Man-made airborne particles result mostly from combustion processes, from the working of soil and rock, from many other industrial processes and from the abrasion of road surfaces by motor vehicles.

Results of previous Review and Assessment

In the Updating and Screening Assessment undertaken in 2003 it was concluded that there was little risk of the Air quality Strategy objective for PM_{10} being exceeded by the end of the year 2004. However projected figures for the 2010 objective seem to show that the annual mean of 20µg/m^3 could be exceeded due to the proposed upgrading of the A465 Head of the Valleys road..

Background concentrations

Background levels of PM_{10} for 2010 within Blaenau Gwent are expected to be below 18 µg/$m^{3.}$ (www.airquality.co.uk/).

Monitoring data

No monitoring has been undertaken in the County Borough.

Road Traffic

In undertaking the Updating and Screening Assessment in 2003, calculations of PM_{10} at 5 receptors adjacent to the proposed route of the A465 in 2004 and 2010 were carried out using a screening model prepared for the Design Manual for Roads and Bridges (DMRB), which is published by the Highways Agency. The model requires input data on annual average daily traffic (AADT), annual average speeds, the proportion of different vehicles types, the type of road and the distance from the centre of the road to the receptor. For this particular exercise however we used the peak traffic flow rather than the AADT to predict the worse case scenario.
Capita Gwent Consultancy provided most of this information, and where predicted increases in traffic were required the Highways Agency Tempo 4.2.3 model was used. The background PM_{10} concentrations needed for the model were downloaded from the Defra Air Quality web site.

The receptors chosen were examples of the relatively few properties that fall within a 40 metre distance of the proposed roads and they represented the points of maximum relevant exposure. (i.e. those locations where the highest concentrations of PM_{10} would be expected)

The results obtained from the DRMB model indicated a maximum predicted annual mean PM_{10} level for 2004 of 24.21µg/m3 with the fixed 24-hour mean limit of 50µg/m3 being exceeded a maximum of 12 days a year.
Although the traffic is expected to increase by a factor of 1.072 by 2010 the level of PM_{10} is expected to reduce to a maximum of 20.68 µg/m3 with the fixed 24-hour mean limit of 50µg/m3 being exceeded a maximum of 3 days a year
A summary of the DMRB modelling results, and details about the receptor points we considered may be found in Appendix 3.

It is important to note that apart from the A465 the traffic flow flows in Blaenau Gwent are relatively low. Information obtained from the Capita Gwent

easily achieved. However projected figures for the 2010 objective showed that the annual mean of 20μg/m^3 was likely to be exceeded.
Since the Updating Screening and Assessment there have been no developments in the County Borough that would result in significant changes in PM_{10} levels. Furthermore we are not aware of any proposed developments that are likely to give rise to sustained elevated PM_{10} concentrations in the immediate future..

Conclusion

From the information available we are satisfied that the Air Quality Objective for PM_{10} will not be exceeded by the end of 2004.

8.0 Sulphur Dioxide

Objective

The Government and Devolved Administrations have adopted a 15 minute mean of .266μg/m^3 as an air quality standard for sulphur dioxide with the objective not being exceeded more than 35 times in a year by the end of 2005. Additional objectives have also been set which are equivalent th the EU limit values specified in the First Air Quality Daughter directive. These are for a 1-hour mean objective of 350μg/m^3 to be exceeded no more than 24times per year, and a 24-hour mean objective of 125 μg/$m^3$to be exceeded not more than 3 times per year, to be achieved by the end of 2004.

Sources of sulphur Dioxide

From the time of the Industrial Revolution until the early 1960s, the main source of sulphur dioxide emissions in towns and cities was the domestic, commercial and industrial burning of coal. However, this pattern of emission in the United Kingdom has changed significantly since the 1960s. Following the Clean Air Act of 1956 and subsequent moves to the increased use of energy sources such as natural gas and electricity, emissions in towns have fallen considerably. The generation of electricity by combustion of fossil fuels has now become concentrated in large power stations with tall chimneys, situated mainly in rural areas rather than close to towns as was formerly the case. Restructuring of the industrial base and increased energy efficiency have also contributed to a decrease in emissions over the past two decades.

Results of previous Review and Assessment

In the Updating and Screening Assessment undertaken in 2003 it was concluded that there was little risk of the Air quality Strategy objecMSMbtjz:Jz-NOObhjk-J:JGGnSbwkLse-MSSbe

Defra pollutant level classification band of ‘Low’. See appendix 6 for available monitoring data.

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Conclusion

We are satisfied that sulphur dioxide concentrations remain low and there is little risk of the Air quality Strategy Objective for sulphur dioxide being exceeded by the end of the year 2005.

9.0 Executive Summary

Benzene

The risk of the Air Quality objective for benzene being exceeded by the end of 2010 is considered to be negligible.

Therefore no detailed assessment is required.

1,3 Butadiene

The risk of the Air Quality objective for 1,3 butadiene being exceeded is considered to be negligible.

Therefore no detailed assessment is required.

Carbon Monoxide

The risk of Air Quality objective for carbon monoxide being exceeded is considered to be negligible.

Therefore no detailed assessment is required.

Lead

The risk of Air Quality objective for lead being exceeded by the end of the year 2004 is considered to be negligible.

Therefore no detailed assessment is required.

Nitrogen Dioxide

The risk of Air Quality objective for nitrogen dioxide being exceeded by the end of the year 2005 is considered to be negligible.

Therefore no detailed assessment is required.

Particles

The risk of the Air Quality objective for PM_{10} being exceeded by the end of the year 2004 is considered to be negligible.

Therefore no detailed assessment is required.

Sulphur Dioxide

The risk of the Air Quality objective for sulphur dioxide being exceeded by the end of the year 2005 is considered to be negligible.

Therefore no detailed assessment is required.

10.0 Appendices

Appendix 1

Extract from the 8th Wales Air Quality Annual Report providing monitoring data for benzene from Neath Port Talbot and Cardiff continuous monitoring sites 2002.

Appendix 2

Extract from the 8th Wales Air Quality Annual Report providing monitoring data for 1,3 butadiene from Neath Port Talbot and Cardiff continuous monitoring sites 2002.

Appendix 3

Extract from the 8th Wales Air Quality Annual Report providing monitoring data for Carbon monoxide from continuous monitoring sites in Wales for 2002.

Appendix 4

Extract from EPA Public Register providing details of ground level concentrations of lead around the Yuasa battery plant at Rassau Industrial site Ebbw Vale (April 2002)

Appendix 5

Extract from the 8th Wales Air Quality Annual Report providing

Appendix 6

Extract from the 8th