



Cyngor Bwrdeisdref Sirol

**Blaenau Gwent**

County Borough Council

LOCAL AIR QUALITY  
REVIEW AND ASSESSMENT

# Updating and Screening Assessment 2006

**Environment Directorate  
Public Protection Division**

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# 1.0 Introduction

## 1.1 The Legislative Background

Part IV of the Environment Act 1995 Act requires each local authority periodically to review air quality in its area. The primary objective is to identify areas where air quality is unlikely to meet the objectives prescribed in the Air Quality (Wales) Regulations 2000 and the Air Quality (Amendment) (Wales) Regulations 2002.

## 1.2 The Phased Approach to Review and Assessment

The process of continuous review and assessment started with the first report being produced by BGCBC in 1999. This report concluded that the likely hood of the air quality objectives for any of the seven key pollutants being exceeded was negligible.

In 2003 a further Updating and Screening Assessment was carried out. Using the additional data gathered in the period between the previous report it was establish that the likelihood of exceeding the Air Quality Objectives for any of the seven key pollutants was negligible.

## 1.3 Guidance for Completing Assessments of Air Quality

To assist local authorities in completing assessments of air quality the Government and Devolved Administrations have issued Technical Guidance, LAQM.TG(03). This document makes it clear that local authorities should only undertake a level of assessment that is commensurate with the risk of an air quality objective being exceeded.

## 1.4 Check List Approach to Updating and Screening Assessment

The first stage of the review and assessment process is this Updating and Screening Assessment that is to be undertaken by all local authorities. This is based on a checklist to identify those matters that have changed since previous rounds of review and assessment were carried out. This Updating and Screening Assessment will cover

- New Monitoring Data;
- New Objectives;
- New sources or a significant change to existing sources either locally or in neighbouring authorities.

Where Updating and Screening identifies that an air quality objective will be exceeded at a location with relevant public exposure, the Authority will be required to undertake a Detailed Assessment. The aim of the detailed assessment should be to identify with reasonable certainty whether or not a likely exceedence will occur.

## 1.5 Air Quality Objectives

The Air Quality (Wales) Regulations 2000 and the Air Quality (Amendment) (Wales) Regulations 2002 prescribe Air Quality objectives as set out in the National Air Quality Strategy as follows:

Objectives included in the Air Quality (Wales) Regulations 2000 and the Air Quality (Amendment) (Wales) Regulations 2002 for the purposes of Local Air Quality Management			
Pollutant	Air Quality Objective		To be achieved by
	Concentration	Measured as	
<b>Benzene</b>	16.25µg/m <sup>3</sup>	Running annual mean	31.12.2003
	5µg/m <sup>3</sup>	Annual mean	31.12.2010
<b>1,3 Butadiene</b>	2.25µg/m <sup>3</sup>	Running annual mean	31.12.2003
<b>Carbon Monoxide</b>	10.0mg/m <sup>3</sup>	Maximum daily running 8 hour mean	31.12.2003
<b>Lead</b>	0.5µg/m <sup>3</sup>	Annual mean	31.12.2004
	0.25µg/m <sup>3</sup>	Annual mean	31.12.2008
<b>Nitrogen Dioxide</b>	200µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40µg/m <sup>3</sup>	annual mean	31.12.2005
<b>Particles (PM<sub>10</sub>)</b>	50µg/m <sup>3</sup> not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40µg/m <sup>3</sup>	annual mean	31.12.2004
<b>Sulphur Dioxide</b>	350µg/m <sup>3</sup> not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125µg/m <sup>3</sup> not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266µg/m <sup>3</sup> be exceeded more than 35 times a year	15 - minute mean	31.12.2005

## 1.6 The Administrative Area of Blaenau Gwent

The County Borough of Blaenau Gwent is situated in South-East Wales and incorporates the valley towns of Abertillery, Blaina, Nantyglo, Brynmawr, Ebbw Vale and Tredegar. It is predominantly urban in character with a population of around 73 000.

The main trunk route that runs through the County Borough is the A465, Heads of the Valleys road which provides good communication to the Midlands and the North via the M50/M5 and to London via the M4.

Much of the traditional coal and steel industry has been replaced by a diverse industrial base comprising of businesses such as pharmaceuticals, battery and computer systems, electronic and high tech engineering. The closures of the heavy industry have had an adverse impact on the local economy but conversely it has meant the removal of significant sources of air pollution

## 2.0 Review and Assessment of Benzene

### 2.1 Introduction and Objectives

- 2.1.1 Benzene is a Volatile Organic Compound (VOC) which is a minor constituent of petrol. The main sources of benzene in the atmosphere in Europe are the distribution and combustion of petrol. Of these, combustion by petrol vehicles is the single biggest source (70% of total emissions). Possible chronic health effects include cancer, central nervous system disorders, liver and kidney damage, reproductive disorders, and birth defects.<sup>1</sup>
- 2.1.2 The Welsh Assembly Government have adopted a running annual mean concentration of  $16.25\mu\text{g}/\text{m}^3$  as the air quality standard for benzene, with an objective for the standard to be achieved by the end of 2003. However, in light of the health advice from EPAQS and the Department of Health's Committee on Carcinogenicity of Chemicals in Food, Consumer Products and the Environment (COC) to reduce concentrations of benzene in air to as low a level as possible, additional tighter objectives have also been set. The additional objective is for an annual mean of  $5\mu\text{g}/\text{m}^3$  to be achieved by the end of 2010 in England and Wales.
- 2.1.3 These objectives apply to any locations where members of the public might be regularly exposed such as the building facades of residential properties, schools, hospitals, libraries, etc.

### 2.2 Petrol Stations and Major Fuel Depots

- 2.2.1 The main source of benzene emissions in the UK are petrol-engined vehicles, petrol refining and the distribution and uncontrolled emissions from petrol station forecourts with vapour recovery systems.
- 2.2.2 We currently have 10 petrol filling stations within the County Borough. All of these have stage 1 vapour recovery in operation and have been issued with a permit under the Pollution Prevention and Control (England and Wales) Regulations 2000 (as amended).
- 2.2.3 None of the petrol stations have a throughput of greater than  $2000\text{m}^3$  (2 million litres) or are located within 10 metres of residential property.
- 2.2.4 There are no roads within Blaenau Gwent that have traffic flow of greater than 30 000 vehicle movements per day.
- 2.2.5 There are no major fuel storage depots situated within Blaenau Gwent.

### 2.3 Industrial Sources of Benzene

- 2.3.1 A list of all Part A1, A2 and B Processes (as defined under the Pollution Prevention and Control Regulations 200) can be found in appendix 1 to this report.
- 2.3.2 None of the processes regulated under the 'PPC' Regulations have the potential to omit Benzene.

2.3.3 There are no other industrial processes existing or planned within the County Borough that have the potential to emit significant quantities of benzene.

2.3.4 There are no industrial processes existing or planned in the neighboring local authorities of Caerphilly CBC, Monmouthshire CBC, Powys CC or Torfaen CBC that have the potential to emit significant quantities of Benzene.

## **2.4 Road Traffic**

2.4.1 An assessment carried out by DEFRA for the 2010 objective for benzene suggests that there may be a few locations close to busy main roads, in areas with high background concentrations, that may be at risk of exceeding this objective.

2.4.2 In Blaenau Gwent we have low background concentrations (see below) and none of our roads fall within the DEFRA definition of 'very busy'.

## **2.5 Monitoring Data**

2.5.1 Background concentrations of Benzene in Blaenau Gwent are below  $0.3\mu\text{g}/\text{m}^3$  for 2003 and projected to be below  $0.3\mu\text{g}/\text{m}^3$  in 2010.

2.5.2 Blaenau Gwent CBC do not currently undertake any monitoring for Benzene

2.5.3 Benzene is monitored at Cardiff Centre using an automatic Gas Chromatograph based analyser and at Cwmbran using diffusion tube samplers. Running annual mean concentrations for benzene in 2003 were significantly below the UK Air Quality Objective of  $16.25\mu\text{g}/\text{m}^3$  at  $1.2\mu\text{g}/\text{m}^3$ .

## **2.6 Conclusions**

2.6.1 The Updating and Screening Assessment for Benzene indicates that there is little risk of the 2003 or 2010 Air Quality Objective for Benzene being exceeded.

2.6.2 Therefore, no detailed assessment is required.

## **3.0 Review and Assessment of 1,3 Butadiene**

### **3.1 Introduction and Objectives**

- 3.1.1 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 gases being produced by the combustion process itself. The chemicals in petrol from which the 1,3 - butadiene is derived, higher olefins, have been present in increasing proportion in petrol over the last decade, and it is likely that the amounts of 1,3 - butadiene released into the atmosphere have therefore been rising. However 1,3 - butadiene is removed efficiently by catalytic converters on motorcars and this is likely to reverse any such trend.
- 3.1.2 The Welsh Assembly Government has adopted an Air Quality Standard for 1,3 Butadiene of  $2.25\mu\text{g}/\text{m}^3$  measured as a running annual mean concentration. The objective for the standard is to be achieved by the end of 2003.

### **3.2 Industrial Sources of 1,3 Butadiene**

- 3.2.1 A list of all Part A1, A2 and B Processes (as defined under the Pollution Prevention and Control Regulations 200) can be found in appendix 1 to this report.
- 3.2.2 None of the processes regulated under the 'PPC' Regulations have the potential to emit 1,3 Butadiene.
- 3.2.3 There are no other industrial processes existing or planned within the County Borough that have the potential to emit significant quantities of 1,3 Butadiene.
- 3.2.4 There are no industrial processes existing or planned in the neighboring local authorities of Caerphilly CBC, Monmouthshire CBC, Powys CC or Torfaen CBC that have the potential to emit significant quantities of 1,3 Butadiene.

### **3.3 Monitoring Data**

- 3.3.1 No monitoring for 1,3 Butadiene is carried out in Blaenau Gwent CBC.
- 3.3.2 1,3 Butadiene is monitored at Cardiff Centre using an automatic Gas Chromatograph based analyser and at Cwmbran using diffusion tube samplers. Running annual mean concentrations for 1,3 Butadiene in 2003 were significantly below the UK Air Quality Objective of  $2.25\mu\text{g}/\text{m}^3$  at  $0.15\mu\text{g}/\text{m}^3$ .
- 3.3.3 Background concentrations of Benzene in Blaenau Gwent are below  $0.3\mu\text{g}/\text{m}^3$  for 2003 and projected to be below  $0.3\mu\text{g}/\text{m}^3$  in 2010. (Air Quality Achieve)

### **3.4 Conclusions**

- 3.4.1 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.
- 3.4.2 The Updating and Screening Assessment indicates that there is little risk of the Air Quality Objective for 1,3 Butadiene being exceeded by the end of 2003 or 2010.
- 3.4.3 Therefore, no Detailed Assessment is required.



# 4.0 Review and Assessment of Carbon Monoxide

## 4.1 Introduction and Objectives

4.1.1 Carbon Monoxide is produced by the incomplete combustion of organic substances or those that are essentially just carbon, such as coke. Complete combustion, in the presence of sufficient oxygen, leads to the production of carbon dioxide, whereas, if there is a slight deficiency of oxygen some carbon monoxide is formed. The main combustion processes produce some carbon monoxide depending on the efficiency of the process and the availability of oxygen.

The major source of carbon monoxide is road traffic with the highest concentrations occurring at roadsides on winter days with low wind speeds.

Recently there has been evidence of a decline in vehicle emissions following improved engine design, introduction of catalytic converters and adoption of emissions standards in the MOT test. Any future increase in traffic would of course oppose this trend.

In the Review and Assessment undertaken in 1999 and 2003 it was demonstrated that it was unlikely that the 2003 Air Quality Objective would be exceeded.

The pollutant specific guidance LAQM.TG(03) (as amended) specifies that for the purposes of completing an update and screening assessment for carbon monoxide the following matters should be considered:

- Monitoring Data;
- Road Traffic Data.

4.1.2 The Welsh Assembly Government has adopted an 8-hour running mean concentration of  $10.0\text{mg}/\text{m}^3$ . The objective for the standard is to be achieved by the end of 2003.

## 4.2 Monitoring Data

4.2.1 Blaenau Gwent County Borough Council does not currently monitor for Carbon Monoxide.

4.2.2 In order to ascertain the likelihood of the objective being breached in Blaenau Gwent we look to neighbouring local authorities that do monitor for Carbon Monoxide. The three closest sites to Blaenau Gwent are at Cardiff Centre, Cwmbran and Pontypridd (Cardiff Briardene did not achieve 90% data capture). In 2004, none of the sites breached the objective of  $10.0\text{mg}/\text{m}^3$ .

4.2.3 The areas where the data was obtained have significantly higher traffic flows than in Blaenau Gwent so it reasonable to assume that levels within Blaenau Gwent will be below the objective level.

4.2.4 Background concentrations for Carbon Monoxide for Blaenau Gwent in 2001 were in the region of  $0.2\text{mg}/\text{m}^3$ . Using projection tools it is estimated that the background concentration in 2005 will be in the region of  $0.14\text{mg}/\text{m}^3$ .

### **4.3 Road Traffic**

4.3.1 None of the major roads or junctions in Blaenau Gwent have a current or projected average daily traffic flow greater than the bench mark figure of 80 000 vehicles per day for single carriageways or 120 000 vehicles per day for dual carriageways. There are no motorways in Blaenau Gwent.

### **4.4 Conclusions**

4.4.1 DEFRA considers that emissions from road traffic will continue to decline.

4.4.2 As there are no very busy roads or junctions within Blaenau Gwent and monitoring carried out by neighbouring Authorities are show that levels are below the objective level there is little risk of the air quality objective for Carbon Monoxide being exceeded in Blaenau Gwent

4.4.3 Therefore, no detailed assessment is required.

# 5.0 Review and Assessment of Lead

## 5.1 Introduction and Objectives

- 5.1.1 Lead occurs in the earth's crust and is released naturally through various processes including weathering of rocks, volcanic activity and uptake and subsequent release from plants. Anthropogenic sources of lead stem from its removal from the earth's crust. It is released into the atmosphere through the mining and smelting of ores, the production use, recycling and disposal of lead containing products, the production of non-ferrous metals and the burning of fossil fuels.
- 5.1.2 The use of tetraethyl-lead was used as a petrol additive to increase the octane rating. The use of leaded petrol was discontinued from January 2000.
- 5.1.3 Lead can be easily absorbed into the body through the lungs and through the stomach and intestines. It has been known for centuries to be harmful to people exposed to it.
- 5.1.4 The pollutant specific guidance LAQM TG (03) (as amended) specifies the for the purposes of an Updating and Screening Assessment for lead the following information should be considered:
- Details of any monitoring data;
  - Details of new industrial sources with the potential to emit significant quantities of lead;
  - Details of existing industrial sources with substantially increased emissions;
  - Details of any significant sources of lead in neighbouring Authorities, that could impact within Blaenau Gwent.
- 5.1.5 The Welsh Assembly Government has adopted an annual mean concentration of  $0.5\mu\text{g}/\text{m}^3$  to be achieved by the end of 2004 and an annual mean concentration of  $0.25\mu\text{g}/\text{m}^3$  to be achieved by the end of 2008.

## 5.2 Monitoring Data

- 5.2.1 Blaenau Gwent County Borough Council do not current undertake monitoring for atmospheric lead.
- 5.2.2 There are no other Local Authorities nearby who monitor for lead.
- 5.2.3 The air quality archive provides data that at a lead in petrol site in Cardiff the Annual mean for 2004 was  $0.017\mu\text{g}/\text{m}^3$ .

## 5.3 New Industrial Sources

- 5.3.1 On 21<sup>st</sup> June 2005 a new lead acid battery recycling plant was given planning permission. This plant is to be located on the Rassau Industrial Estate in Ebbw Vale on a green field site. This plant is located on the same industrial estate as a long established process also with the potential to emit significant quantities of lead, Yuasa Battery (UK) Limited.

- 5.3.2 As part of planning process the company, Envirowales Limited, were required to submit an Environmental Impact Assessment. The company were required by this Authority to not only model emissions from the proposed new plant but also include emissions from the existing Yuasa plant.
- 5.3.3 The results were scrutinised by this Authority and an independent consultant. Initially concerns were raised over the validity of the meteorological data used. There are no meteorological stations in or around Blaenau Gwent so data was obtained from distant stations. However, the report was accepted on the basis that the data used represented the worst-case scenario.
- 5.3.4 The report concluded that the highest annual average ground level concentration of lead would be  $0.453\mu\text{g}/\text{m}^3$  in 2003, including emissions from Yuasa Battery (UK) Ltd, Envirowales Ltd and predicted background levels. The report emphasised that the data represented the worst-case scenario as the data from Envirowales was the worst predicted and the background levels were obtained from Cardiff City Council where the background concentrations were higher than would be expected in the semi-rural location of the Rassau Industrial Estate.
- 5.3.5 The figures from the modelling are included in appendix 2.
- 5.3.6 As part of the permit to operate issued by the Environment Agency under the Pollution Prevention (England and Wales) Regulations 2000 (as amended) EnviroWales are required to set up lead monitoring stations both within the plant and at a nearby sensitive receptor. The remote monitoring station will be placed at Garnlydan Primary School by April 2006. This will ensure that data is obtained before the plant is commissioned allowing a comparison to be made.
- 5.3.7 Blaenau Gwent County Borough Council has entered an agreement with EnviroWales so the data obtained can be used as part of future Updating and Screening Assessments. The company are also collecting meteorological data that this Authority will be able to use in the future.
- 5.3.8 A location map of the site of the lead monitoring station is included in appendix 3.
- 5.3.9 There are no new industrial sources in neighbouring authorities that have the potential to effect the ground level concentrations of lead in this County Borough.

#### **5.4 Existing Industrial Sources / sources with increased emissions or new relevant exposure**

- 5.4.1 As mentioned in paragraph 5.3.1 above there is a long established industrial source of lead in Blaenau Gwent, Yuasa Battery (UK) Limited. In the 2003 Updating and Screening Assessment it was concluded that the air quality objectives were unlikely to be exceeded as a result of the operation of Yuasa Battery (UK) Limited.
- 5.4.2 The operation of the existing plant and the new plant has been considered above.
- 5.4.3 There are no new receptors within the county borough or neighbouring authorities that will be exposed to significant ground level concentrations of lead.
- 5.4.4 The company have reported that emissions have not increased substantially since the last review and assessment report in 2003.

## **5.5 Conclusions**

- 5.5.1 The modelling study for the new plant combined with the emissions data from the existing plant indicate that the ground level concentrations of lead will be within the objective level of  $0.5\mu\text{g}/\text{m}^3$  for 2004.
- 5.5.2 Further monitoring is to be carried out to establish the actual ground level concentration of lead from the new EnviroWales plant both on site and at local sensitive receptors. This will allow more accurate predictions to be made for future years objective levels.
- 5.5.3 The permit issued to EnviroWales Limited under the Pollution Prevention and Control (England and Wales) Regulations (as amended) includes the provision to require the operator to reduce the actual emissions from the plant if there is the likelihood that the objective level for 2008 will not be met. This will only become apparent once the plant is operational.
- 5.5.4 Therefore, no detailed assessment is currently required.

# 6.0 Review and Assessment of Nitrogen Dioxide

## 6.1 Introduction and Objectives

- 6.1.1 Nitrogen Dioxide is a gas produced by the reaction of nitrogen and oxygen in combustion processes. By far the largest amount of Nitrogen Dioxide in the atmosphere is formed as a consequence of combustion of fossil fuels – petrol, oil, coal and gas, especially by motor transport and non-nuclear power stations.
- 6.1.2 Once formed, nitrogen dioxide takes part in chemical reactions in the atmosphere that convert it into nitric acid and nitrates, both of which can be removed by rain. However, nitrates can also remain in the air as very small particles, for example ammonium nitrate, which can be dispersed widely in the atmosphere contributing to the airborne concentrations of small particles known as PM<sub>10</sub>(Particle Matter less than 10µm in diameter)
- 6.1.3 Nitrogen Dioxide is an irritant gas that has been known for many years to have serious and sometimes fatal effects on health when inhaled in the very high concentrations associated with accidental exposures. There is now evidence that it has more subtle effects on health at the much lower concentrations that may occur in the ambient atmosphere, both outdoors and indoors.
- 6.1.4 Generally, ground level concentrations of nitrogen dioxide outdoors are influenced more by emissions from motor vehicles than from other sources, such as power stations, which disperse pollutants from tall stacks.
- 6.1.5 Urban traffic Nitrogen Dioxide emissions are estimated to fall by about 20% between 2000 and 2005 and by 46% between 2000 and 2010.
- 6.1.6 The Welsh Assembly Government has adopted two air quality standards for Nitrogen Dioxide (NO<sub>2</sub>), as an annual mean concentration of 40µg/m<sup>3</sup> and a 1-hour mean concentration of 200µg/m<sup>3</sup> not to be exceeded more than 18 times per year. Both objectives are to be achieved by the end of 2005.
- 6.1.7 The first Air Quality Daughter Directive also set limit values for Nitrogen Dioxide which have been transposed into UK Legislation. The Directive includes a 1-hour limit value of 200µg/m<sup>3</sup> not to be exceeded more than 18-times per year, and an annual mean limit value of 40µg/m<sup>3</sup>. Both objectives are to be achieved by 1<sup>st</sup> January 2010.
- 6.1.8 The pollutant specific guidance LAQM TG(03) (as amended) specifies that for the purposes of an Update and Screening Assessment for nitrogen dioxide the following information has to be considered:
- Monitoring Data;
  - Narrow congested streets with residential properties close to the kerb;
  - Junctions
  - Busy streets where people may spend 1-hour or more close to traffic
  - Roads with high flows of buses and/or HGV's;
  - New roads constructed or proposed since the previous rounds of review and assessment;
  - Roads with significantly changed traffic flows, or new relevant exposure;
  - Bus Stations
  - New Industrial Sources;

- Industrial sources with substantially increased emissions, or new relevant exposure;
- Aircraft.

The checklist points relevant to Blaenau Gwent CBC are discussed below.

## 6.2 Nitrogen Dioxide in Blaenau Gwent

6.2.1 The Review and Assessment of Air quality in Blaenau Gwent undertaken in 1999 and 2003 concluded that it was unlikely the 2004 Air Quality Objective would be exceeded.

## 6.3 Monitoring Data

6.3.1 The Public Protection Division currently undertakes diffusion tube monitoring at 17 sites throughout the County Borough. Following the production of the Progress Report in 2005 it was decided to change the diffusion tube monitoring programme within the County Borough to take into account changes in local circumstances.

6.3.2 Up until 31<sup>st</sup> December 2005 the 14 sites within the County Borough had remained unchanged since 1993. However, the report identified that there had been changes that required some tubes to be removed, re-located and new sites established.

6.3.3 Tubes were relocated for the following reasons:

- Several tubes were located in background locations and results had been constant over time. Tubes relocated elsewhere.
- Because of new road developments tubes were placed at new sensitive receptors close to the two new roads.
- Four tubes were in a cluster around a foundry site. This process has now closed so the need for so many tubes has gone. The tubes will be deployed elsewhere

6.3.4 Table A below lists all sites current in operation for 2005.

WAQF Reference	Location	Annual Mean 2005 [ $\mu\text{g}/\text{m}^3$ ]	Projected Annual Mean 2010 [ $\mu\text{g}/\text{m}^3$ ]
BGBC-12*	Rhymney Row, Trefil, Tredegar	5.74	5.02
BGBC-13	Kings Arms Cottages, Trefil, Tredegar	5.74	5.02
BGBC-14*	Ty Newydd, Nantybwich, Tredegar	9.02	7.89
BGBC-15	Bush Bach, Nantybwich, Tredegar	10.66	8.97
BGBC-04	Parkhill, Beaufort, Ebbw Vale	7.92	6.93
BGBC-01	Darenfelin Road, Brynmawr #1	14.54	12.23
BGBC-03	King Street, Brynmawr	12.24	10.30
BGBC-09	Ynys Dawel, Darenfelin Road, Brynmawr	16.63	13.99
BGBC-10	Mill Terrace, Cwm, Ebbw Vale	18.04	15.17
BGBC-11	Cwm Craig, Cwm, Ebbw Vale	11.48	9.66
BGBC-07	Aberbeeg Medical Centre, Aberbeeg	13.12	11.04
BGBC-05	Willow Tree Bungalow, Aberbeeg	12.30	10.35
BGBC-06 *	Aberbeeg Primary School, Aberbeeg	12.30	10.35
BGBC-08*	Glandwr Industrial Estate, Aberbeeg	12.30	10.35

\* - discontinued from 12.2005

6.3.5 Seven new sites were identified and tubes have been in place since January 2006. The new sites are as follows:

WAQF Reference	Location
BGBC-016	Aberbeeg Road, Abertillery
BGBC-017	Cwmyrdderch Court, Station Terrace, Cwm, Ebbw Vale
BGBC- 018	Welfare Hall, Beaufort Hill, Ebbw Vale
BGBC-019	The Rise, Beaufort, Ebbw Vale
BGBC-020	Beaufort Road, Tredegar
BGBC-021	Bryn Rhosyn, Tredegar
BGBC-022	King Street, Brynmawr

6.3.6 A map showing the location of all the tubes is contained in appendix 4.

6.3.7 This Authority currently uses two laboratories to analyse the data diffusion tubes. This is an historical arrangement where the four sites (BGBC –1,3,4 & 9) were part of the national survey and the remainder were local sites. With the demise of the national survey the same arrangements were maintained for 2006. This will be revised when tenders are obtained for the 2007 monitoring period.

6.3.8 The laboratory for the four former national survey sites, Harwell Scientifics, uses the 50% TEA in Acetone method. The recorded bias from this laboratory for 2005 was 0.72.

6.3.9 The laboratory for the remaining sites, Cardiff Scientific Services, also uses the 50% TEA in Acetone method. This laboratory does not supply its own bias. Therefore, using the University of the West of England AQM spreadsheet, a collocation study with Cardiff City Council, a bias adjustment factor of 0.82.(2004 data)

6.3.10 The laboratories bias adjustment factors of 0.72 and 0.82 respectively. Therefore, the concentration results they provide both over read. The results shown in the table above have been adjusted for the relevant bias.

6.3.11 The National Air Quality Information Archive maps estimate that background concentrations for Blaenau Gwent are between 5 - 10µg/m<sup>3</sup>

#### **6.4 Narrow Congested Streets with residential properties close to the kerb.**

6.4.1 There is one long narrow congested street within the County Borough where the average speed is less than 50KPH and where the carriageway is less than 10m wide.

6.4.2 However, the street in question has significantly less than 10 000 vehicle movements per day.



## **6.5 Road Traffic Junctions**

6.5.1 There are no junctions with the County Borough that have more than 10 000 vehicle movements per day and with receptors within 10m of the kerb of a busy junction. There is one junction on the A465 at Brynmawr where the ADT is almost 20 000 but the nearest receptor is over 10 metres from the kerb.

## **6.6 Busy streets where people may spend 1-hour or more close to traffic**

6.6.1 There are no areas within the County Borough that fulfil the DEFRA definition of busy where people may be exposed for 1-hour or more per day.

## **6.7 Roads with high flows of buses or HGV's.**

6.7.1 There are no specific figures available to assess this criteria. However, local knowledge suggests that there are no roads with an unusually high proportion of buses and/or HGV's.

6.7.2 There are no bus only routes within the County Borough.

6.7.3 Access roads to industrial estates have daily traffic flows far less than the DEFRA definition of busy.

## **6.8 New roads constructed or proposed since the previous round of R & A**

6.8.1 There have been two major road schemes with Blaenau Gwent since the previous R & A report in 2003. They are as follows:

- A465 Heads of the Valley Road – Dualling Scheme – Tredegar to Merthyr Tydfil
- A4046 Cwm Relief Road

The routes of both schemes are shown in appendix 5.

6.8.2 The 2003 report concluded that the maximum predicted NO<sub>2</sub> level for 2005 would be 26.52µg/m<sup>3</sup> and 20.68µg/m<sup>3</sup> for 2010 for the upgraded section of the A465 at Tredegar.

6.8.3 The traffic flow figures used in the modelling exercise remain valid so no further assessment of this section of road has been carried out.

6.8.4 The A4046 Cwm By-pass Road has significantly less than 10 000 vehicle movements per day. The latest set of data for October 2005 measured the traffic flow and calculated that the AADT is in the order of 7000 vehicles per day.

## **6.9 Roads with significantly changed traffic flows or new relevant exposure**

6.9.1 There are no roads within the county borough that have had a significant increase (greater than 25%) in traffic flow.

## **6.10 Bus Stations**

6.10.1 There are currently two bus stations within the county borough. Each bus station has an average daily movement of buses in the order of 130. Therefore, there is no significant exposure at either location.

## **6.11 New Industrial Sources**

6.11.1 There have been three new part B processes in Blaenau Gwent since the last review and assessment. These are two crushing processes and one printing process.

6.11.2 Using the Technical Guidance LAQM TG (03) (amended) none of these processes have the potential to emit significant quantities of Nitrogen Dioxide.

6.11.3 There have been two new part A1 processes in Blaenau Gwent since the last review and assessment. One process is a landfill site and the other an acid process.

6.11.4 Using the Technical Guidance LAQM TG (03) (amended) neither of the new part A1 processes have the potential to emit significant quantities of Nitrogen Dioxide.

6.11.5 There have been no other industrial developments subject to planning control that have the potential to emit significant quantities of nitrogen dioxide.

6.11.6 There are no sources of nitrogen dioxide in neighbouring authorities that have the potential to cause an increase in ground level concentrations within Blaenau Gwent.

## **6.12 Industrial sources with substantially increased emissions or new relevant exposure**

6.12.1 There are no existing sources of Nitrogen Dioxide within the County Borough that have significantly increased since the last review and assessment.

## **6.13 Aircraft**

6.13.1 There is no airport within Blaenau Gwent County Borough Council and therefore, there is no relevant exposure.

## **6.14 Conclusions**

6.14.1 In review of the data obtained above there is little chance of the air quality objective for nitrogen dioxide being exceeded in Blaenau Gwent.

6.14.2 Therefore, no detailed assessment is required.

# 7.0 Review and Assessment of Particles, PM<sub>10</sub>

## 7.1 Introduction and Objectives

- 7.1.1 The ability of a particle to remain suspended in the air depends essentially on size, shape and density. Large heavy particles fall rapidly, while fine light particles remain suspended for longer. The same properties determine where in the human respiratory track a particle can penetrate. In general, spherical particles below 10µm in diameter (PM<sub>10</sub>) have the greatest likelihood of reaching the furthest parts of the lung air spaces where delicate tissues involved in the essential processes of respiration are to be found.
- 7.1.2 Particles 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, and from many other industrial processes and from the abrasion of road surfaces by motor vehicles.
- 7.1.3 The Welsh Assembly Government has adopted two air quality objectives for PM<sub>10</sub>. The objectives are 40µg/m<sup>3</sup> as the annual mean, and 50µg/m<sup>3</sup> as the fixed 24-hour mean to be exceeded no more than 35 days per year, to be achieved by the end of 2004.
- 7.1.4 The EU has also set indicative limit values for PM<sub>10</sub> which are to be achieved by 2010. The objectives are 20µg/m<sup>3</sup> for the annual mean and 50µg/m<sup>3</sup> as the 24-hour mean to be exceeded on no more than seven days per year. Although not a legal requirement to assess these objectives they have been included for the purposes of completeness.
- 7.1.5 The pollutant specific guidance LAQM TG(03) (as amended) specifies that for the purposes of an Update and Screening Assessment for PM<sub>10</sub> the following information has to be considered:
- Monitoring Data;
  - Junctions;
  - Roads with high flows of buses and/or HGV's.
  - New roads constructed or proposed since the last round of R & A;
  - Roads with significantly changed traffic flows, or relevant new exposure;
  - Roads close to the objective during the second round of R & A;
  - New industrial sources;
  - Industrial sources with substantially increased emissions, or relevant new exposure;
  - Areas of domestic solid fuel burning
  - Quarries, landfill, opencast coal, handling of dusty cargoes at ports etc..
  - Aircraft.

## 7.2 PM<sub>10</sub> in Blaenau Gwent

- 7.2.1 The Review and Assessment carried out in 2003 concluded that it was unlikely that the 2004 Air Quality Objective would be exceeded.

### **7.3 Monitoring Data**

- 7.3.1 No monitoring for PM<sub>10</sub> is carried out in Blaenau Gwent.
- 7.3.2 The estimated annual mean background gravimetric PM<sub>10</sub> concentration for Blaenau Gwent is 15-20µg/m<sup>3</sup>. In 2010 it is estimated that this level will drop to 10-15µg/m<sup>3</sup>.
- 7.3.3 Torfaen County Borough Council currently monitor PM<sub>10</sub> at Cwmbran. The latest data available is for 2004 where the annual mean was 18µg/m<sup>3</sup> with over 99% data capture.
- 7.3.4 Merthyr Tydfil County Borough Council started monitoring for PM<sub>10</sub> in 2005 using a TEOM monitor. They currently estimate that the gravimetric concentration of PM<sub>10</sub> for 2005 was 14.8µg/m<sup>3</sup>.
- 7.3.5 Taking into account that this is the best data available and that both neighbouring authorities are similar in location, size and population density it is acceptable to conclude that the PM<sub>10</sub> levels in Blaenau Gwent are within the air quality objective levels.

### **7.4 Junctions**

- 7.4.1 There are no road junctions in Blaenau Gwent that meet the DEFRA definition of busy, i.e. 10 000 vehicles per day and exposure within 10 metres of the kerb.

### **7.5 Roads with high flows of buses and/or HGV's.**

- 7.5.1 There are no specific figures available to assess this criteria. However, local knowledge suggests that there are no roads with an unusually high proportion of buses and/or HGV's.
- 7.5.2 There are no bus only routes within the County Borough.
- 7.5.3 Access roads to industrial estates have daily traffic flows far less than the DEFRA definition of busy.

### **7.6 New Roads Constructed or proposed since the last round of R & A**

- 7.6.1 There have been two major road schemes with Blaenau Gwent since the previous R & A report in 2003. They are as follows:

- A465 Heads of the Valley Road – Dualling Scheme – Tredegar to Merthyr Tydfil
- A4046 Cwm Relief Road

The routes of both schemes are shown in appendix 5.

- 7.6.2 The 2003 report concluded that the road scheme would have no significant impact on local air quality.

The results of the 2003 Review and Assessment indicated that a maximum predicted annual mean PM<sub>10</sub> level for 2004 would be 24.21µg/m<sup>3</sup> with a 24-hour mean of 50µg/m<sup>3</sup> being exceeded a maximum of 12 days per year.

Although the traffic is expected to increase by a factor of 1.072 by 2010 the level of PM<sub>10</sub> is expected to reduce to a maximum of 20.68µg/m<sup>3</sup> with the 24-hour mean limit of 50µg/m<sup>3</sup> being exceeded a maximum of 3 days a year.

7.6.3 Recent traffic flow figures on the A465 show that the predicted annual traffic flows have indeed been realised. Therefore, the conclusions of the 2003 Review and Assessment remain valid.

7.6.4 The A4046 Cwm Relief Road was completed in 2004. The most recent traffic flow figures indicate that the traffic flow are well below 10 000 vehicles per day, currently recorded in the order of 7000 vehicles per day in October 2005.

### **7.7 Roads with significantly changed traffic flows or new relevant exposure**

7.7.1 There are no roads within Blaenau Gwent with greater than 10 000 vehicles per day that have had a large (greater than 25%) increase in traffic flow.

### **7.8 Roads close to the objective during the second round of review and assessment**

7.8.1 The second round of review and assessment identified that there were no roads close to the objective levels.

### **7.9 New Industrial Sources**

7.9.1 The only significant new industrial source is a Lead Acid Battery Recycling Plant on the Rassau Industrial Estate.

7.9.2 As part of the planning process the operator submitted an Environmental Impact Assessment. This report concluded that at local sensitive receptors that Annual mean would be  $16.33\mu\text{g}/\text{m}^3$  and  $15.5\mu\text{g}/\text{m}^3$  for 2004 and 2010 respectively.

### **7.10 Industrial sources with substantially increased emissions or relevant exposure.**

7.10.1 There are no industrial sources within Blaenau Gwent that have substantially increased (greater than 30%) since the last round of review and assessment.

### **7.11 Areas of domestic solid fuel burning**

7.11.1 There are no areas with Blaenau Gwent in which significant burning of solid fuel takes place.

7.11.2 Records held by the Environmental Health section of the Authority reveal that there have been less than 5 complaints about emissions from domestic chimneys in the since 2000.

### **7.12 Quarries, landfill, opencast coal, handling of dusty cargoes at ports etc..**

7.12.1 There are no new sites or sites with new relevant exposure that were not considered in the 2003 Review and Assessment process.

### **7.13 Aircraft**

7.13.1 There is no airport within Blaenau Gwent County Borough Council and therefore, there is no relevant exposure.

## **7.14 Conclusions**

7.14.1 In review of the data obtained above there is little chance of the air quality objective for  $PM_{10}$  being exceeded in Blaenau Gwent.

7.14.2 Therefore, no detailed assessment is required.

# 8.0 Review and Assessment of Sulphur Dioxide

## 8.1 Introduction and Objectives

- 8.1.1 From the time of the industrial revolution until the early 1960's the main source of sulphur dioxide emissions in towns and cities was the domestic, commercial and industrial burning of coal. However, this pattern of emissions in the UK has changed significantly since the 1960's. Following the Clean Air Act 1956 and subsequent moves to the increased use of energy sources, such as natural gas and electricity, emissions in towns and cities have fallen significantly.
- 8.1.2 The generation of electricity by combustion of fossil fuel has now become concentrated mainly in rural areas rather than close to towns and cities.
- 8.1.3 In contrast to other pollutants, motor vehicles are a relatively unimportant source nationally, being responsible for only about 2% of the total sulphur dioxide emissions. However, the combustion of diesel fuels can make a significant contribution to background levels in urban areas.
- 8.1.4 The Welsh Assembly Government has adopted a 15-minute mean of  $266\mu\text{g}/\text{m}^3$  as an air quality standard for sulphur dioxide with the objective not being exceeded more than 35 times per year by the end of 2005. Additional objectives have also been set. These are for a 1-hour mean objective of  $350\mu\text{g}/\text{m}^3$  to be exceeded no more than 24 times per year and a 24-hour mean objective of  $125\mu\text{g}/\text{m}^3$  not to be exceeded more than 3 times per year, to be achieved by the end of 2004.
- 8.1.5 The pollutant specific guidance LAQM TG(03) (as amended) specifies that for the purposes of an Update and Screening Assessment for Sulphur Dioxide the following information has to be considered:
- Monitoring Data;
  - New Industrial Sources;
  - Industrial sources with substantially emissions or relevant new exposure;
  - Areas of domestic coal burning;
  - Small boilers >5MW;
  - Shipping
  - Railway Locomotives.

## 8.2 Sulphur Dioxide in Blaenau Gwent

- 8.2.1 The review and assessment carried out in 2003 concluded that the risk of the objectives for sulphur dioxide being exceeded was negligible.

## 8.3 Monitoring data

- 8.3.1 No monitoring for Sulphur Dioxide is carried out in Blaenau Gwent.
- 8.3.2 Estimated annual mean background sulphur dioxide ( $\text{SO}_2$ ) concentrations for 2001 were obtained from the Air Quality Archive. This indicated the annual mean background  $\text{SO}_2$  concentration to fall to below  $6\mu\text{g}/\text{m}^3$ . This level can be assumed to fall to below 4.5

$\mu\text{g}/\text{m}^3$  by the end of 2004 and 2005 using the assumption (75% of 2001 values) detailed in the DEFRA guidance.

#### **8.4 New Industrial Sources**

8.4.1 There are no new industrial sources within Blaenau Gwent that have the potential to emit significant sources of sulphur dioxide.

#### **8.5 Industrial sources with substantially increased emissions, or new relevant exposure**

8.5.1 There are no industrial sources that have substantially increased (greater than 30%) emissions of sulphur dioxide.

#### **8.6 Coal burning areas**

8.6.1 There are no areas within Blaenau Gwent that fall within the definition of significant, as regards the number of properties burning solid fuel as their primary source of heating.

#### **8.7 Small boilers > 5MW**

8.7.1 There are no small boilers >5MW within Blaenau Gwent.

#### **8.8 Shipping**

8.8.1 Blaenau Gwent does not occupy a coastal location so shipping has not been considered.

#### **8.9 Railway locomotives**

8.9.1 There is currently no operative railway network in Blaenau Gwent.

8.9.2 However, the Ebbw Valley Railway is due to re-open to passenger traffic in 2006. Currently projections by the consultants indicate a maximum of two trains per hour operating along the single-track line.

8.9.3 It is currently not known if any railway locomotive will be stationary for greater than 15 minutes. However, this is considered unlikely as the line is single-track line will mean that trains will only wait at stations for passengers to board and alight.

8.9.4 This will be considered again in the further when actual train times are known.

#### **8.10 Conclusions**

8.10.1 Using information from monitoring carried out by neighbouring authorities it appears that sulphur dioxide levels within Blaenau Gwent will meet the air quality objectives.

8.10.2 There are no industrial sources that emit significant quantities of sulphur dioxide within Blaenau Gwent.

8.10.3 From the information available the risk of the air quality objectives for sulphur dioxide being exceeded by the end of 2005 is negligible.

8.10.4 Therefore, no detailed assessment for sulphur dioxide is required.



## 9.0 Conclusions and Recommendations

- 9.1 An updating and screening assessment has been carried out by Blaenau Gwent County Borough Council in line with the technical guidance LAQM.TG(03) (as amended).
- 9.2 Seven pollutants examined were examined it none of air quality objectives for these pollutants were likely to be exceeded with the County Borough of Blaenau Gwent.
- 9.3 Therefore, there is no need to proceed to a detailed assessment for any pollutant.
- 9.4 It is recommended that following the relocation of several of the NO<sub>x</sub> Diffusion Tubes throughout the borough to give a more representative picture the results from these tubes be examined in more detail in the next progress report and updating and screening assessment.
- 9.5 It is also recommended that traffic flow data is regularly monitored especially on the A465 at Tredegar and the A4046 in Cwm to ensure that the flows do not exceed the AADT stated in the DEFRA guidance.

# Appendix 1

## List of Part A1, A2 and B Installations

### PART B INSTALLATIONS

<b>Company Name</b>	<b>Address of Installation</b>	<b>Permit Reference Number</b>	<b>Activity Permitted / PPC section</b>
Tarmac Topmix Limited	Trefil Quarry, Trefil, Tredegar, NP22 4HF	BG/PPC/B/01/A	Cement Batching B 3.1
Hanson Premix Limited	Waun Y Pound Ind. Est, Ebbw Vale, NP23 6PL	BG/PPC/B/02/A	Cement Batching B 3.1
Thomas Waste Management	Hafod Garage Transfer Station, Old Abergavenny Road, Brynmawr, NP23 4BU	BG/PPC/B/03/A	Mobile Crushing and Screening B 3.5
Cardinal Packaging Limited	Unit 29 Rassau Ind. Est. , Ebbw Vale, NP23 5SD	BG/PPC/B/04/A	Printing of Flexible Packaging B 6.4
Blackwood Engineering Limited	Glandwr Ind. Est., Aberbeeg, Abertillery, NP13 2LN	BG/PPC/B/05/A	Coating of Metal Counterweights B 3.1
Yamada Europe Limited	Festival Drive, Ebbw Vale NP23 6XS	BG/PPC/B/06/A	Casting of Aluminium B 2.2
Cotech Sensitising Limited	Unit 13-16 Tafarnaubach Ind. Est., Tredegar, NP22 3AA	BG/PPC/B/07/A	Film Coating B 6.4
Gryphonn Quarries Limited	Trefil Quarry, Trefil, Tredegar, NP12 4HG	BG/PPC/B/08/A	Mobile Crushing and Screening B 3.5
Tandus Europe Limited	Rising Sum Ind. Est., Blaina, Abertillery, NP13 3JW	BG/PPC/B/09/A	Tar and Bitumen process B 6.3
Lafarge Roofing Limited	Unit 15 Rassau Industrial Estate, Ebbw Vale, NP23 5SD	BG/PPC/B/010/A	Fibre Reinforced Plastics B 4.1
Sogefi Filtration Limited	Crown Business Park, Tredegar, NP22 4EF	BG/PPC/B/011/A	Di-isocynate Process
Chapel Road Garage,	Blaina Road, Brynmawr, NP23 4PT	BG/PPC/B/012/A	Unloading of Petrol at Filing Station B 1.2

Central Garage	Abertillery Road, Blaina, Abertillery, NP13 3DN	BG/PPC/B/013/A	Unloading of Petrol at Filing Station B 1.2
Festival Service Station	Bypass Road, Ebbw Vale, NP23 8UW	BG/PPC/B/014/A	Unloading of Petrol at Filing Station B 1.2
Nantybawch Service Station	Nantybawch, Tredegar, NP22 3SB	BG/PPC/B/015/A	Unloading of Petrol at Filing Station B 1.2
Central Deport Filling Station – BGCBC Depot	Barleyfield Ind. Est., Brynmawr, NP23	BG/PPC/B/016/A	Unloading of Petrol at Filing Station B 1.2
Hilltop Garage	King Street, Brynmawr, NP23 4JD	BG/PPC/B/017/A	Unloading of Petrol at Filing Station B 1.2
Tesco PFS	North Western Approach, Ebbw Vale, NP23 6TS	BG/PPC/B/018/A	Unloading of Petrol at Filing Station B 1.2
Tesco PFS	Castle Street, Abertillery, NP13 1UR	BG/PPC/B/019/A	Unloading of Petrol at Filing Station B 1.2
Park Road Garage	Bypass Road, Ebbw Vale, NP23 8UP	BG/PPC/B/020/A	Unloading of Petrol at Filing Station B 1.2
Roundabout Services	Sirhowy Bridge, Tredegar, NP22 4XL	BG/PPC/B/021/A	Unloading of Petrol at Filing Station B 1.2
Morrisons PFS	Bryn Serth Road, Ebbw Vale, NP23 5YD	BG/PPC/B/022/A	Unloading of Petrol at Filing Station B 1.2

## PART A2 INSTALLATIONS

Company Name	Address of Installation	Permit Reference Number	Activity Permitted / PPC section
GTS Flexible Materails	Unit 41 Rassau Ind. Est., Ebbw Vale, NP23 5SD	BG/PPC/A2/01/A	Film Coating A2 6.4
Corus Color Coat	Tafarnaubach Ind. Est., Tredegar, NP22 3AA	BG/PPC/A2/02/A	Coil Coating A2 6.4

## PART A1 INSTALLATIONS

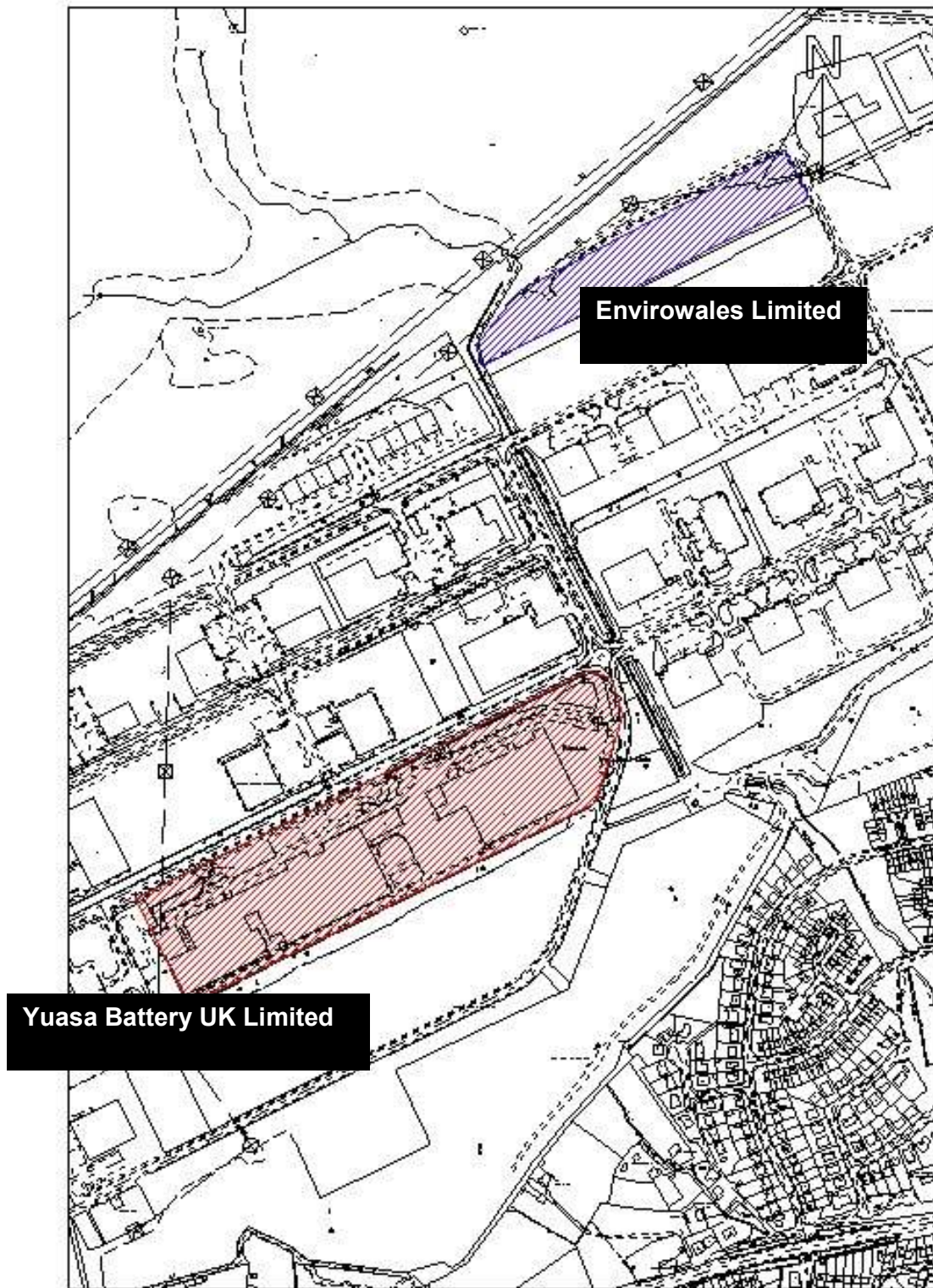
Company Name	Address of Installation	Permit Reference Number	Activity Permitted / PPC section
Silent Valley Landfill Site	Silent Valley Waste Services, Beechwood House, Cwm, Ebbw Vale, NP23 6PZ	MP3835SV	Landfill Site A1 5.2
Continental Teaves (UK) Limited	Waun Y Pound Id. Est, Ebbw Vale, NP23 6PL	BX3376IG	Surface Treatment of Metals A1 2.3
Yuasa Battery Uk Limited	Unit 22 Rassau Ind. Est., Ebbw Vale, NP23 5SD	BV5386IX	Melting of Non Ferrous Metals A1 2.2
Envirowales Limited	Rassau Ind. Est, Ebbw Vale, NP23 5SD	EP3230BW	Melting of non ferrous metals A1 2.2
High Chemcials	Tafarnaubach Ind. Est., Tredegar, NP22 3AA	AM8253	

## Appendix 2

Modelling data for Lead Emissions on Rassau Industrial Estate.

# Appendix 3

Location map of two lead sites on Rassau Industrial Estate.





# Appendix 4

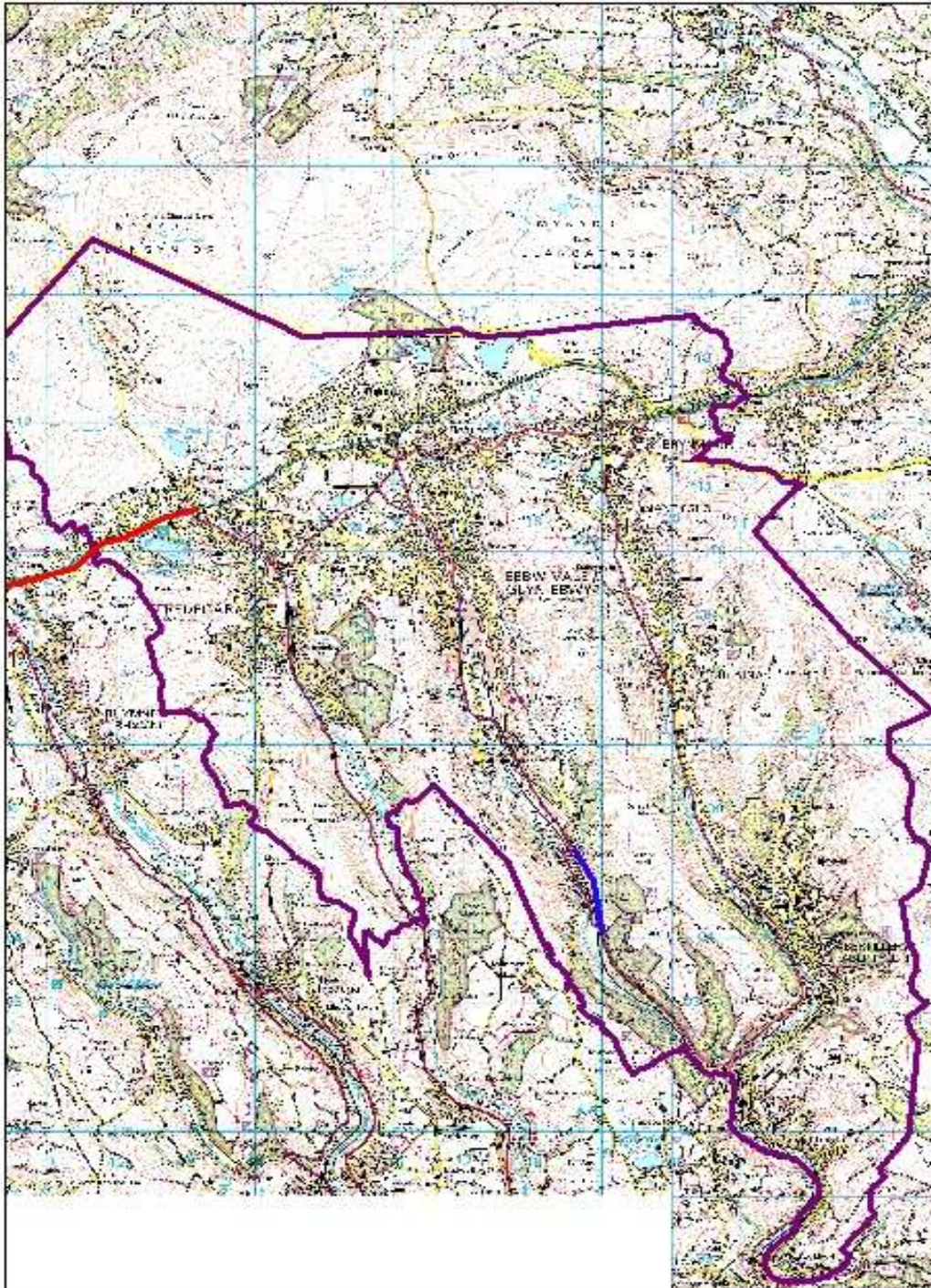
Location map of all NOx Tubes





# Appendix 5

Location map of all new road schemes



A465 Heads of Valley Dualling Scheme



Cwm Bypass Scheme