Cyngor Bwrdeisdref Sirol
Blaenau Gwent
County Borough Council

Air Quality Updating and Screening Assessment 2009

In fulfillment of Part IV of the Environment Act 1995
Local Air Quality Management

Environment Directorate
Public Protection Division
Environmental Health Section

This report has been produced by:

Blaenau Gwent CBC
Environment Directorate
Public Protection Division
Environmental Health Section
Pollution Control Team
Abertillery District Offices
Mitre Street
Abertillery
South Wales
NP13 1AE

Tel: 01495 311556
Fax: 01495 355834

Email: environmental.health@blaenau-gwent.gov.uk

Should you wish to discuss any item within this report or have any queries in relation to local air quality please contact the Pollution Control Team.

Executive Summary

This progress report is the latest in a series of reports relating to air quality and has been compiled and published by Blaenau Gwent County Borough Council (hereafter referred to as Blaenau Gwent CBC). The report contains the latest air quality data for the calendar year of 2008 applicable to the County Borough, and provides current information relating to any new local developments or issues that may have an impact on air quality.

The UK's National Air Quality Strategy sets air quality objectives for seven key pollutants which Local Authorities are legally required to have regard to. These include Benzene, 1,3 Butadiene, Carbon Monoxide, Lead, Nitrogen Dioxide, Particulate Matter (PM_{10}) (gravimetric) and Sulphur Dioxide.

Local authorities are obliged to periodically review the air quality within their area to determine the risk of the air quality objectives set out in the national strategy being exceeded. If a Local Authority identifies a risk of any of the objectives being exceeded within its area then they must proceed to a Detailed Assessment for that pollutant.

The previous reports produced by Blaenau Gwent CBC have concluded that it is unlikely that any of the air quality objectives that the Council are required to have regard to, are being exceeded or will be exceeded within the Borough and therefore no Detailed Assessment for any pollutant has been carried out to-date.

This 2009 Updating and Screening Assessment **does not** identify the need for Blaenau Gwent CBC to proceed to a Detailed Assessment for any of the seven pollutants identified in the UK's National Air Quality Strategy.

The next Progress Report is scheduled to be published in April 2010.

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1.0 Introduction

1.1 Description of Local Authority Area

The County Borough of Blaenau Gwent is located in South East Wales and was formerly part of the County of Gwent. It is approximately 20 miles south to the city of Newport, 30 miles south west to the City of Cardiff and directly north is the Brecon Beacons National Park.

Blaenau Gwent is the smallest of all the Welsh Local Authorities, at about 10,900 hectares. There are three distinctive valleys supporting the five main towns or settlements of Abertillery, Brynmawr, Ebbw Vale, Nantyglo and Blaina, and Tredegar.

Although the towns give the County Borough a busy, urban feel, Blaenau Gwent is actually a largely rural area. Forty five per cent of the land area is undeveloped, and the greater part of this is defined as open countryside.

The Borough has witnessed steady population loss over recent years. The most recent figures suggest that there are 69,300 people living in the area (Mid Year Estimate 2006). This compares to 70,064 in 2001, and 72,254 in 1991 (Censuses).

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 that historically populated the Borough has been replaced by a diverse industrial base comprising of businesses such as pharmaceuticals, battery and computer systems, electronic and high tech engineering companies. The closure of much of the heavy industry in the area has had an adverse impact on the local economy but conversely it has meant the removal of significant sources of air pollution.

Blaenau Gwent has experienced enormous regeneration investment in recent years, with much more to come. Major projects like the re-opening of the Ebbw Valley railway and the re-development of the former Corus steelworks site in Ebbw Vale will transform the face of the borough.

The map provided in Appendix 1 to this report outlines the administrative area of Blaenau Gwent.

1.2 Purpose of this Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority

must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM **in Wales** are set out in the Air Quality (Wales) Regulations 2000, No. 1940 (Wales 138), Air Quality (Amendment) (Wales) Regulations 2002, No 3182 (Wales 298), and are shown in Table 1.1.

This table shows the objectives in units of micrograms per cubic metre $\mu g/m^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

Table 1.1 - Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in Wales.

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 $\mu g/m^3$	Running annual mean	31.12.2003
	5.00 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide (NO_2)	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu g/m^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

Table 1.2 provides a comprehensive list of the reports produced by Blaenau Gwent CBC as a result of previous rounds of review and assessment of the air quality within the Borough, and summarises the main findings of each report.

Table 1.2 - Reports produced by Blaenau Gwent CBC as a result of previous rounds of Review and Assessment

Report	Review and Assessment undertaken & conclusions	Year published
1999 First Stage Review and Assessment	Initial screening of industrial, transport and other significant sources of air pollution within the Borough. Concluded that it is unlikely that there will be failure to achieve any of the air quality objectives.	1999
2003 Updating and Screening Assessment	In-depth review of any matters which may have changed since the last review and assessment which may lead to a risk of an air quality objective being exceeded. Concluded no significant changes and therefore unlikely that there will be failure to achieve any of the air quality objectives.	2003
2004 Progress Report	Review of any matters which may have changed since the last review and assessment which may lead to a risk of an air quality objective being exceeded. Concluded no significant changes and therefore unlikely that there will be failure to achieve any of the air quality objectives.	2004
2005 Progress Report	Review of any matters which may have changed since the last review and assessment which may lead to a risk of an air quality objective being exceeded. Concluded no significant changes and therefore unlikely that there will be failure to achieve any of the air quality objectives.	2005
2006 Updating and Screening Assessment	In-depth review of any matters which may have changed since the last review and assessment which may lead to a risk of an air quality objective being exceeded. Concluded no significant changes and therefore unlikely that there will be failure to achieve any of the air quality objectives.	2006
2007 Progress Report	Review of any matters which may have changed since the last review and assessment which may lead to a risk of an air quality objective being exceeded. Concluded no significant changes and therefore unlikely that there will be failure to achieve any of the air quality objectives.	2007
2008 Progress Report	Review of any matters which may have changed since the last review and assessment which may lead to a risk of an air quality objective being exceeded. Concluded no significant changes and therefore unlikely that there will be failure to achieve any of the air quality objectives.	2008

All reports produced are available to download and view free of charge at Blaenau Gwent CBC website:

http://www.blaenau-gwent.gov.uk/environment/2774.asp

To-date there are no locations in the Borough where exceedances of the Air Quality Objectives have been identified and therefore no Detailed Assessments have been undertaken or Air Quality Management Areas declared.

2.0 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Blaenau Gwent CBC does not currently undertake any automatic monitoring of any of the pollutants relevant to the UK National Air Quality Objectives.

However, there is an automatic monitoring station within the Borough which is currently undertaking monitoring for ambient levels of Lead, PM_{10} and $PM_{2.5}$ at a special source orientated site.

The monitoring station is located at Garnlydan Primary School, Ebbw Vale and is being run by Environmental Compliance Ltd on behalf of Envirowales Ltd. Envirowales Ltd is a lead acid battery recycling plant sited at the Rassau Industrial Estate, Ebbw Vale which was given planning permission on 21st June 2005.

The provision of the monitoring station arose as a result of compliance with the requirements of a formal agreement between Envirowales Ltd and Blaenau Gwent CBC under Section 106 of the Town and Country Planning Act as previously reported in the 2008 Progress Report (Pg 37/38).

A full up-date on the developments with Envirowales Ltd since the last round of Review and Assessment is provided in Section 5.1 of this report.

The monitoring site location was selected as it was considered to be one of the nearest sites of relevant exposure to emissions from the processes being undertaken at Envirowales Ltd. A map indicating the location of the monitoring site is provided in Appendix 2 to this report.

It was agreed that monitoring would commence at a time when the site had become fully operational and as a result monitoring began in September 2008. The monitoring station is calibrated on a monthly basis.

Table 2.1 provides a summary of information relevant to the automatic monitoring station.

Table 2.1 - Details of Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	Within AQMA?	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road *(N/A if not applicable)*	Worst-case Location ?
Garnlydan Primary school	Source orientated and representative of urban background	X 212449 Y 316694	Lead PM_{10} $PM_{2.5}$	N	Y (1.5m)	N/A	Y

A report was provided to the Local Authority by Environmental Compliance Ltd for the monitoring period of September 2008 to December 2008 outlining the methodology used for monitoring and

analysis (including quality assurance and controls used) and the results obtained. A copy of the report is provided in Appendix 3 to this report.

It is important to note that during a significant part of the monitoring period building works were being undertaken at the site to improve the external fabric of the School Building which were in close proximity to the monitoring station.

It is likely that the monitoring results for particulate matter were influenced by these works and as a result may have been elevated above normal levels. No further works are scheduled at the site in proximity to the monitoring station that the Local Authority are aware of at this time.

It was originally agreed with the Operator of Envirowales Ltd that monitoring would be undertaken for a period of twelve calendar months, and it is the intention to present additional monitoring information from the automatic monitoring station in the 2010 Progress Report.

2.1.2 Non- Automatic Monitoring

Blaenau Gwent CBC currently undertakes diffusion tube monitoring at 17 sites throughout the Borough, the details of which are presented in Table 2.2. A map indicating the approximate location of each current monitoring site is provided in Appendix 4 to this report.

The diffusion tubes are exposed for four week periods in accordance with the National NO_2 exposure calendar.

Two laboratories are used to analyse and provide data from the NO_2 diffusion tube monitoring. This is due to an historical arrangement where the four of the seventeen sites namely, BGBC1,3,4 and 9, were originally part of a national survey and the remainder were locally determined monitoring sites. With the demise of the national survey the same arrangements have been maintained for future years of monitoring and there are no proposals to alter this arrangement at this time.

Harwell Scientifics is the laboratory used for the four former national survey sites (BGBC - 1,3,4 and 9), and the laboratory used for the remaining sites is Cardiff Scientific Services, both use the 50% TEA in Acetone method to prepare the diffusion tubes for analysis.

Both laboratories have indicated that they are following the procedures set out in the Harmonisation Practical Guidance.

It has also been confirmed that both laboratories demonstrated satisfactory performance in both the WASP scheme (run by the Health and Safety Laboratory) and the monthly field inter-comparison exercise run by AEA for the period of 2008.

Blaenau Gwent CBC does not currently undertake a co-location study for its NO_2 diffusion tube monitoring and so the 'National' bias adjustment factor has been used for the results of the monitoring undertaken during the period of 2008. The 'National' bias adjustment factor was taken from the spreadsheet provided on the Air Quality Review and Assessment Helpdesk Website. (aqm-review@uwe.ac.uk)

The bias adjustment factors that were applied are outlined below:

- Harwell Scientifics – bias adjustment factor of 0.79 for 2008
- Cardiff Scientific Services - bias adjustment factor of 0.86 for 2008

Table 2.2 - Details of Non - Automatic Monitoring Sites

Site Name	Site Type	Location	OS Grid Ref	Pollutants Monitored	Within AQMA?	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road *(N/A if not applicable)*	Worst-case Location ?
BGBC-01	Roadside	The Darren, Daren-felen Road, Brynmawr	X 319534 Y 211944	NO_2	N	Y (4m)	3m	Y
BGBC-03	Roadside	272 King Street, Brynmawr	X 319292 Y 212030	NO_2	N	Y (on façade)	4m	Y
BGBC-04	Urban Background	22 Parkhill, Beaufort, Ebbw Vale	X 317298 Y 211287	NO_2	N	Y (10m)	N/A	N/A
BGBC-05	Urban Background	Willow Tree Bungalow, Aberbeeg	X 321139 Y 201114	NO_2	N	Y (1m)	10m	N/A
BGBC-07	Urban Background	Aberbeeg Medical Centre, Aberbeeg	X 320942 Y 202011	NO_2	N	Y (18m)	25m	N/A
BGBC-09	Roadside	Ynys Dawel, Daren-felen Road, Brynmawr	X 319509 Y 211949	NO_2	N	Y (7m)	3m	Y
BGBC-10	Roadside	Cwm Methodist, Mill Terrace, Cwm, Ebbw Vale	X 318475 Y 205325	NO_2	N	Y (on façade)	7m	Y
BGBC-11	Urban Background	8 Cwm Graig Bungalows, Marine Street, Cwm, Ebbw Vale	X 318789 Y 204586	NO_2	N	Y (2m)	18m	N/A
BGBC-13	Roadside	3 Kings Arms Cottages, Trefil, Tredegar	X 312005 Y 212778	NO_2	N	Y (on façade)	4m	Y
BGBC-15	Roadside	32 Bush Bach, Nantybwch, Tredegar	X 313119 Y 210826	NO_2	N	Y (on façade)	14m	Y
BGBC-016	Roadside	49 Aberbeeg Road, Aberbeeg	X 321430 Y 202672	NO_2	N	Y (on façade)	7m	Y
BGBC-017	Roadside	Cwmyrdderch Court, School Terrace, Cwm, Ebbw Vale	X 318429 Y 205535	NO_2	N	Y (5m)	7m	Y
BGBC-018	Roadside	Welfare Hall, Beaufort Hill, Ebbw Vale	X 317543 Y 211688	NO_2	N	Y (on façade)	5m	Y
BGBC-019	Roadside	42 Beaufort Rise, Ebbw Vale	X 316670 Y 211597	NO_2	N	Y (on facade)	3m	Y
BGBC-020	Roadside	122 Beaufort Road, Tredegar	X 314858 Y 210240	NO_2	N	Y (on façade)	5.5m	Y
BGBC-021	Other - Nearest residential premises to busy roundabout on Heads of Valley Road (A465)	14 Bryn Rhosyn, Merthyr Road, Tredegar	X 312846 Y 210586	NO_2	N	Y (on façade)	35m	Y
BGBC-022	Urban Background	272 King Street, Brynmawr	X 319294 Y 212024	NO_2	N	Y (5m)	27m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

Blaenau Gwent CBC does not currently undertake any automatic monitoring for Nitrogen Dioxide.

Diffusion Tube Monitoring Data

A summary of the results obtained from the Nitrogen Dioxide diffusion monitoring undertaken at the 17 sites within the Borough for the period of 2008 is presented in Table 2.3. Full details of the monthly mean values for each site are provided in Appendix 5 to this report.

Table 2.3 Results of Nitrogen Dioxide Diffusion Tubes

Site Name	Location	Within AQMA ?	Data Capture 2008 %	Annual Mean Concentrations 2008 (μg/m^3) Adjusted for bias	Annual Mean Concentrations 2008 (μg/m^3) Adjusted for distance to receptor	Air Quality Objective Annual Mean for Nitrogen Dioxide (μg/m^3)
BGBC-01	The Darren, Daren-felen Road, Brynmawr	N	100	22.2	21.4	40
BGBC-03	272 King Street, Brynmawr	N	100	17.7	N/A	40
BGBC-04	22 Parkhill, Beaufort, Ebbw Vale	N	91.7	12.2	N/A	40
BGBC-05	Willow Tree Bungalow, Aberbeeg	N	100	13.5	N/A	40
BGBC-07	Aberbeeg Medical Centre, Aberbeeg	N	83.3	15.4	N/A	40
BGBC-09	Ynys Dawel, Daren-felen Road, Brynmawr	N	100	23.8	22.2	40
BGBC-10	Cwm Methodist, Mill Terrace, Cwm, Ebbw Vale	N	100	15.6	N/A	40
BGBC-11	8 Cwm Graig Bungalows, Marine Street, Cwm, Ebbw Vale	N	100	13.1	N/A	40
BGBC-13	3 Kings Arms Cottages, Trefil, Tredegar	N	100	5.5	N/A	40
BGBC-15	32 Bush Bach, Nantybwch, Tredegar	N	100	12.0	N/A	40
BGBC-016	49 Aberbeeg Road, Aberbeeg	N	100	21.4	N/A	40
BGBC-017	Cwmyrdderch Court, School Terrace, Cwm, Ebbw Vale	N	100	16.0	15.5	40
BGBC-018	Welfare Hall, Beaufort Hill, Ebbw Vale	N	100	21.7	N/A	40
BGBC-019	42 Beaufort Rise, Ebbw Vale	N	100	24.6	N/A	40
BGBC-020	122 Beaufort Road, Tredegar	N	100	24.4	N/A	40
BGBC-021	14 Bryn Rhosyn, Merthyr Road, Tredegar	N	100	16.3	N/A	40
BGBC-022	272 King Street, Brynmawr	N	100	18.7	N/A	40

The 'Nitrogen Dioxide with distance from Roads Calculator' has been used to predict the annual mean Nitrogen Dioxide concentration for receptors that are close to monitoring locations but are further from the kerb than the monitor. The adjusted figure is also presented in Table 2.3. There are no roadside monitoring locations where the receptor is nearer to the kerb than the monitoring site.

The results provided in Table 2.3 indicate that the Nitrogen Dioxide levels at each of the monitoring sites were considerably below the current Annual Mean Air Quality Objective of 40 μg/m^3.

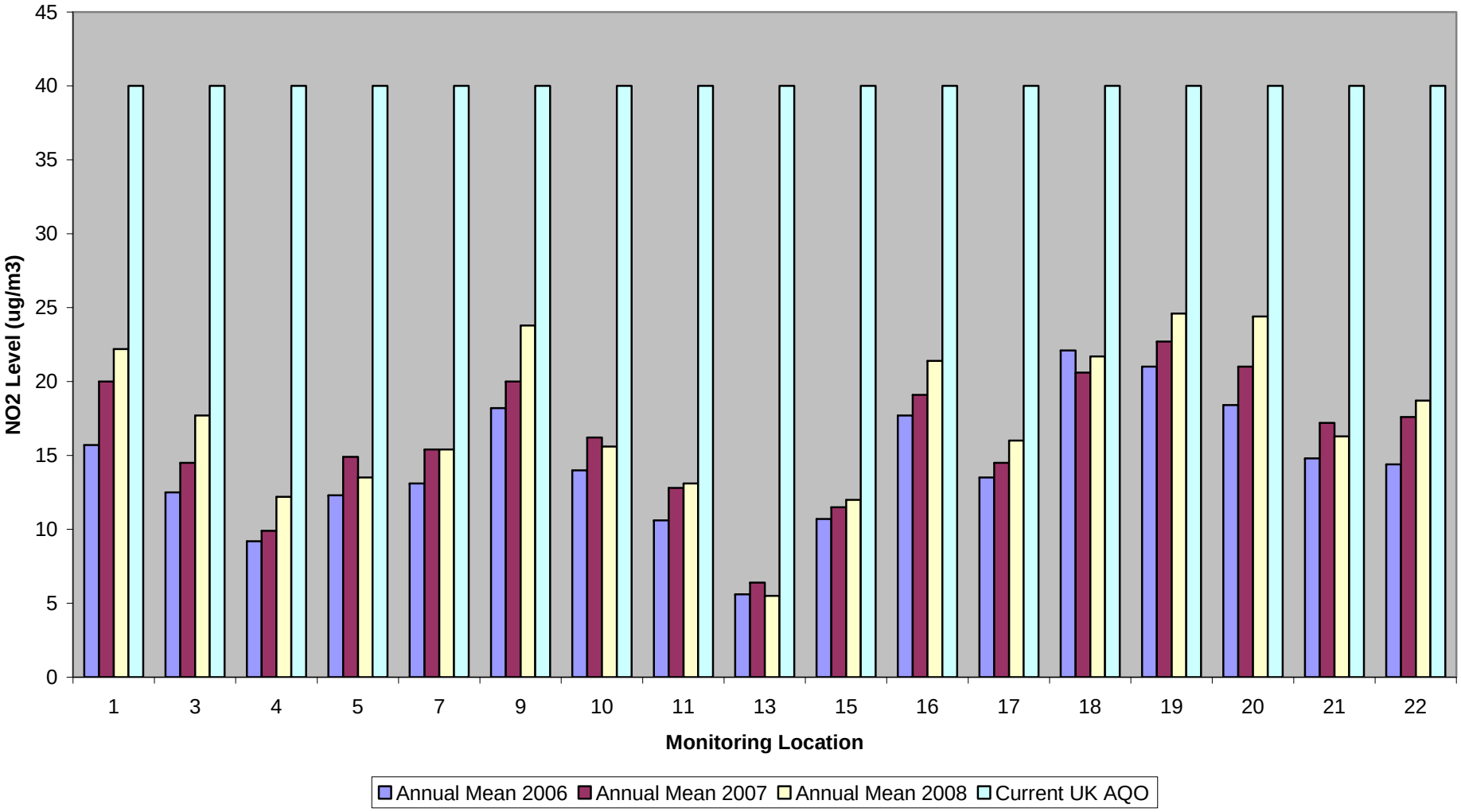
Table 2.4 provides a comparison of the results for the period of 2008 with the results of previous years monitoring for 2006 and 2007 as reported in the 2008 Progress Report (Pg 28).

Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes for 2006, 2007 & 2008

Site Name	Location	Annual Mean Concentrations		
		2006 (μg/m^3) Adjusted for bias	2007 (μg/m^3) Adjusted for bias	2008 (μg/m^3) Adjusted for bias
BGBC-01	The Darren, Daren-felen Road, Brynmawr	15.7	20.0	22.2
BGBC-03	272 King Street, Brynmawr	12.5	14.5	17.7
BGBC-04	22 Parkhill, Beaufort, Ebbw Vale	9.2	9.9	12.2
BGBC-05	Willow Tree Bungalow, Aberbeeg	12.3	14.9	13.5
BGBC-07	Aberbeeg Medical Centre, Aberbeeg	13.1	15.4	15.4
BGBC-09	Ynys Dawel, Daren-felen Road, Brynmawr	18.2	20.0	23.8
BGBC-10	Cwm Methodist, Mill Terrace, Cwm, Ebbw Vale	14.0	16.2	15.6
BGBC-11	8 Cwm Graig Bungalows, Marine Street, Cwm, Ebbw Vale	10.6	12.8	13.1
BGBC-13	3 Kings Arms Cottages, Trefil, Tredegar	5.6	6.4	5.5
BGBC-15	32 Bush Bach, Nantybwch, Tredegar	10.7	11.5	12.0
BGBC-016	49 Aberbeeg Road, Aberbeeg	17.7	19.1	21.4
BGBC-017	Cwmyrdderch Court, School Terrace, Cwm, Ebbw Vale	13.5	14.5	16.0
BGBC-018	Welfare Hall, Beaufort Hill, Ebbw Vale	22.1	20.6	21.7
BGBC-019	42 Beaufort Rise, Ebbw Vale	21.0	22.7	24.6
BGBC-020	122 Beaufort Road, Tredegar	18.4	21.0	24.4
BGBC-021	14 Bryn Rhosyn, Merthyr Road, Tredegar	14.8	17.2	16.3
BGBC-022	272 King Street, Brynmawr	14.4	17.6	18.7

Figure 1 provides a graphical representation of the 2006, 2007 and 2008 measured levels of Nitrogen Dioxide at each monitoring location in comparison with the Air Quality Objective.

Figure 1: Measured Levels of Nitrogen Dioxide for 2006,2007 & 2008 compared with UK AQO



The results indicate that there has been a marginal increase for the period of 2008 in the measured annual mean for Nitrogen Dioxide at ten out of the seventeen monitoring locations. However, the measured level still remains considerably below the relevant Air Quality Objective.

As can be seen from the results presented in Figure 1 at three of the monitoring locations there has been a marginal reduction for the period of 2008 in the measured annual mean for Nitrogen Dioxide in comparison with the previous years results.

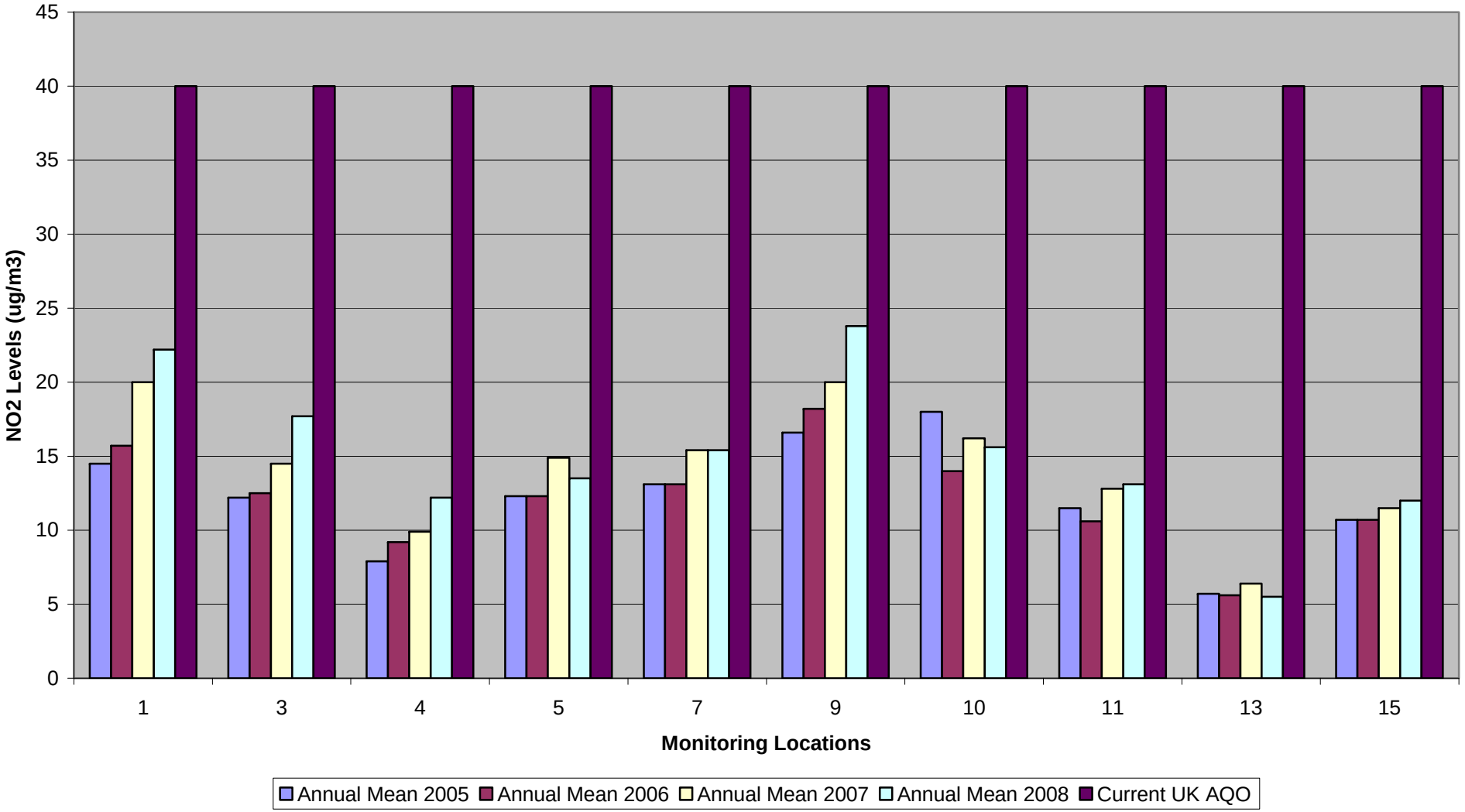
Seven of the current monitoring sites used during 2006, 2007 and 2008 were not present in 2005. Table 2.5 provides a comparison of the results for the period of 2008 with the results of previous years monitoring for 2005, 2006 and 2007 for the sites where data is available as reported in the 2008 Progress Report (Pg 29).

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes for 2005, 2006, 2007 & 2008

Site Name	Location	Annual Mean Concentrations			
		2005 ($\mu g/m^3$) Adjusted for bias	2006 ($\mu g/m^3$) Adjusted for bias	2007 ($\mu g/m^3$) Adjusted for bias	2008 ($\mu g/m^3$) Adjusted for bias
BGBC-01	The Darren, Daren-felen Road, Brynmawr	14.5	15.7	20.0	22.2
BGBC-03	272 King Street, Brynmawr	12.2	12.5	14.5	17.7
BGBC-04	22 Parkhill, Beaufort, Ebbw Vale	7.9	9.2	9.9	12.2
BGBC-05	Willow Tree Bungalow, Aberbeeg	12.3	12.3	14.9	13.5
BGBC-07	Aberbeeg Medical Centre, Aberbeeg	13.1	13.1	15.4	15.4
BGBC-09	Ynys Dawel, Daren-felen Road, Brynmawr	16.6	18.2	20.0	23.8
BGBC-10	Cwm Methodist, Mill Terrace, Cwm, Ebbw Vale	18.0	14.0	16.2	15.6
BGBC-11	8 Cwm Graig Bungalows, Marine Street, Cwm, Ebbw Vale	11.5	10.6	12.8	13.1
BGBC-13	3 Kings Arms Cottages, Trefil, Tredegar	5.7	5.6	6.4	5.5
BGBC-15	32 Bush Bach, Nantybwch, Tredegar	10.7	10.7	11.5	12.0

Figure 2 provides a graphical representation of the 2005, 2006, 2007 and 2008 measured levels of Nitrogen Dioxide at each monitoring location in comparison with the Air Quality Objective.

Figure 2: Measured Levels of Nitrogen Dioxide for 2005,2006, 2007 & 2008 compared with UK AQO



It can be seen from Figures 1 and 2 that the measured Nitrogen Dioxide Levels at each of the monitoring locations for each measurement period are significantly below the current UK Annual Mean Air Quality Objective for Nitrogen Dioxide of 40 $\mu g/m^3$.

Table 2.6 indicates the projected annual mean for Nitrogen Dioxide at roadside monitoring locations based on the measured levels from 2008 using the adjustment factors provided in Box 2.1 of the DEFRA Technical Guidance document LAQM.TG(09). Figure 3 illustrates the projected levels graphically.

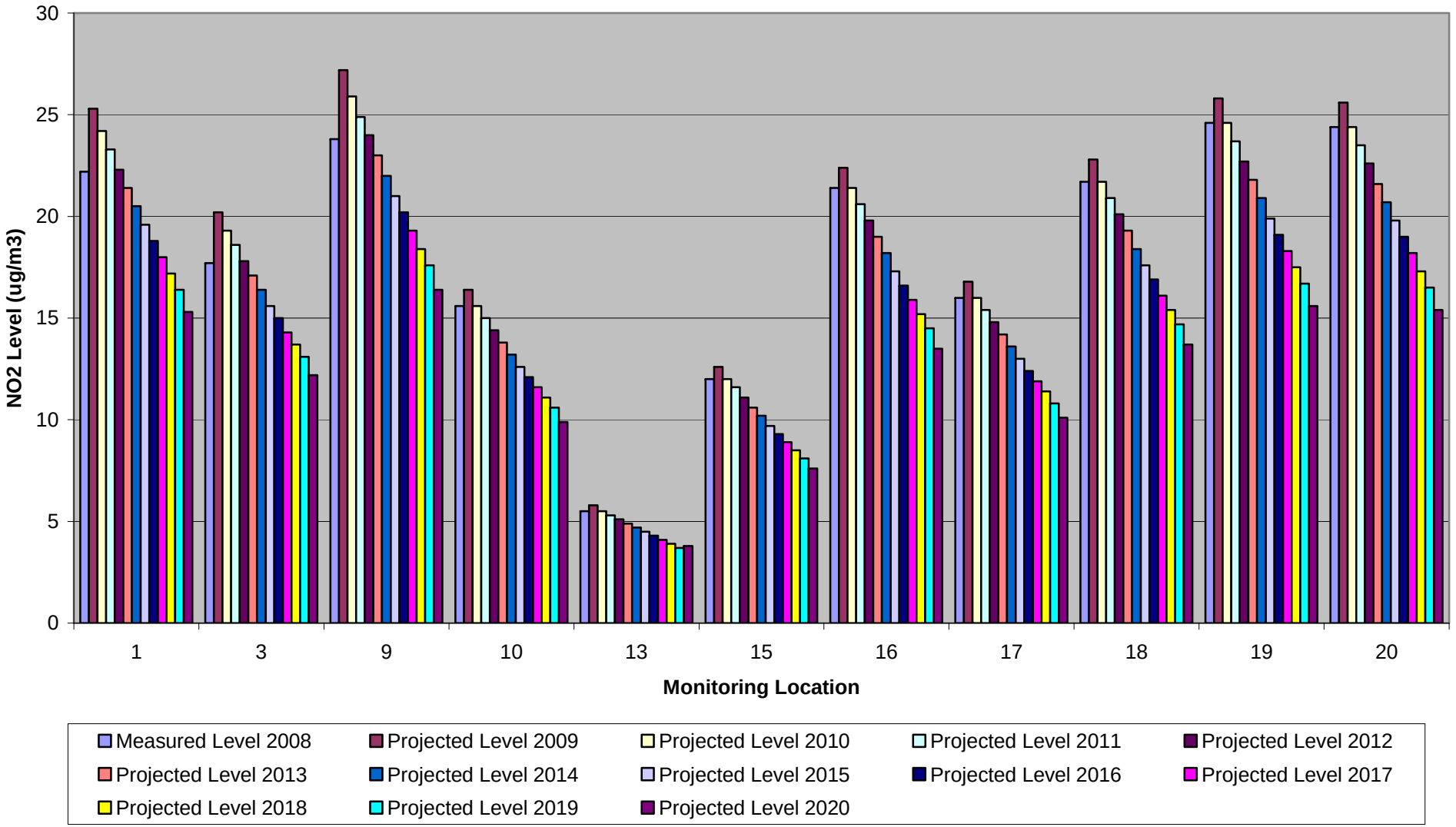
Based on the 2008 levels of Nitrogen Dioxide measured at roadside monitoring locations the projected levels for future years up to and including 2020 are estimated to remain well below the current Air Quality Objective. It can be seen from Figure 3 that the levels at each monitoring location are expected to increase in 2009 and then decrease thereafter below the 2009 and level.

It is proposed that the projected results for 2009 will be compared with the measured results that will be obtained from monitoring carried out during 2009 in the next round of Review and Assessment.

Table 2.6 Projected Annual Mean Nitrogen Dioxide concentrations at roadside monitoring locations

Site Name	Measured Annual Mean 2008 (µg/m^3) Adjusted for bias	Projected Annual Mean 2009 (µg/m^3)	Projected Annual Mean 2010 (µg/m^3)	Projected Annual Mean 2011 (µg/m^3)	Projected Annual Mean 2012 (µg/m^3)	Projected Annual Mean 2013 (µg/m^3)	Projected Annual Mean 2014 (µg/m^3)	Projected Annual Mean 2015 (µg/m^3)	Projected Annual Mean 2016 (µg/m^3)	Projected Annual Mean 2017 (µg/m^3)	Projected Annual Mean 2018 (µg/m^3)	Projected Annual Mean 2019 (µg/m^3)	Projected Annual Mean 2020 (µg/m^3)
BGBC-01	22.2	25.3	24.2	23.3	22.3	21.4	20.5	19.6	18.8	18.0	17.2	16.4	15.3
BGBC-03	17.7	20.2	19.3	18.6	17.8	17.1	16.4	15.6	15.0	14.3	13.7	13.1	12.2
BGBC-09	23.8	27.2	25.9	24.9	24.0	23.0	22.0	21.0	20.2	19.3	18.4	17.6	16.4
BGBC-10	15.6	16.4	15.6	15.0	14.4	13.8	13.2	12.6	12.1	11.6	11.1	10.6	9.9
BGBC-13	5.5	5.8	5.5	5.3	5.1	4.9	4.7	4.5	4.3	4.1	3.9	3.7	3.8
BGBC-15	12.0	12.6	12.0	11.6	11.1	10.6	10.2	9.7	9.3	8.9	8.5	8.1	7.6
BGBC-016	21.4	22.4	21.4	20.6	19.8	19.0	18.2	17.3	16.6	15.9	15.2	14.5	13.5
BGBC-017	16.0	16.8	16.0	15.4	14.8	14.2	13.6	13.0	12.4	11.9	11.4	10.8	10.1
BGBC-018	21.7	22.8	21.7	20.9	20.1	19.3	18.4	17.6	16.9	16.1	15.4	14.7	13.7
BGBC-019	24.6	25.8	24.6	23.7	22.7	21.8	20.9	19.9	19.1	18.3	17.5	16.7	15.6
BGBC-020	24.4	25.6	24.4	23.5	22.6	21.6	20.7	19.8	19.0	18.2	17.3	16.5	15.4

Figure 3: Projected Nitrogen Dioxide Levels at Roadside Monitoring Locations



2.2.2 PM_{10}

Automatic Monitoring Data

Table 2.7 provides a summary of the results for PM_{10} obtained from the Automatic Monitoring Station run by Environmental Compliance Ltd which is located at Garnlydan Primary School in comparison with the Annual Mean National Air Quality Objective.

Table 2.7 - Summary of Results of Automatic Monitoring for PM_{10} compared with Annual Mean National Air Quality Objective

Site Name	Monitoring Period	Data Capture	Within AQMA?	National Air Quality Objective Annual Mean [µg/m^3] (1 decimal place)	Mean result for monitoring period [µg/m^3] (1 decimal place)
Garnlydan Primary School	1st September to 31st December 2008	100%	NO	40	13.99

The data is presented as the mean of the measured level obtained from the four month monitoring period. In accordance with advice provided by the Review and Assessment Helpdesk the data has not been adjusted using the method outlined in Box 3.2 of Technical Guidance LAQM.TG(09).

It is envisaged that further results will be available for a longer monitoring period in time for the 2010 Progress Report.

There is insufficient information in the report provided by Environmental Compliance Ltd to present the 24 hour mean monitoring results for PM_{10}. This information is being sought from the consultant and is hoped to be available to present in the 2010 Progress Report.

2.2.3 Benzene

Blaenau Gwent CBC does not currently undertake any monitoring for Benzene.

2.2.4 1,3 Butadiene

Blaenau Gwent CBC does not currently undertake any monitoring for 1,3 Butadiene.

2.2.5 Sulphur Dioxide

Blaenau Gwent CBC does not currently undertake any monitoring for Sulphur Dioxide.

2.2.6 Carbon Dioxide

Blaenau Gwent CBC does not currently undertake any monitoring for Carbon Dioxide.

2.2.7 Lead

Automatic Monitoring Data

Table 2.8 provides a summary of the results for Lead obtained from the Automatic Monitoring Station run by Environmental Compliance Ltd which is located at Garnlydan Primary School in comparison with the Annual Mean National Air Quality Objective.

The data is presented as the mean of the measured level obtained from the four month monitoring period. In accordance with advice provided by the Review and Assessment Helpdesk the data has not been adjusted using the method outlined in Box 3.2 of Technical Guidance LAQM.TG(09).

Table 2.8 - Summary of Results of Automatic Monitoring for Lead compared with Annual Mean National Air Quality Objective

Site Name	Monitoring Period	Data Capture	Within AQMA?	National Air Quality Objective Annual Mean [µg/m^3] (1 decimal place)	Mean result for monitoring period [µg/m^3] (1 decimal place)
Garnlydan Primary School	1st September to 31st December 2008	100%	NO	0.25	0.109

It is envisaged that further results will be available for a longer monitoring period in time for the 2010 Progress Report.

2.2.8 Other pollutants monitored

$PM_{2.5}$ - Automatic Monitoring Data

Table 2.9 provides a summary of the results for $PM_{2.5}$ obtained from the Automatic Monitoring Station run by Environmental Compliance Ltd which is located at Garnlydan Primary School in comparison with the proposed Annual Mean National Air Quality Objective.

There is no statutory obligation upon Local Authorities to undertake review and assessment of air quality against the proposed Annual Mean National Air Quality Objective for $PM_{2.5}$.

The data is presented as the mean of the measured level obtained from the four month monitoring period. In accordance with advice provided by the Review and Assessment Helpdesk the data has not been adjusted using the method outlined in Box 3.2 of Technical Guidance LAQM.TG(09).

Table 2.9 - Summary of Results of Automatic Monitoring for $PM_{2.5}$ compared with proposed Annual Mean National Air Quality Objective

Site Name	Monitoring Period	Data Capture	Within AQMA?	National Air Quality Objective Annual Mean [µg/m^3] (1 decimal place)	Mean result for monitoring period [µg/m^3] (1 decimal place)
Garnlydan Primary School	1st September to 31st December 2008	100%	NO	25	4.85

It is envisaged that further results will be available for a longer monitoring period in time for the 2010 Progress Report.

3.0 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Blaenau Gwent CBC confirms that there are no new/newly identified congested streets, with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately assessed in previous rounds of Review and Assessment.

3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

Blaenau Gwent CBC confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

3.3 Roads with a High Flow of Buses and/or HGVs

Based on current local knowledge Blaenau CBC confirms that there are no new/newly identified roads with high flows of buses/HGV's, that have not been adequately assessed in previous rounds of Review and Assessment.

3.4 Junctions

Blaenau Gwent CBC confirms that there are no new/newly identified busy junctions that have not been adequately assessed in previous rounds of Review and Assessment.

3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

Details of a proposed development at the former Steelworks Site in Ebbw Vale, which included proposals for a number of new roads, were presented in the 2008 Progress Report. (Please refer to Pages 41-43 and Appendix 4 of Blaenau Gwent CBC Local Air Quality Review and Assessment - Progress Report 2008).

It was concluded from the detail of the Environmental Statement provided to Blaenau Gwent in support of the proposed development that the impact of the proposed scheme would be unlikely to have any significant impact on air quality and thus be unlikely to result in an exceedance of any of the UK National Air Quality Objectives.

At the time of this Report the final stages of remediation of the former Steelworks Site are underway to ensure that the land is suitable for its intended use, no major infrastructure has yet been put in place at the site.

Blaenau Gwent CBC will continue to assess the development as it progresses to identify any areas where monitoring may be appropriate.

Blaenau Gwent CBC confirms that there are no other new/proposed roads that have not been adequately assessed in previous rounds of Review and Assessment.

3.6 Roads with Significantly Changed Traffic Flows

Blaenau Gwent CBC confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

Blaenau Gwent CBC confirms that there are no relevant bus stations in the Local Authority area.

4.0 Other Transport Sources

4.1 Airports

Blaenau Gwent CBC confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

Blaenau Gwent CBC confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

4.2.2 Moving Trains

Blaenau Gwent CBC confirms that there are no locations within the Local Authority area with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

4.3 Ports (Shipping)

Blaenau Gwent CBC confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

5.0 Industrial Sources

5.1 Industrial Installations

5.1.1 New or Proposed Installations for which an Air Quality Assessment has been Carried Out

Blaenau Gwent CBC confirms that there are no new or proposed industrial installations for which planning approval has been granted which required an Air Quality Assessment within its area or nearby in a neighbouring authority.

5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been introduced

Blaenau Gwent CBC confirms that there are no industrial installations with substantially increased emissions or new relevant exposure nearby in a neighbouring authority.

Blaenau Gwent CBC confirms that there are no industrial installations with new relevant exposure within its area.

BGCBC reported in the USA 2006 that on the 21st June 2005 a new lead acid battery recycling plant was given planning permission at the Rassau Industrial Estate in Ebbw Vale. As part of the planning process the company, Envirowales Ltd, submitted to BGCBC an Environmental Impact Assessment (EIA).

The report concluded that the impact of the process upon air quality, once fully operational was negligible and the resulting levels of lead at the nearest locations of relevant public exposure would not result in an exceedance of the UK AQO's for lead for 2004 and 2008.

The relevant sections of the EIA (including the results of the modelling exercise and details of the input data used) were provided in Appendix 4 of the 2007 Progress Report at the request of WAG.

It was reported in the 2008 Progress Report that the site had made progress towards becoming fully operational, and as part of the A1 Permit for Envirowales Ltd issued by the Environment Agency, the Operator had submitted the results of a revised air quality dispersion modelling exercise using actual measured monitoring information from the two operational stacks (A3 and A5 Stack) and assuming that the remaining stacks (A1, A2 and A4 stacks) were operating at their maximum permitted levels.

The results of the revised modelling exercise had only recently been received at the time of the 2008 Progress Report and a meeting was needed between the Blaenau Gwent CBC and the Environment Agency to discuss the results of the revised modelling exercise, so the Local Authority was not in a position to comment on the results at the time of the 2008 Report.

Scrutiny of the calculations used in the revised modelling exercise revealed a number of errors, resulting in a significant over-estimation of the potential emissions for the site. The results of the modelling exercise have therefore not been included in the Appendices to this Report, however they are available for inspection on the Public Register for the site held by Blaenau Gwent CBC.

The Environment Agency, having regard to the % over-estimation of the potential emissions for the site, determined that the emissions from the site were unlikely to result in an exceedance of any of the UK National Air Quality Objectives.

A recent position statement has been received from the Environment Agency confirming the above, updating on the current status of the site and the requirement for a further modelling exercise, the results of which are hoped will be available for presentation in the 2010 Progress Report.

The information received from the Environment Agency is outlined below:

> *"Envirowales have almost completed the full commissioning process of the factory and are close to full battery recycling operations at their Rassau site. Envirowales submitted a revised Air Quality Modelling Report to the Environment Agency in 2008 which was based primarily on data from extractive monitoring of emissions from plant operating at that time and also using predicted monitoring for the rest of the plant in full operation.*
>
> *As part of its regulation of the site, The Environment Agency have instructed the Operator to undertake further modelling at a suitable juncture when the site is in full operation and can run the model using actual data. The site also has recently installed a pair of ambient monitors to measure for ambient lead in air similar to other lead emitting factories in South east Wales.*
>
> *There is no indication from either the predicted monitoring or extractive monitoring that the site shall exceed the National Air Quality Objectives including the revised annual mean of lead introduced at the end of 2008."*
>
> ***Process Industries Regulation Team,***
> ***Environment Agency, Cardiff.***

As a result of the above, Blaenau Gwent CBC can confirm that it has assessed industrial installations with substantially increased emissions and at this time it will not be necessary to proceed to a Detailed Assessment.

Blaenau Gwent CBC confirms that it will review the results of any future air quality dispersion modelling exercises for the Envirowales Ltd site in conjunction with the Environment Agency.

5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

Blaenau Gwent CBC confirms that there are no new or significantly changed industrial installations for which planning approval has been granted and for which an Air Quality Assessment would have been required within its area or nearby in a neighbouring authority.

5.2 Major Fuel (Petrol) Storage Depots

There are no major fuel (petrol) depots within the Local Authority Area.

5.3 Petrol Stations

Blaenau Gwent CBC confirms that there are no petrol stations meeting the specified criteria within the Local Authority area.

5.4 Poultry Farms

Blaenau Gwent CBC confirms that there are no poultry farms meeting the specified criteria within the Local Authority area.

6.0 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Blaenau Gwent CBC confirms that there are no biomass combustion plant in the Local Authority area.

6.2 Biomass Combustion – Combined Impacts

The Local Authority are not aware of any commercial biomass installations within the Borough.

Local knowledge indicates that there are few remaining domestic solid-fuel burning properties within the Borough.

Two areas have been identified as having the highest density of solid-fuel burning appliances within domestic properties, these are located at Bedwellty Pits and Pochin Houses both located in Tredegar.

Appendix 6 provides a breakdown of the assessment of the combined impact of small biomass combustion plant.

Blaenau Gwent CBC has assessed the combined impact of small biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.3 Domestic Solid-Fuel Burning

Blaenau Gwent CBC confirms that there are no areas of significant domestic fuel use in the Local Authority area.

6.4 Small Boilers

Blaenau Gwent CBC is not aware of any boiler plant (>5$MW_{thermal}$) that burns coal or fuel oil located within the Local Authority Area.

6.5 New or Proposed Installations for which an Air Quality Assessment has been carried out

Blaenau Gwent CBC confirms that there are no new or proposed Biomass Combustion Installations for which an Air Quality Assessment has been carried out within the Local Authority area since the last round of Review and Assessment.

7.0 Fugitive or Uncontrolled Sources

Blaenau Gwent CBC confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area which have not been adequately assessed in previous rounds of Review and Assessment.

8.0 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

Blaenau Gwent CBC has examined the results from monitoring in the Borough of Blaenau Gwent. Concentrations are all below the relevant UK National Air Quality Objectives.

8.2 Conclusions from Assessments of Sources

Blaenau Gwent CBC has assessed all new or significantly changed sources in the Borough and relevant new or significantly changes sources in nearby Local Authority areas and has concluded that it is unlikely that the impact of these will result in a potential exceedance of any of the UK National Air Quality Objectives within the Borough.

8.3 Proposed Actions

The Updating and Screening Assessment has not identified the need to proceed to a Detailed Assessment for any pollutant relevant to the UK National Air Quality Objectives.

Blaenau Gwent CBC will continue to monitor for Nitrogen Dioxide at all 17 current monitoring locations identified in Table 2.2 of this Report.

It is also proposed that an assessment of potential non-automatic monitoring sites for Nitrogen Dioxide will be undertaken with a view to undertaking additional monitoring at appropriate locations in proximity to the former Steelworks Site in Ebbw Vale which is currently undergoing significant redevelopment as identified in Section 3.5 of this Report.

Blaenau Gwent CBC will continue to liaise with Envirowales Ltd to obtain further results from the automatic monitoring station at Garnlydan Primary School as detailed in Section 2.1.1 of this Report.

It is proposed that the results of monitoring carried out during the calendar year of 2009 will be presented in the 2010 Progress Report.

References

Air Quality Review and Assessment Helpdesk Website, aqm-review@uwe.ac.uk

Blaenau Gwent CBC, (1999), 1999 First Stage Review and Assessment, http://www.blaenau-gwent.gov.uk/environment/2774.asp

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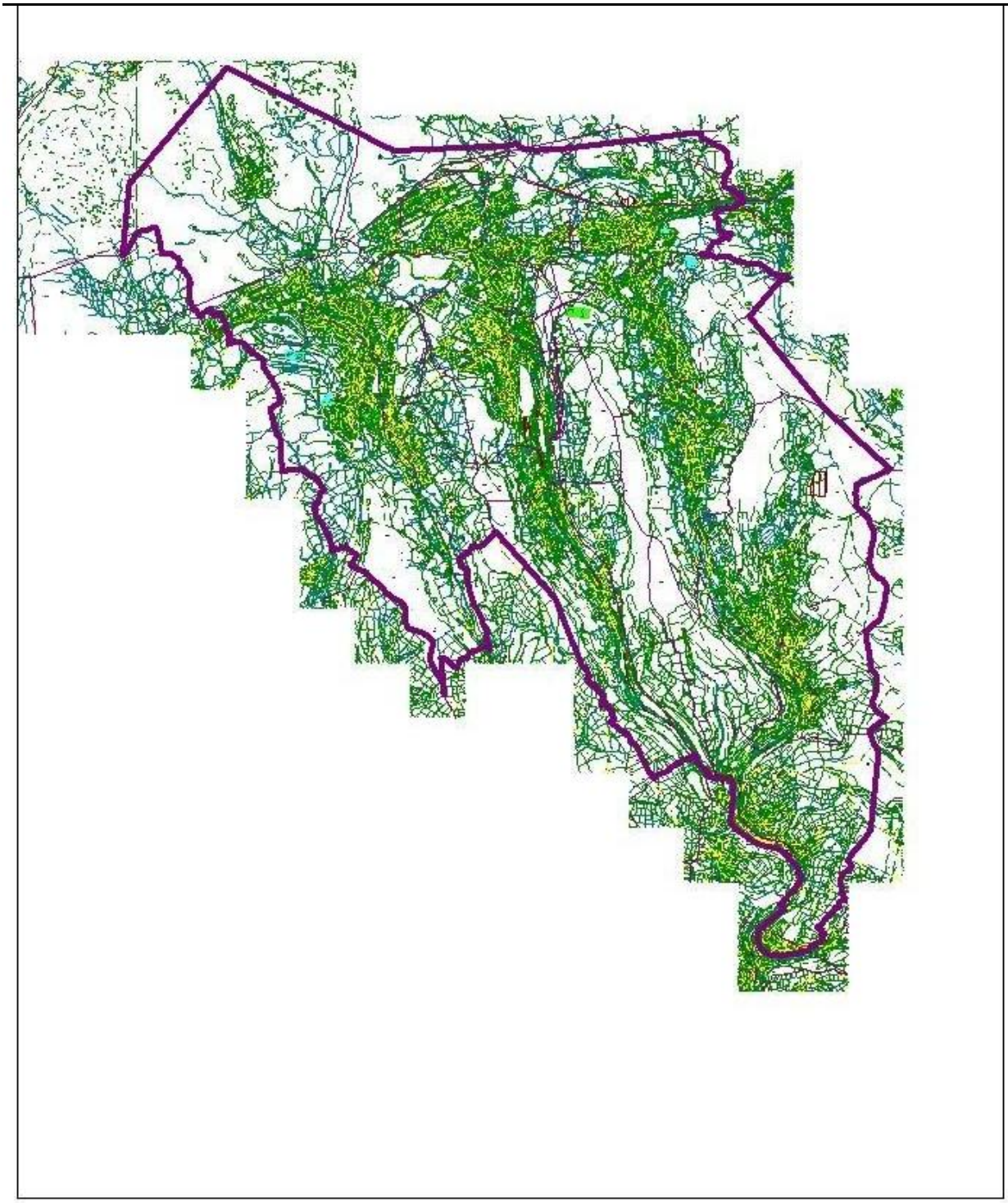
UK Air Quality Archive, http://www.airquality.co.uk/data_and_statistics.php.

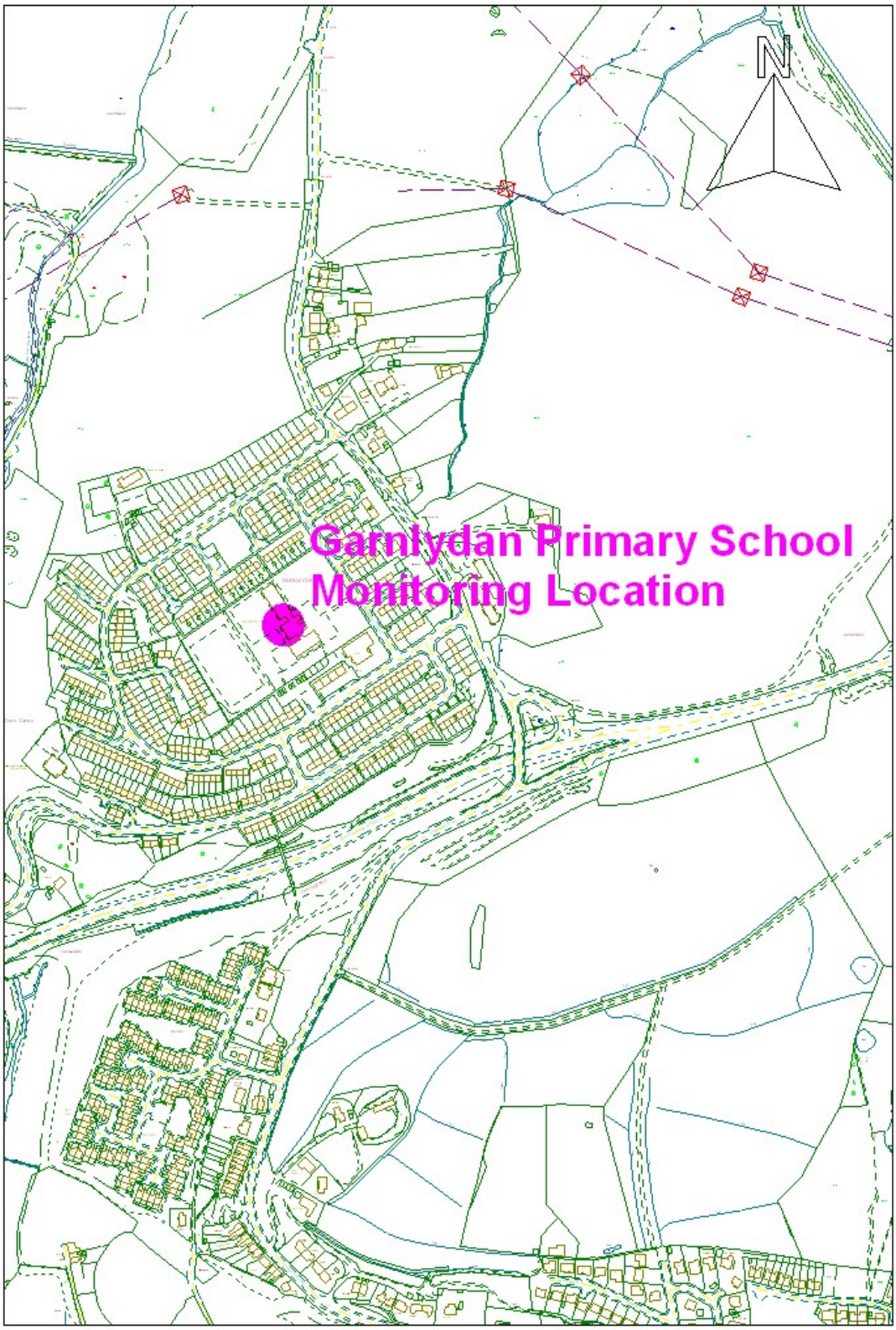
Appendix 1

Administrative Area of Blaenau Gwent



Appendix 2

Location of Automatic Monitoring Station for Ambient Lead Levels



Appendix 3

AMBIENT AIR QUALITY SURVEY AT GARNLYDAN SCHOOL

AMBIENT AIR QUALITY SURVEY AT GARNLYDAN SCHOOL

Prepared for:

Envirowales Ltd
Rassau Industrial Estate

Permit Number:	**EP3230BW**
Job Number:	**C519**
Report Number:	**R004**
Report Issue Date:	**5th March 2009**
Survey Dates:	**September - December 2008**

Prepared by:

Environmental Compliance Limited

Unit G1

Pontypridd

CF37 5YL.

Tel: 01443 841760
Fax: 01443 841761

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Report Prepared by:		**Report Reviewed & Approved by:**	
Name:	Sam Brookes	***Name:***	Martin Futter
		Signature:	
Date:	05/02/2009	***Date:***	05/03/2009

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1. INTRODUCTION

1.1. Overview of Study

Environmental Compliance Ltd ("ECL") was commissioned by Envirowales Ltd to carry out an ambient air monitoring survey at Garnlydan School, Rassau.

The monitoring was undertaken to assess the concentrations of airborne particulate and lead in the area.

The monitoring commenced on the 1st of September 2008 and will continue until further notice. This report covers data obtained from the 1st September to 31st December 2008.

1.2. Scope of Study

Sampling for **particulate matter and lead** was carried out to meet the requirements of ***'Monitoring Methods for Ambient Air, Technical Guidance Note M9'.*** Collection of the samples was carried out using a Topas sampler serial number TNT1235 calibrated at the manufacturers recommended frequency. The photometer used in the Topas instrument gives a continuous and simultaneous indication of $PM_{2.5}$, PM_{10} and TSP (total particles) mass fractions in microgrammes per cubic metre ($\mu g/m^3$). The Topas sampler has an integral filter holder unit that can be fitted with a 25mm GFA filter. It is possible to collect dust particles that can be removed and subsequently analysed for lead.

The Topas sampler was positioned at a suitable location at Garnlydan school following consultation with Envirowales Ltd, Blaenau Gwent Council and the Headmistress. The Topas sampler was calibrated at the manufacturers recommended frequency.

This report details the results of the PM_{10} & $PM_{2.5}$ particles at the monitoring location. Further analysis of the integral filter within the unit has been undertaken so that airborne dust levels could be determined.

The results have been compared to the respective National Air Quality Strategy Objectives, available at:-

http://www.defra.gov.uk/environment/airquality/strategy/pdf/air-qualitystrategy-vol1.pdf

2. APPROACH AND METHODOLOGY

2.1. General

The monitor ran continuously between 1st September 2008 and 31st December 2008 at its location at Garnlydan School. There were no deviations recorded.

2.2. Methodology

Environmental Compliance Limited carried out the download of data from the Topas sampler on a monthly basis. At the same time the 25mm GFA filter housed within the sampler was exchanged and replaced with a new one. The collected filter was then sent for lead analysis at RPS Laboratories, Manchester, who have UKAS accreditation for this analysis on filters. A field blank was undertaken for each survey carried out and submitted at the same time for data integrity

3. RESULTS

The results of the survey are presented in the Tables Section, and are also presented graphically in the Figures Section.

3.1. Airborne Exposure Limits

The results of the ambient monitoring survey were compared to the National Air Quality Standard Objectives (The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Volume1, July 2007 – Page 20, Table 2) which are as follows:-

Particulates (PM_{10}) – Annual Mean of 40 $\mu g/m^3$

Particulates ($PM_{2.5}$) – Annual Mean of 25 $\mu g/m^3$

Lead – Annual Mean of 0.5 $\mu g/m^3$ maintained by and after December 2004

*Lead – Annual Mean of 0.25 $\mu g/m^3$ maintained by and after December 2008

Note * this is the new level for lead after 31st December 2008.

3.2. Particulate Results

The results of the particulate fractions are detailed in Table 1 & 2.

The particulate (PM_{10} & $PM_{2.5}$) results were obtained for the four months from 1st September to 31st December 2008, data sets were available for each complete month. The average figures for these four months were 13.99 $\mu g/m^3$ and 4.85 $\mu g/m^3$ respectively, which are considerably lower than the National Air Quality Strategy (AQS) Objectives of 40$\mu g/m^3$and 25$\mu g/m^3$ respectively.

3.3. Lead Results

The lead results are detailed in Table 3.

The lead results have been compared against the current AQS value as the Annual Mean of 0.5 $\mu g/m^3$, this is due to change at the end of December 2008 to 0.25 $\mu g/m^3$.

The average figures for these months are all well below the AQS value, if the values continue the same trend the annual mean will be below the new 0.25 $\mu g/m^3$.

Table 1

$PM_{2.5}$ Particulate Results from TNT1235 at Garnlydan School

Month	$PM_{2.5}$ Particulate Concentration ($\mu g/m^3$)	Results as a percentage of the AQS (%)	Quarterly Average $PM_{2.5}$ ($\mu g/m^3$)
September	5.64	22.6	…
October	4.27	17.1	…
November	4.75	19.0	4.88
December	4.75	19.0	…
End of 2008 Mean	**4.85**	**19.4**	…

Table 2

PM_{10} Particulate Results from TNT1235 at Garnlydan School

Month	PM_{10} Particulate Concentration ($\mu g/m^3$)	Results as a percentage of the AQS (%)	Quarterly Average PM10 ($\mu g/m^3$)
September	17.26	43.2	…
October	9.49	23.7	…
November	14.40	36.0	13.72
December	14.83	37.1	…
End of 2008 Mean	**13.99**	**34.9**	…

Table 3

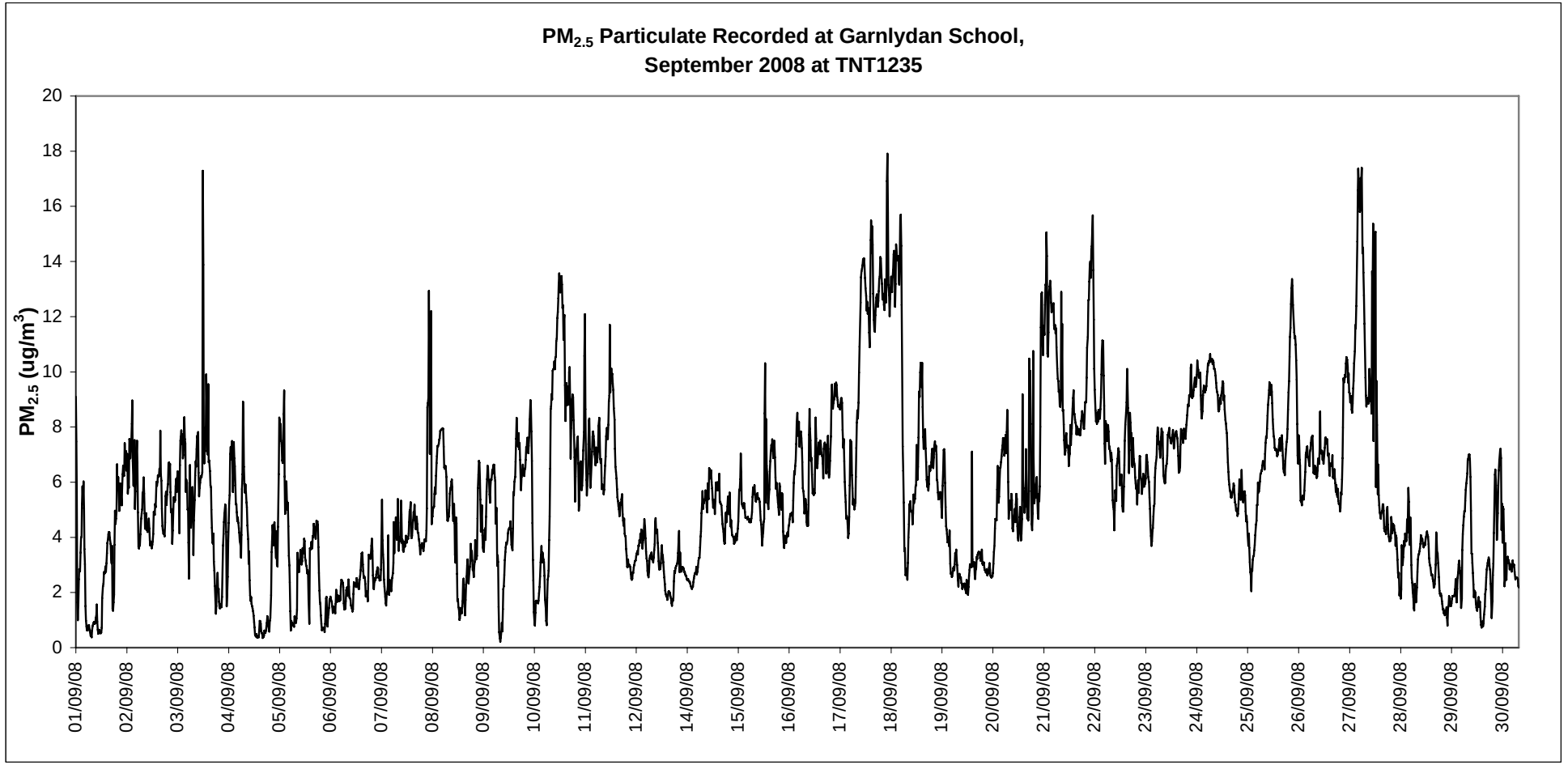
Lead Results from TNT1235 at Garnlydan School

Month	Airborne Lead Concentration (μg/m^3)	[1] Results as a percentage of the AQS (%)	Rolling Average Lead Concentration (μg/m^3)	Quarterly Average Lead (μg/m^3)
September	0.039	7.8	0.039	…
October	0.193	38.6	0.116	…
November	0.037	7.4	0.090	0.090
December	0.168	33.6	0.109	…
Mean	**0.109**	**21.8**	**…**	**…**

Note [1] The comparison has been made with the Lead Annual Mean of **0.5 μg/m^3**

Figures

Figure 1


PM2.5 Particulate Recorded at Garnlydan School,
September 2008 at TNT1235
PM2.5 (ug/m3)
0
2
4
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8
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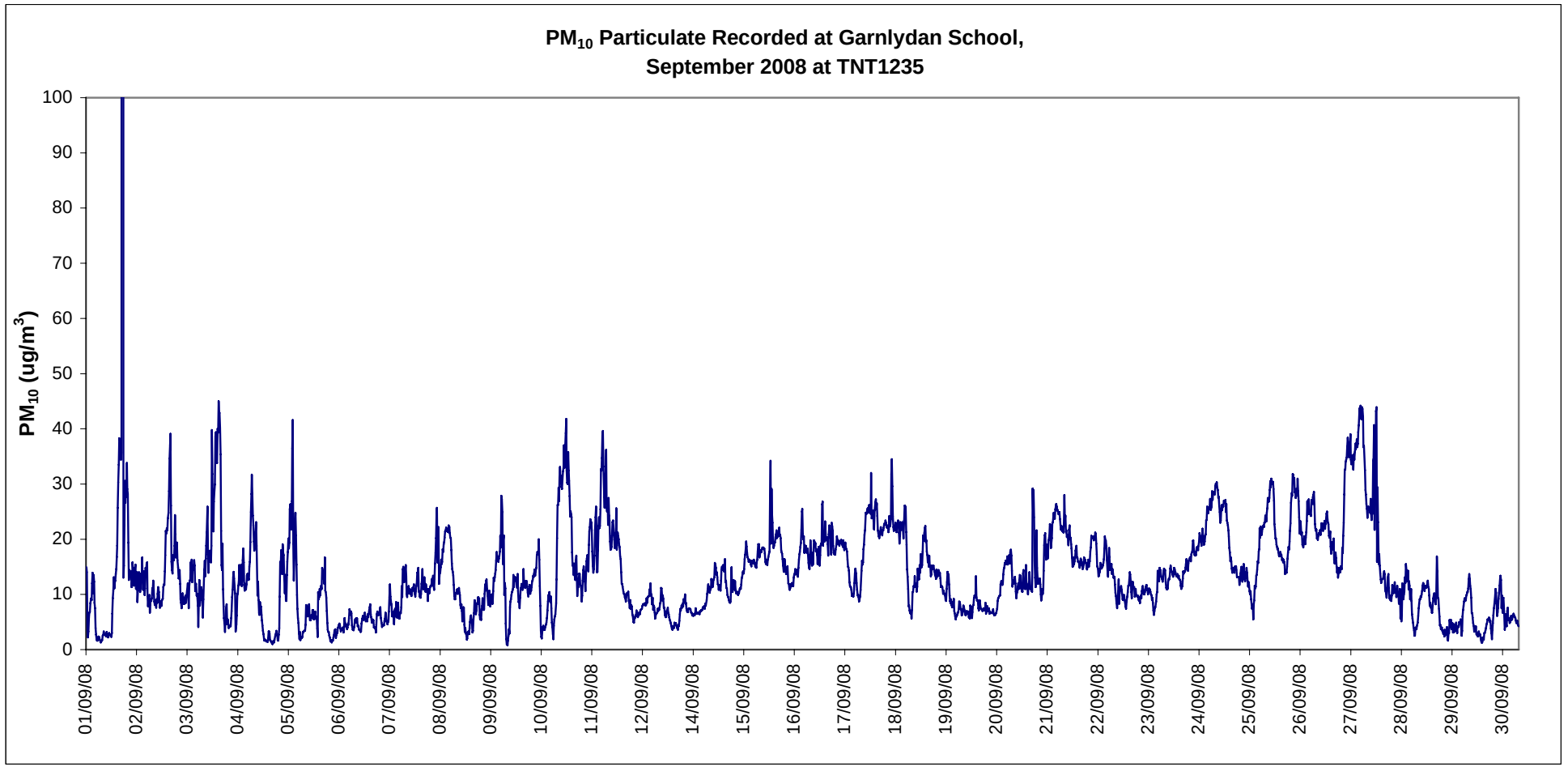
24/09/08
25/09/08
26/09/08
27/09/08
28/09/08
29/09/08
30/09/08

Figure 2*



* **Please note that there was a spike at 4389μg/m³ on the 2nd at 06:00am (off the scale of the chart)**

Figure 3

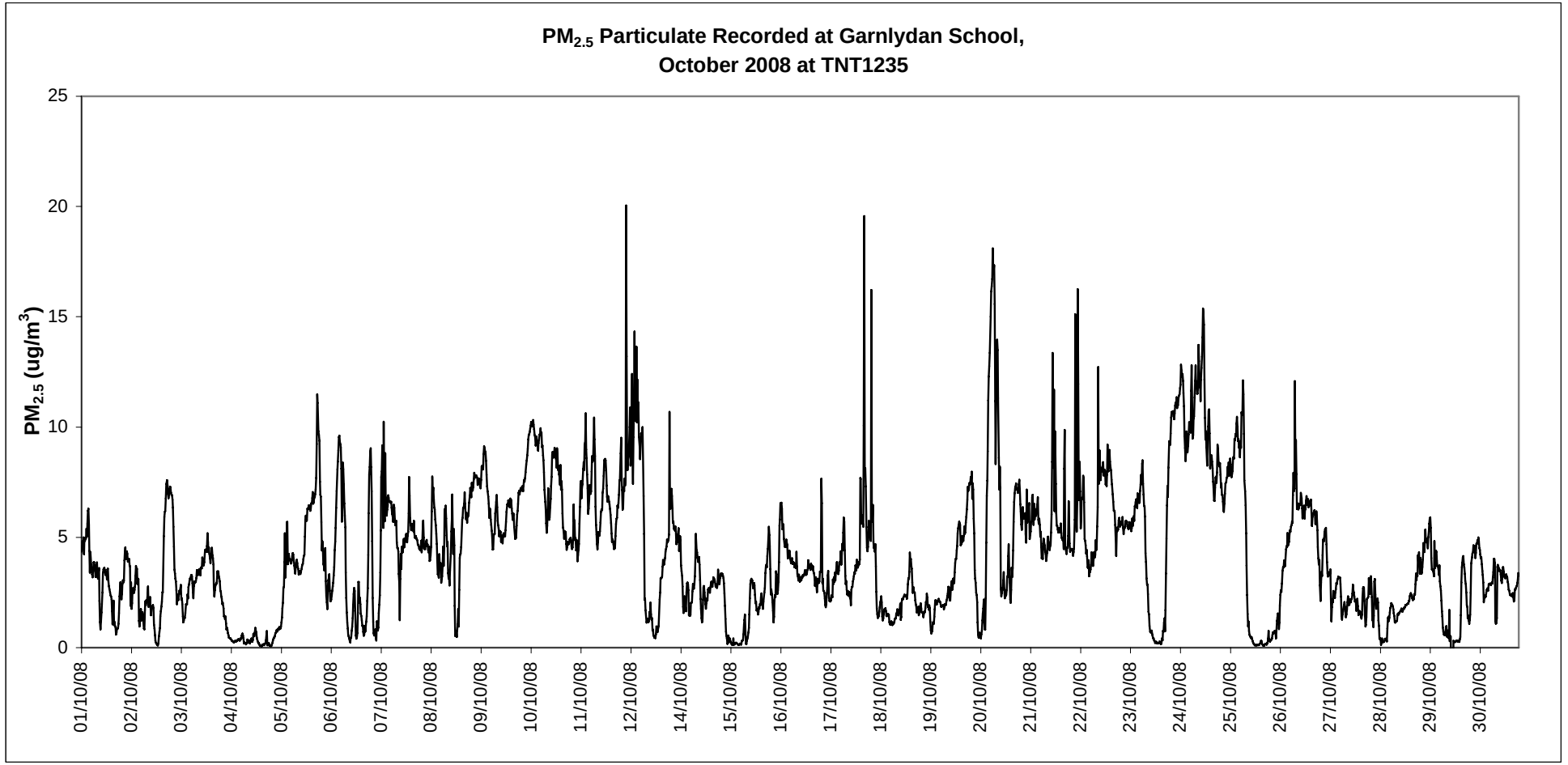

PM2.5 Particulate Recorded at Garnlydan School,
October 2008 at TNT1235
PM2.5 (ug/m3)
25
20
15
10
5
0
01/10/08
02/10/08
03/10/08
04/10/08
05/10/08
06/10/08
07/10/08
08/10/08
09/10/08
10/10/08
11/10/08
12/10/08
14/10/08
15/10/08
16/10/08
17/10/08
18/10/08
19/10/08
20/10/08
21/10/08
22/10/08
23/10/08
24/10/08
25/10/08
26/10/08
27/10/08
28/10/08
29/10/08
30/10/08

Figure 4

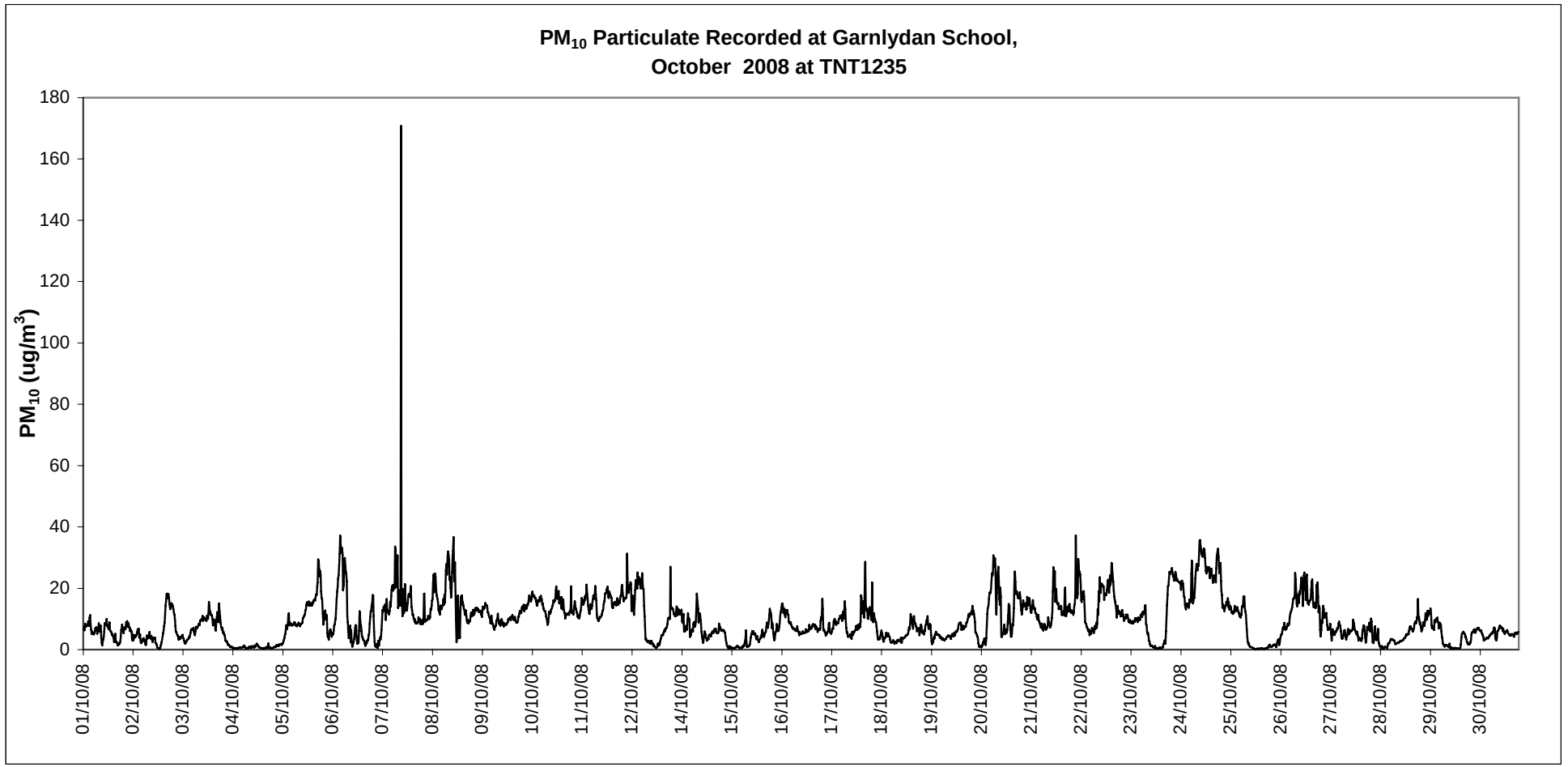

PM10 Particulate Recorded at Garnlydan School,
October 2008 at TNT1235
PM10 (ug/m3)
180
160
140
120
100
80
60
40
20
0
01/10/08
02/10/08
03/10/08
04/10/08
05/10/08
06/10/08
07/10/08
08/10/08
09/10/08
10/10/08
11/10/08
12/10/08
14/10/08
15/10/08
16/10/08
17/10/08
18/10/08
19/10/08
20/10/08
21/10/08
22/10/08
23/10/08
24/10/08
25/10/08
26/10/08
27/10/08
28/10/08
29/10/08
30/10/08

Figure 5

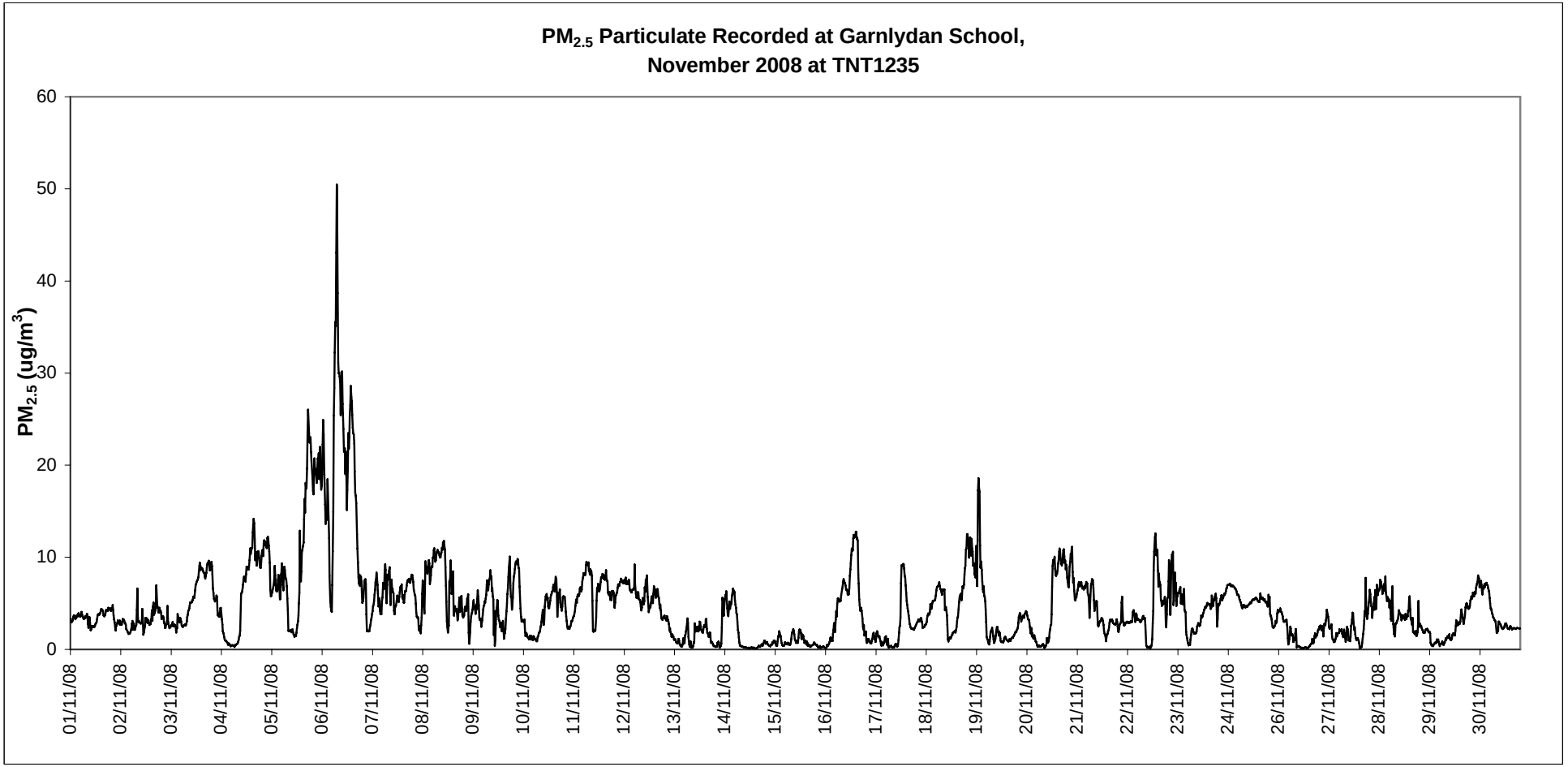
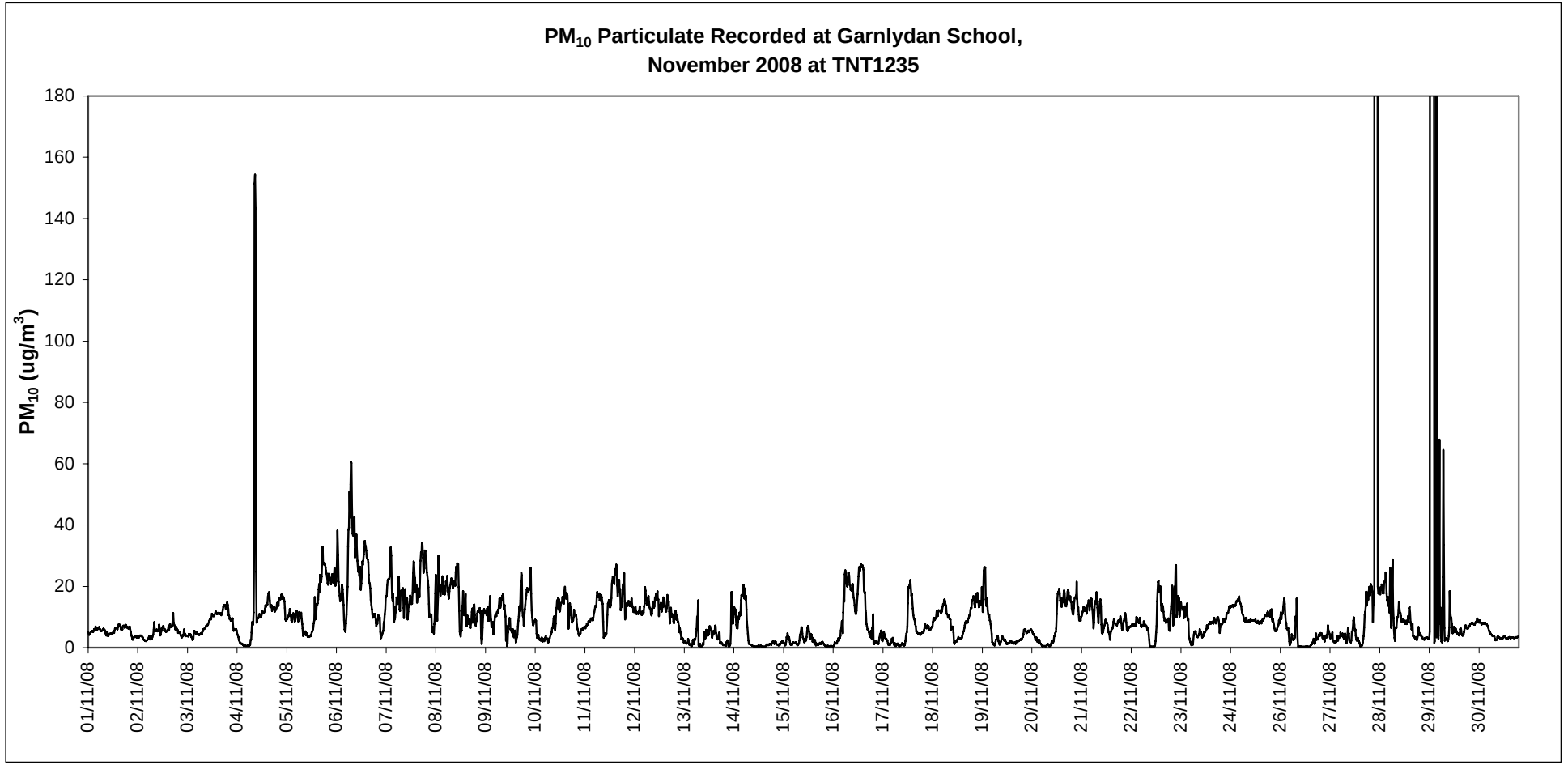

PM2.5 Particulate Recorded at Garnlydan School,
November 2008 at TNT1235
PM2.5 (ug/m3)
60
50
40
30
20
10
0
01/11/08
02/11/08
03/11/08
04/11/08
05/11/08
06/11/08
07/11/08
08/11/08
09/11/08
10/11/08
11/11/08
12/11/08
13/11/08
14/11/08
15/11/08
16/11/08
17/11/08
18/11/08
19/11/08
20/11/08
21/11/08
22/11/08
23/11/08
24/11/08
26/11/08
27/11/08
28/11/08
29/11/08
30/11/08

Figure 6*



*** Please note the spikes at 2430.1μg/m³ on the 28th at 00:15am and 1537.3μg/m³ on the 29th at 04:00am (off the scale of the chart)**

Figure 7

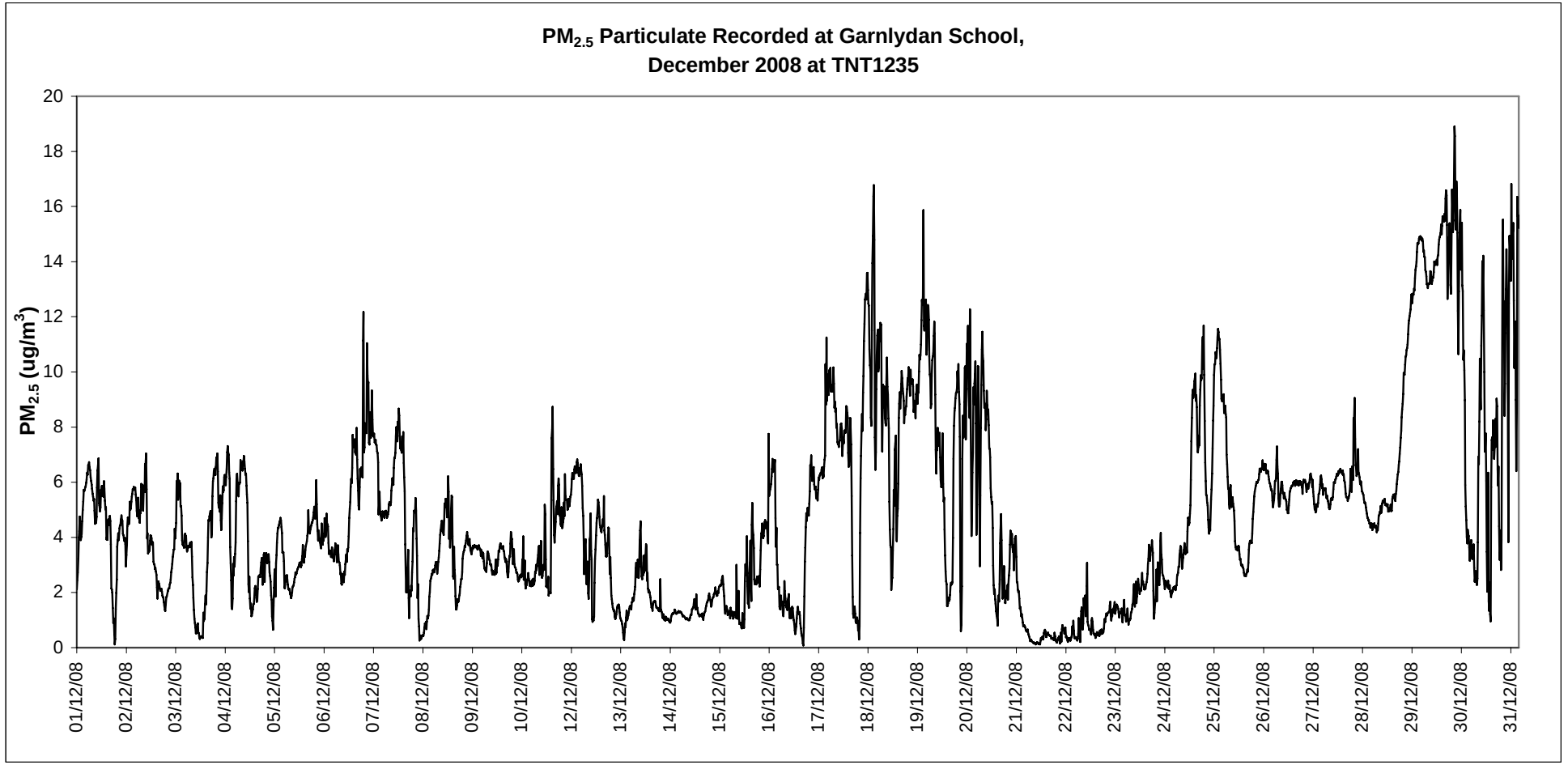
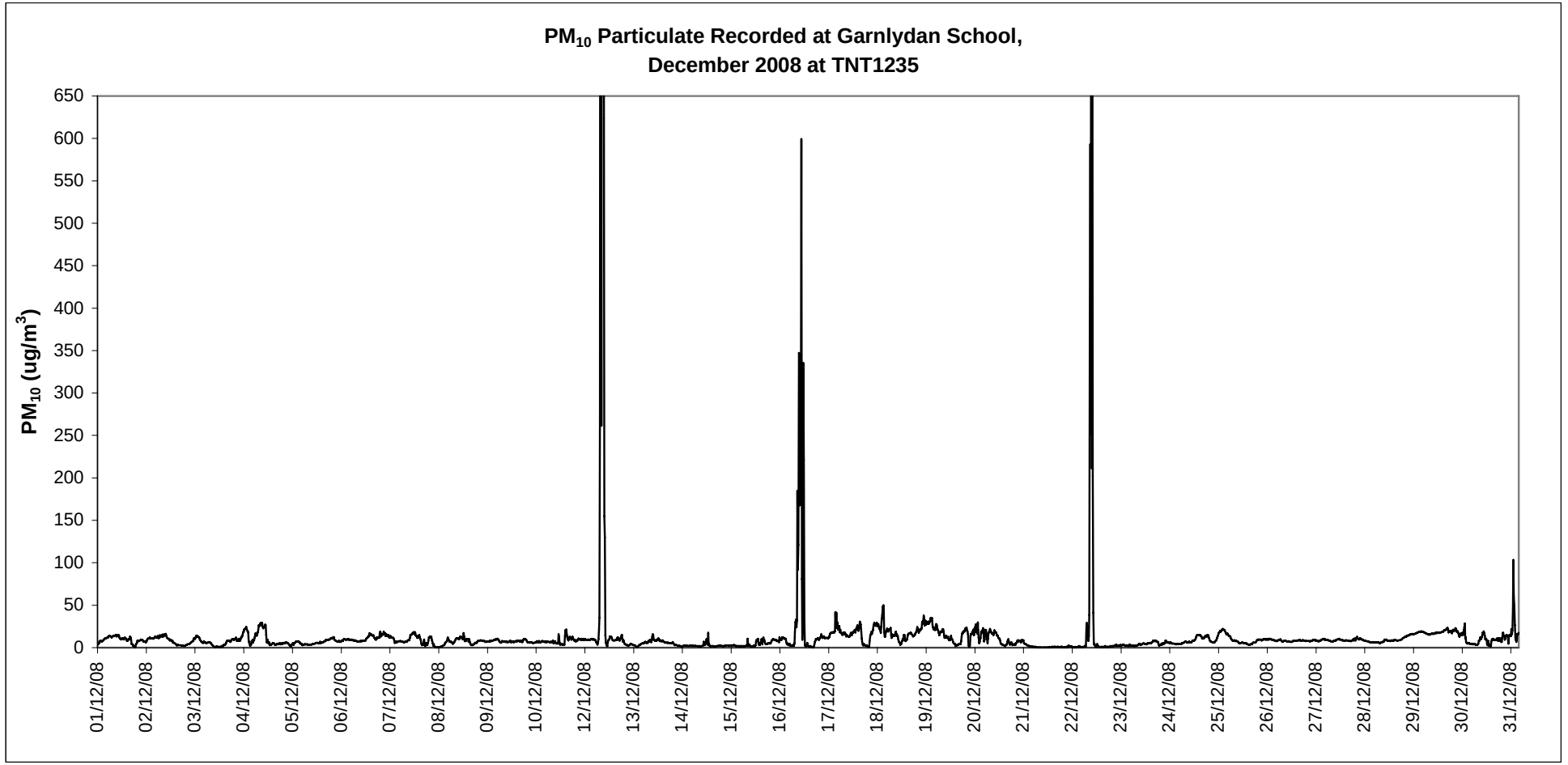

PM2.5 Particulate Recorded at Garnlydan School,
December 2008 at TNT1235
PM2.5 (ug/m3)
0
2
4
6
8
10
12
14
16
18
20
01/12/08
02/12/08
03/12/08
04/12/08
05/12/08
06/12/08
07/12/08
08/12/08
09/12/08
10/12/08
12/12/08
13/12/08
14/12/08
15/12/08
16/12/08
17/12/08
18/12/08
19/12/08
20/12/08
21/12/08
22/12/08
23/12/08
24/12/08
25/12/08
26/12/08
27/12/08
28/12/08
29/12/08
30/12/08
31/12/08

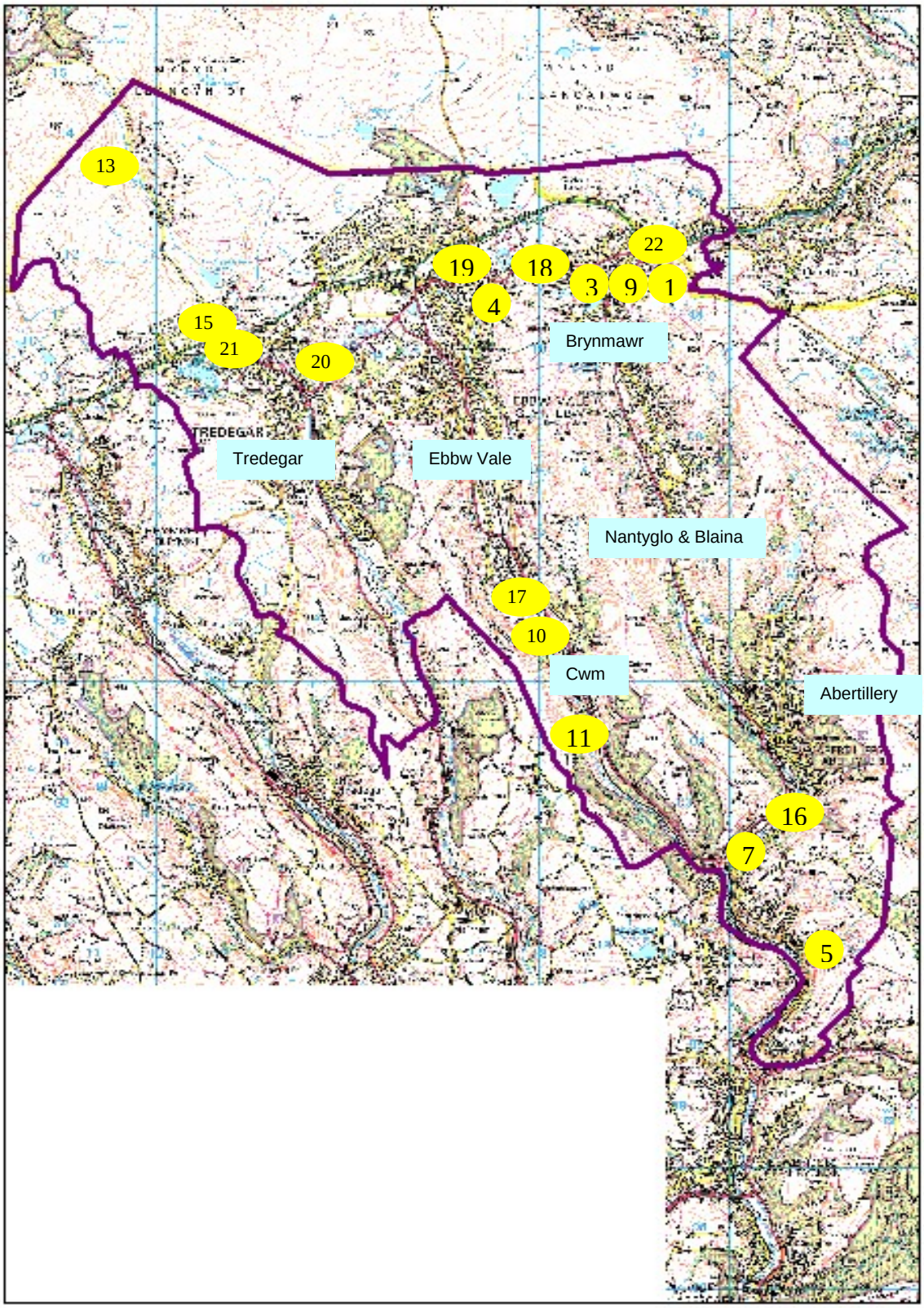
Figure 8*



*** Please note the spikes at 1797.9 μg/m³ on the 12th at 09:30am, 1600.1 μg/m³ on the 22nd at 20:15pm and 1011.1 μg/m³ on the 1st January 2009 at 02:30am (off the scale of the chart)**

Appendix 4

Location of NO_2 Monitoring Sites within Blaenau Gwent



Appendix 5

NO_2 Diffusion Tube Monitoring Monthly Mean Values

* DAMAGED TUBE ** TUBE MISSING

SITE	02/01-30/01	30/01-27/02	27/02-02/04	02/04-30/04	30/04-30/05	30/05-03/07	03/07-30/07	30/07-03/09	03/09-01/10	01/10-31/10	31/10-03/12	03/12-07/01	Annual Mean	Bias Factor	Adjusted Annual Mean
BGBC-007	23	**	**	8	15	11	10	14	16	20	20	26	16.3	0.86	15.4
BGBC-005	15	18	13	12	14	8	10	10	15	17	18	23	14.4	0.86	13.5
BGBC-010	20	25	14	12	14	12	10	12	18	22	17	22	16.5	0.86	15.6
BGBC-011	11	22	12	12	14	8	9	9	15	17	19	20	14	0.86	13.1
BGBC-013	7	12	3	4	7	4	4	5	7	8	7	9	6.4	0.86	5.5
BGBC-015	17	19	11	9	10	8	10	13	13	14	14	17	12.9	0.86	12.0
BGBC-016	27	35	21	19	17	17	8	19	22	24	28	30	22.3	0.86	21.4
BGBC-017	16	26	15	14	16	10	11	10	15	19	25	26	16.9	0.86	16.0
BGBC-018	26	36	20	22	20	14	13	14	24	24	27	31	22.6	0.86	21.7
BGBC-019	25	34	22	22	31	19	20	19	27	25	33	29	25.5	0.86	24.6
BGBC-020	27	25	21	22	34	21	22	23	31	25	24	28	25.3	0.86	24.4
BGBC-021	22	26	16	19	16	11	11	14	9	20	19	23	17.2	0.86	16.3
BGBC-022	19	30	15	20	25	13	13	10	24	20	19	27	19.6	0.86	18.7
BGBC-001	17	33	20	23	36	19	17	12	29	19	24	27	23	0.79	22.2
BGBC-009	23	36	17	26	30	20	20	18	29	22	23	31	24.6	0.79	23.8
BGBC-003	22	33	16	19	20	11	10	11	17	18	17	28	18.5	0.79	17.7
BGBC-004	20	24	11	10	11	7	8	8	11	12	*	21	13	0.79	12.2

Appendix 6

Assessment of Biomass Combustion – Combined Impact for PM_{10}

The assessment has been undertaken in accordance with the guidance provided in Box 5.8 of Technical Guidance LAQM. TG (09).

Area 1 – Pochin Houses

Details of Area	
Location Type	Semi-rural village
OS Grid Reference for General Location **X** **Y**	 316150 204659
Background PM_{10} Concentration (ų/m^3) (Taken from nearest location given in the UK Background concentration maps at http://www.airquality.co.uk/laqm/tools.php?tool=background06)	15
Domestic	
Number of Solid-Fuel Burning Appliances	7
Appliance Type	Fireplace
Fuel Type	Coal
Emissions per Household by Appliance Type (kg/year)	20
Total Annual Emission (kg/year)	140
Commercial	
Number of Solid-Fuel Burning Appliances	0
Appliance Type	N/A
Fuel Type	N/A
Total Emission per Appliance Type (kg/year)	N/A
Service Sector Floor-space (hectares)	N/A
Total Annual Service Sector Emission (kg/year)	0
Combined	
Total Annual Emission (kg/year)	140
Area Occupied by Solid-Fuel Heated Premises (hectares)	3.9
Fraction of Area Occupied (hectares)	3.9 / 25 = 0.16
Emissions Density (kg/year)	140 / 0.16 = 875
Exceedance of threshold	No

Area 2 – Bedwellty Pits

Details of Area	
Location Type	Semi-rural village
OS Grid Reference for General Location **X** **Y**	 315603 206102
Background PM_{10} Concentration (ų/m^3) (Taken from nearest location given in the UK Background concentration maps at http://www.airquality.co.uk/laqm/tools.php?tool=background06)	15
Domestic	
Number of Solid-Fuel Burning Appliances	15
Appliance Type	Fireplace
Fuel Type	Coal
Emissions per Household by Appliance Type (kg/year)	20
Total Annual Emission (kg/year)	300
Commercial	
Number of Solid-Fuel Burning Appliances	0
Appliance Type	N/A
Fuel Type	N/A
Total Emission per Appliance Type (kg/year)	N/A
Service Sector Floor-space (hectares)	N/A
Total Annual Service Sector Emission (kg/year)	N/A
Combined	
Total Annual Emission (kg/year)	300
Area Occupied by Solid-Fuel Heated Premises (hectares)	2.2
Fraction of Area Occupied (hectares)	2.2 / 25 = 0.09
Emissions Density (kg/year)	300 / 0.09 = 3333
Exceedance of threshold	No