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

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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Much of the traditional coal and steel industry that historically populated the Borough has been replaced by a diverse industrial base comprising of businesses such as pharmaceuticals, battery and computer systems, electronic and high tech engineering companies.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 i 0.c2f0aysth00ocal a>BDC i6l1cnidy -p0,90c>[(com.,C 0 Tc 0 itf much of the)b Twy0 /TT1 1r

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 µg/m^3	Running annual mean	31.12.2003
	5.00 µg/m^3	Running annual mean	31.12.2010
1,3-Butadiene	2.25 µg/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 µg/m^3	Annual mean	31.12.2004
	0.25 µg/m^3	Annual mean	31.12.2008
Nitrogen dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m^3	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m^3	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/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

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 144>BDCus -129.465 0 Td(ng

Table 2.2 - Details of Non - Automatic Monitoring Sites

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.

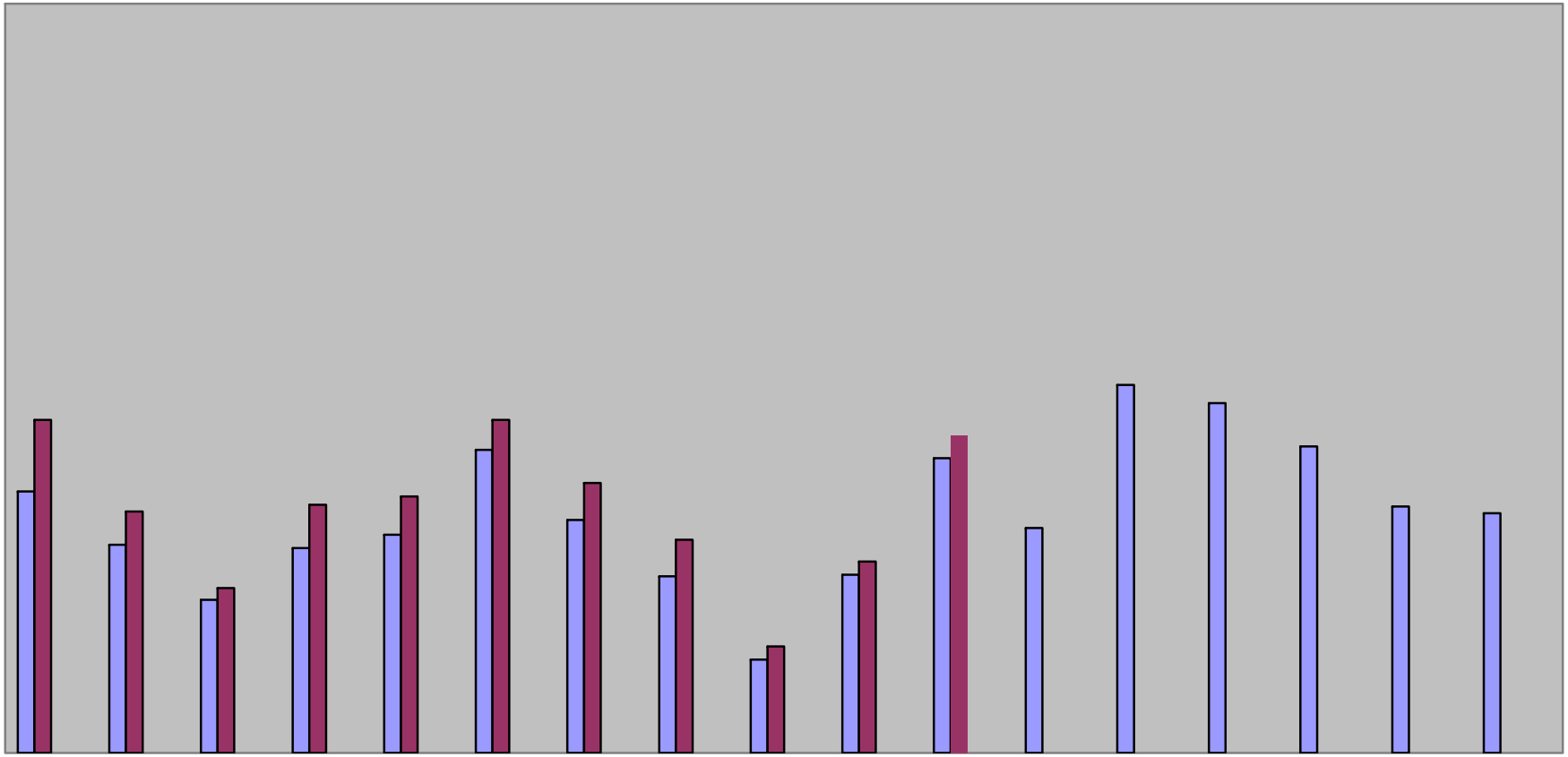
Diffusion Tube Monitoring Data

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	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.



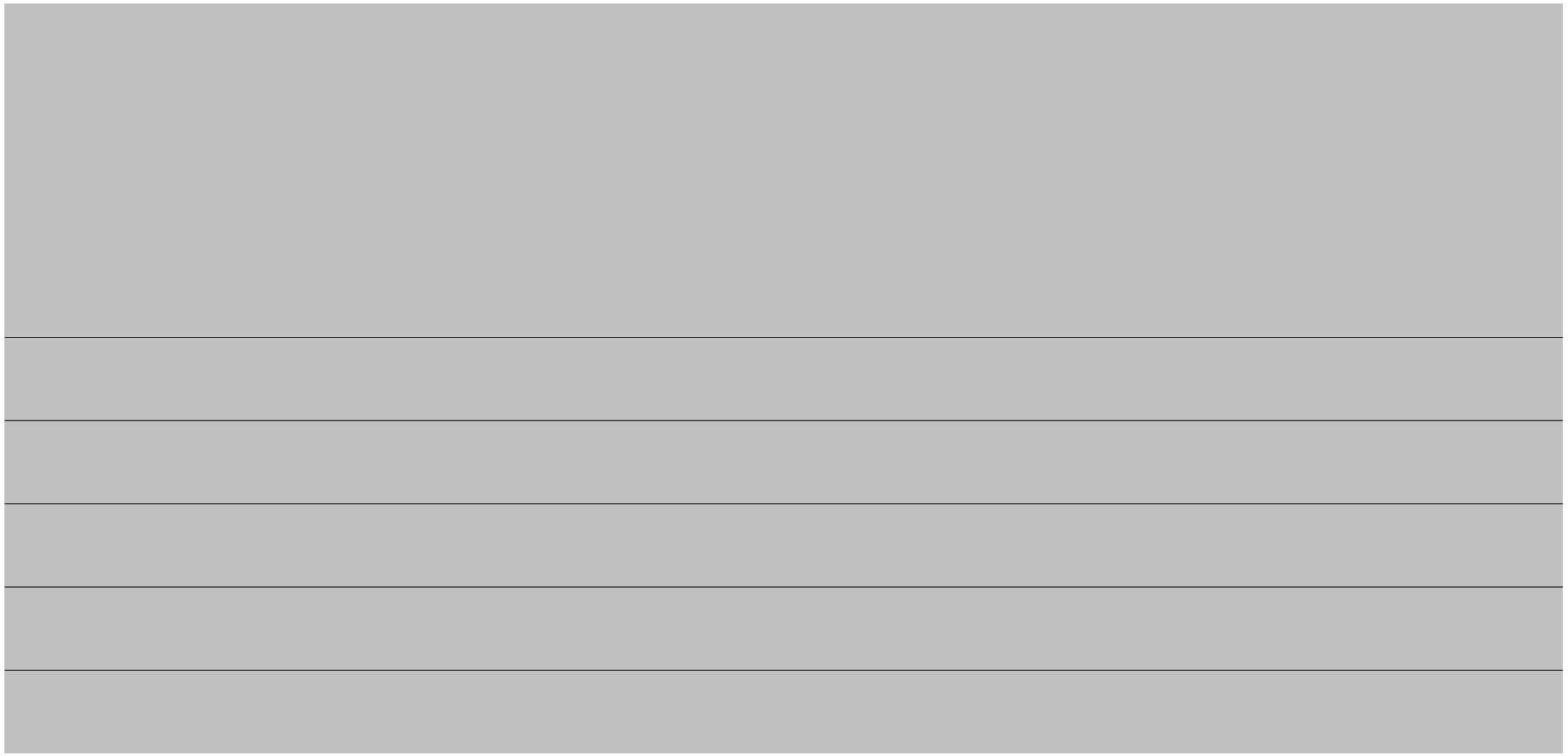


Table 2.6 Projected Annual Mean Nitrogen Dioxide concentrations at roadside monitoring locations

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													

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).

Table 2.9 - Summary of Results of Automatic Monitoring for $PM_{2.5}$ compared with

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 t

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.

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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

6.0 Commercial and Domestic Sources

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

References

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

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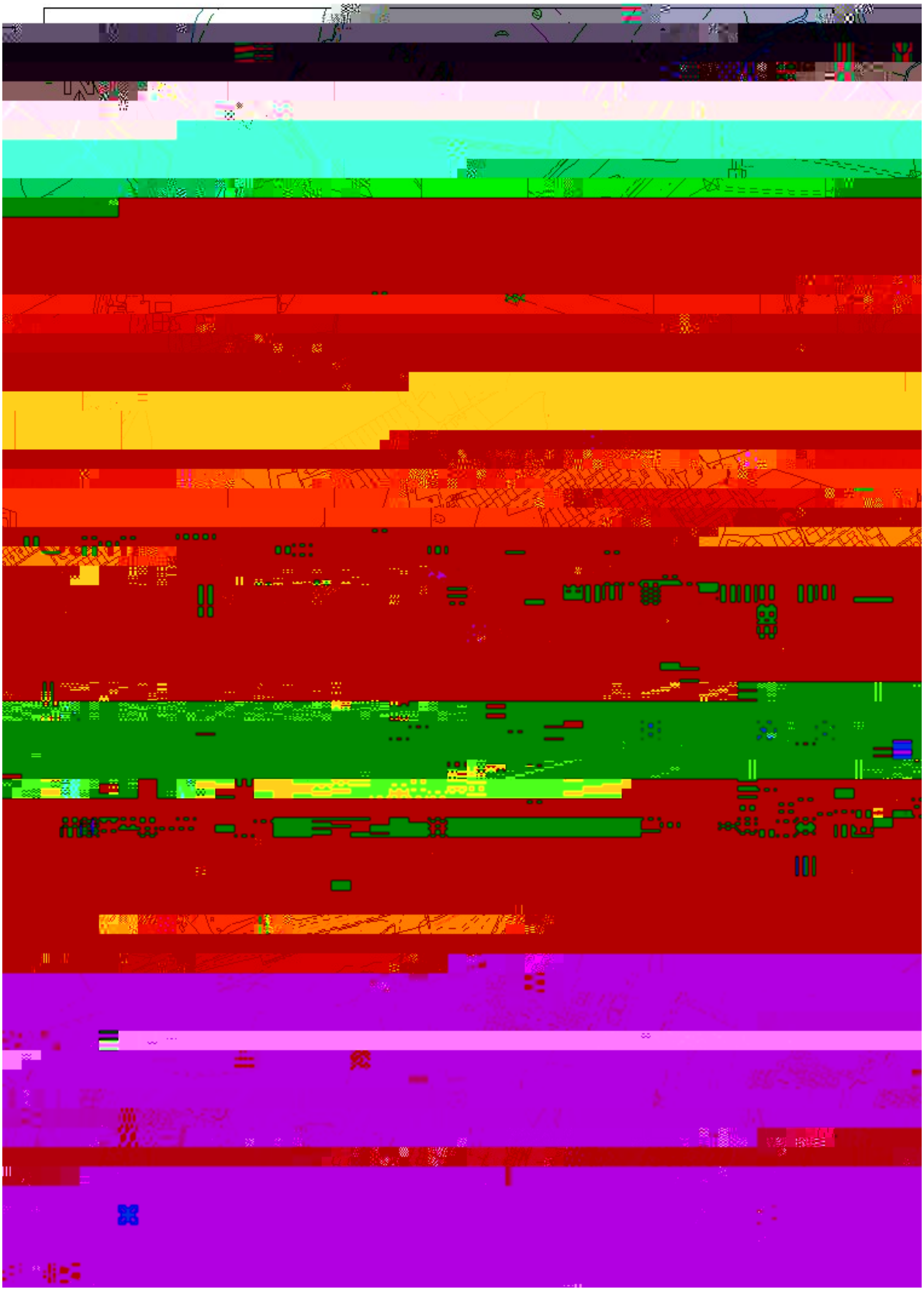

AMBIENT AIR QUALITY SURVEY AT GARNLYDAN SCHOOL

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**

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	05/02/2009		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 ' 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 neouethod[w)-5(one wereuoullecried)5(houshangJ0n somp

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 µg/m³

Particulates ($PM_{2.5}$) – Annual Mean of 25 µg/m³

Lead – Annual Mean of 0.5 µg/m³ maintained by and after December 2004

*Lead – Annual Mean of 0.25 µg/m³ 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 µg/m³ and 4.85 µg/m³ respectively, which are considerably lower than the National Air Quality Strategy (AQS) Objectives of 40µg/m³and 25µg/m³ 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 µg/m³, this is due to change at the end of December 2008 to 0.25 µg/m³.

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 µg/m³.

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 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

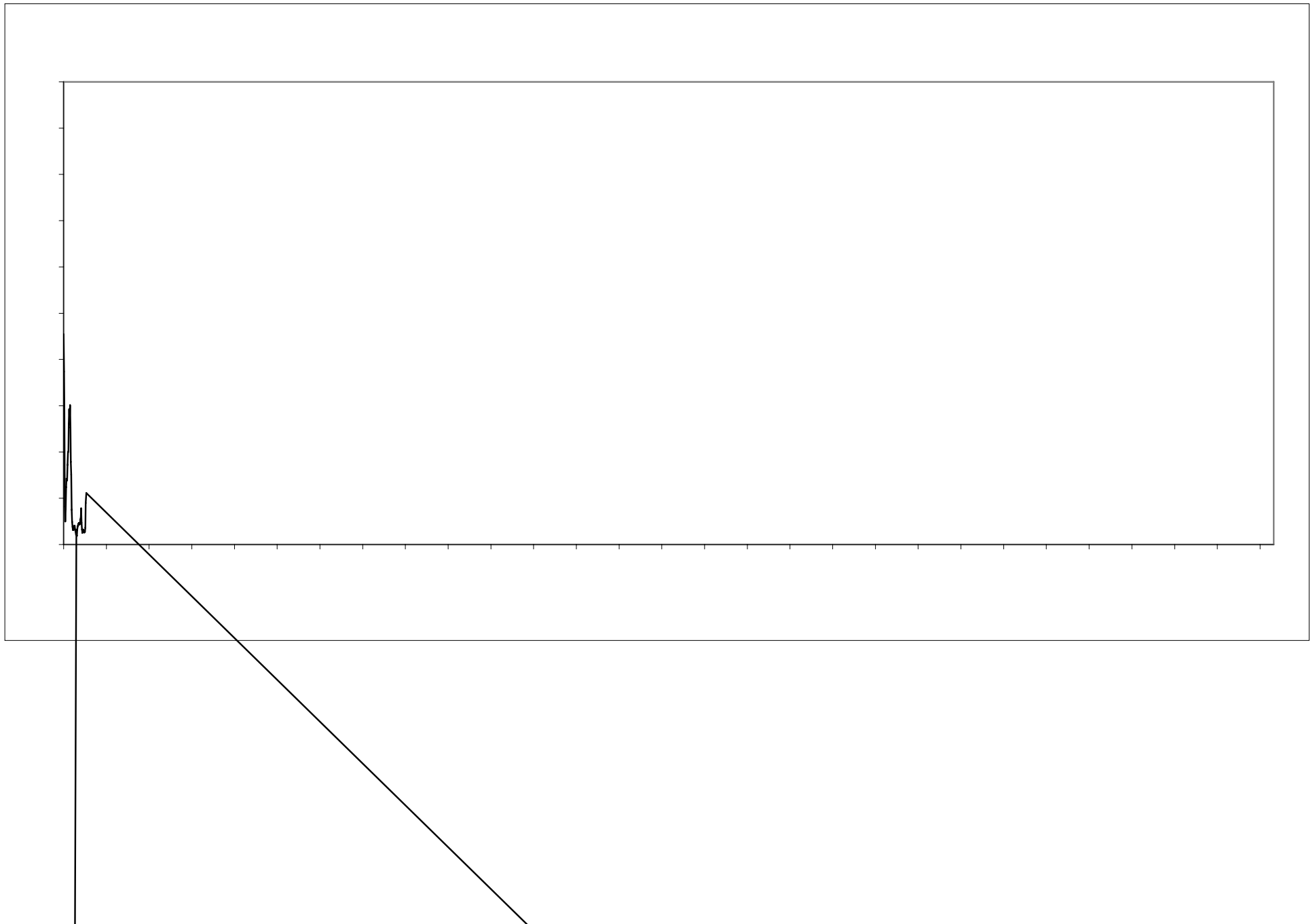
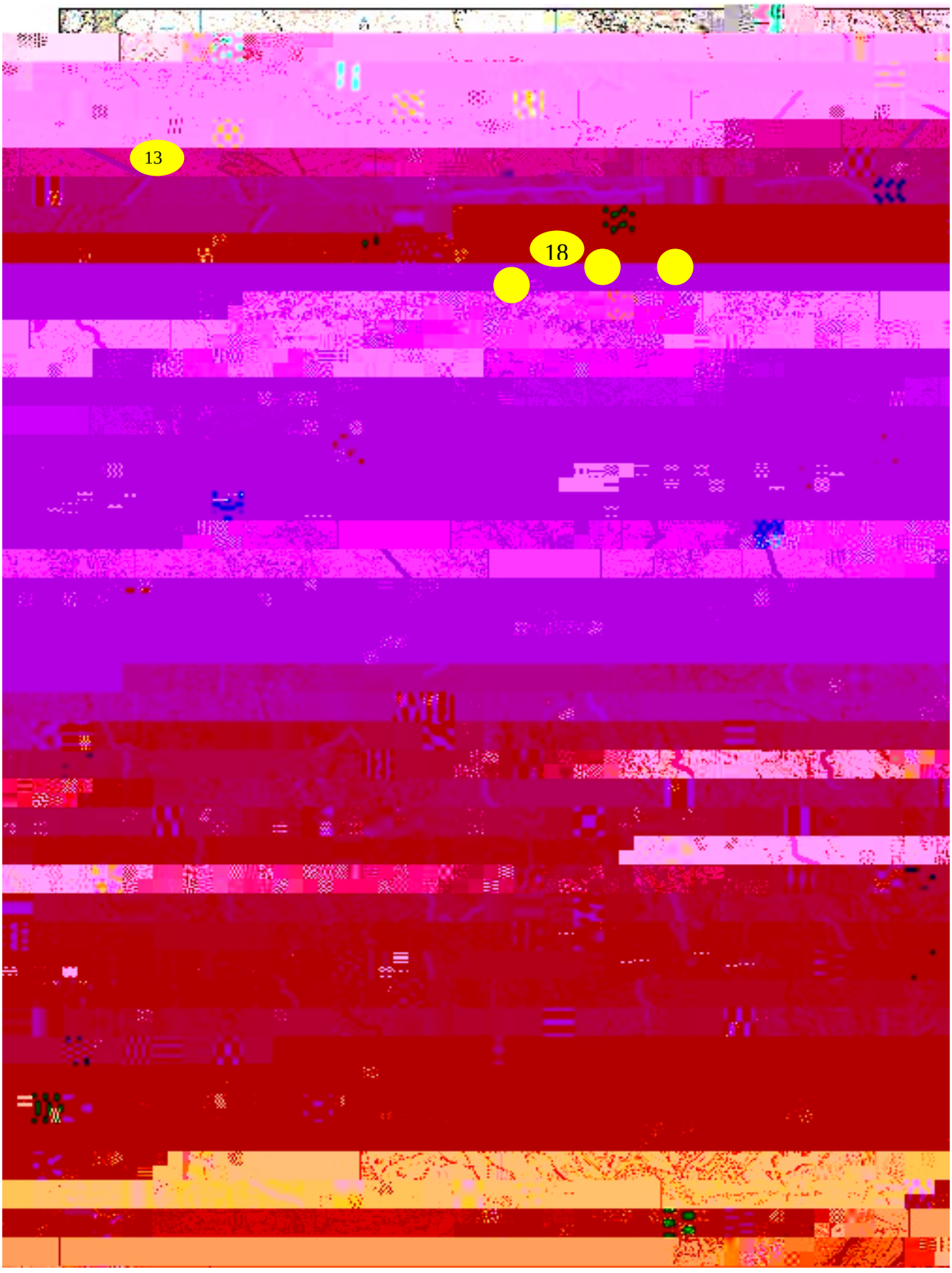


Figure 2*

Figure 6*

Figure 7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* DAMAGED TUBE ** TUBE MISSING

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

	Semi-rural village
	315603 206102
ų (Taken from nearest location given in the UK Background concentration maps at http://www.airquality.co.uk/laqm/tools.php?tool=background06)	15