

APPENDIX 9.2

Information on background
concentrations of pollutants



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The information contained within this Appendix presents data on the background concentrations of pollutants within the Rhondda Cynon Taff County Borough Council, where available.

Benzene

The Rhondda Cynon Taf County Borough Council does not currently monitor for Benzene within the local area. The nearest monitoring point is in Newport. Background maps indicate levels of Benzene within the Borough will remain within the National Air Quality Standard of $5 \mu\text{g m}^{-3}$. As the estimated background concentration for 2016 is less than $2 \mu\text{g m}^{-3}$, it is considered that there is no requirement for monitoring within the Borough currently.

1,3-Butadiene

The Rhondda Cynon Taf County Borough Council does not currently monitor for Volatile Organic Compounds (VOCs). Background maps indicate levels of 1,3-Butadiene in the area do not exceed the National Air Quality Standards.

Carbon Monoxide

The Rhondda Cynon Taf County Borough Council does not currently monitor for Carbon Monoxide. Background maps indicate levels of Carbon Monoxide in the area do not exceed the National Air Quality Standards.

Lead

The initial assessment undertaken by Rhondda Cynon Taf County Borough Council concluded that the risk of exceeding the National Air Quality Standard for Lead was negligible due to the lack of relevant industrial sources in the area and due to the ban on the sale of leaded petrol since 2000. As such, no monitoring is undertaken of the ground level concentrations of Lead in the County.

Oxides of Nitrogen

Examination of monitoring data confirms that the rural environment within the Rhondda Cynon Taf County Borough Council observes very low levels of Nitrogen Dioxide (NO₂) and a stable trend. This is underlined by examination of the general urban environment which clearly shows an historic improving situation for both NO₂ and PM₁₀, consistent to some extent with national expectation. The apparent low levels and stability in the trend, indicates Rhondda Cynon Taf will be influenced, to some extent, by regional sources of NO₂ and PM₁₀ but where elevated levels are observed this is likely to be as a result of specific local influences.

Monitoring for NO₂ has been undertaken across the Rhondda Cynon Taf County Borough for more than 10 years in some places, and suggests that the annual average National Air Quality Standard for NO₂ can be exceeded at times. Monitoring of NO₂ is currently undertaken at more than 30 locations across the county, and in previous years, two monitoring locations have been located in Hirwaun.

Monitoring on Brecon Road in Hirwaun in 2000 and 2001 detected NO₂ levels of approximately 21 µg m⁻³, whilst the monitoring station alongside the A465 detected ground level concentrations of between 37.5 and 43.6 µg m⁻³ in 2003 and 2004. The higher concentration detected in 2003 is in excess of the 40 µg m⁻³ annual average limit. The A465 runs approximately 200 m to the south of the Enviroparks site, however this is not considered a “relevant exposure” site. A “relevant exposure” site is one where members of the public are likely to be regularly present and are likely to be exposed over the averaging period of the objective. No further monitoring has been carried out at either site since the above dates.

The Rhondda Cynon Taf County Borough Council Air Quality Progress Report of 2005 identified a need to undertake a further detailed assessment of the concentrations of Nitrogen Dioxide in the county, and studies undertaken during 2013 have been reported in the Council’s 2014 Progress Report⁽¹⁾. The Report again highlighted data indicating that some specific locations continue to be vulnerable to elevated levels of NO₂, and confirms the need for twelve of the thirteen Air Quality Management Areas declared within the County for breaches of the Air Quality Objective for NO₂. Furthermore, it was identified that the trend in NO₂ at these vulnerable locations may, without local intervention, continue to deteriorate. Exceedences of the National Air Quality Standards have been identified as occurring principally due to road traffic emissions and specific topographical and urban features. None of the areas identified are in the vicinity of the proposed Enviroparks development.

Two sample locations are listed in the vicinity of the proposed Enviroparks site. The first is situated approximately 1,375 m to the north east of the site, in Woodland Park, Penderyn, and the second is located approximately 2,750 m south east of the site, on Hirwaun roundabout, Brecon Road. This monitoring point was moved in 2005, to be positioned closer to the “relevant population” and was located in Caswell Close in 2005 and 2006. It has now been removed. The most recently available data from the monitoring points in the vicinity are detailed below.

Table 9.1 Ap 2: Measured Concentrations of Nitrogen Dioxide from Penderyn and Hirwaun Monitoring Sites. Results are Presented in $\mu\text{g m}^{-3}$

Site	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Penderyn (background)	11.6	7.6	8.0	9.3	10.1	9.2	10.5	9.7	9.9	8.3	10.2
Hirwaun Roundabout (A465)	43.6	37.5									
Hirwaun Caswell Close			20.8	27.8							

The data presented in the 2014 Progress Report⁽¹⁾ shows a gradual increase in NO₂ levels throughout the Local Authority with site specific reasons giving higher than expected fluctuations at some monitoring locations. At sites where monitoring has been maintained since 2000 and influences from development have been minimal it can be observed that a continuing decline in air quality is observed with NO₂ rising both at rural and urban locations.

Particulate Matter

Examination of the general urban environment within the Rhondda Cynon Taf County Borough, shows an historic improving situation for both Particulate Matter (PM₁₀) and NO₂, consistent to some extent with national expectation. The apparent low levels and stability in the trend, indicates Rhondda Cynon Taf will be influenced, to some extent, by regional sources of PM₁₀ but where elevated levels are observed this is likely to be as a result of specific local influences.

Particulate Matter is measured at Nantgarw and Glyncoch. Monitoring of PM₁₀ at a heavily trafficked road in Nantgarw consistently indicates that, in general, PM₁₀ levels are low and observe a long term gradually improving trend, albeit that this trend maybe narrowing. The results suggest that ground level concentrations of particulates are within the annual average National Air Quality Standard, and no Air Quality Management Areas have been declared in the county for Particulate Matter.

Monitoring was undertaken at Penderyn from the 27th October 2004 to enable analysis of the impact of local quarrying activities. However, after review in October 2007 it was decided that the Penderyn monitoring project had accomplished its set goals and further monitoring was no longer required. As such monitoring was discontinued, and there are no Particulate Matter monitoring stations local to the Enviroparks site.

Sulphur Dioxide

Assessments by Rhondda Cynon Taf County Borough Council have concluded that the risk of exceeding the National Air Quality Standard for SO₂ is negligible. No monitoring is undertaken of the ground level concentrations of SO₂ in the County.

Summary of Pollutant Concentrations

The table below presents a comparison of the annual predicted concentrations of pollutants, measured concentrations, and the National Air Quality Standards

Table 9.2 Ap 2: Predicted and Measured Background Concentrations of Pollutants Close to the Envioparks Site. Results are Presented in $\mu\text{g m}^{-3}$

Pollutant	Predicted 2016	Measured 2013	Air Quality Standard
Benzene	0.207	-	5
1,3-Butadiene	0.05	-	2.25
Carbon Monoxide	95	-	10,000
Nitrogen Dioxide	8.69	10.2	40
Particulate Matter (PM ₁₀)	13.16	-	40
Sulphur Dioxide	2.79	-	125

All data is presented as the annual average concentration, with the exception of the National Air Quality Standard for Sulphur Dioxide, which is stated as a 24 hour average. The allowable annual average concentration of SO₂ for the protection of ecosystems is 20 $\mu\text{g m}^{-3}$.

Predicted data is taken from the Air Quality Archive Background Pollution Maps, with adjustment from base year data to 2016 as required. The chosen data point for the is National Grid reference 293500 206500, and is representative of the South-Western corner of the Envioparks site. Measured data is included where available.

Information on Local Committed Developments

Within the Rhondda Cynon Taf Local Air Quality Management Progress Report of October 2014⁽¹⁾, details were provided on committed development in the area which may have an impact on air quality in the region. In conclusion, Rhondda Cynon Taff County Borough Council considered that, other than matters in relation to the Church Village Bypass and Craig Yr Hesg Quarry, no other committed developments at the time were likely to significantly impact upon local air quality.

REFERENCES

1. Rhondda Cynon Taf County Borough Council. Part IV, Environment Act 1995; Local Air Quality Management Progress Report & Further Assessment of Nitrogen Dioxide. October 2014