



Denbighshire County Council 2016 Air Quality Progress Report

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

November 2016

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Executive Summary

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess the air quality within their area and take account of Government Guidance when undertaking such work.

This Progress Report considers all new monitoring data and assesses the data against the Air Quality Strategy objectives. It also considers any changes that may have an impact on air quality.

Updated monitoring showed that there were no exceedences of the Air Quality Objectives within the county in 2015.

There is no requirement for a Detailed Assessment to be undertaken.

Proposed actions arising from this report are as follows:

- Continue to monitor air quality within the district to identify future changes in pollutant concentrations;
- Proceed to a Progress Report in 2017.

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1 Introduction

1.1 Description of Local Authority Area

Denbighshire County Council covers an area extending from Rhyl and Prestatyn in North Wales, through the Vale of Clwyd, as far south as Corwen and Llangollen. Denbighshire is largely rural in character with tourism and agriculture being the main industries.

The main source of air pollution in the district is road traffic emissions from major roads, notably the A55, A5 and A494. The A55 crosses north Denbighshire giving direct links to the national motorway network, whilst the A5 crosses the county linking through to Snowdonia in the south. The A494, linking Chester to Dolgellau, also runs through the county.

There are currently no Air Quality Management Areas (AQMAs) declared in Denbighshire.

1.2 Purpose of Progress 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.

For Local Authorities in Wales, Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the LAQM process.

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the

risk of exceedence of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

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 microgrammes per cubic metre $\mu\text{g}/\text{m}^3$ (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 LAQM 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	Annual mean	31.12.2011
1,3-butadiene	2.25 µg/m ³	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m ³	Running 8-hour mean	31.12.2003
Lead	0.50 µg/m ³	Annual mean	31.12.2004
	0.25 µg/m ³	Annual mean	31.12.2008
Nitrogen dioxide	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
Particulate matter (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

Denbighshire County Council undertook the First Round of Review and Assessment of air quality in November 2000 (Stage One) and in May 2001 (Stage Two). The conclusions of the first round were that all AQS objectives were expected to be met by the target dates based on the available information at that time.

The first phase of the Second Round of Review and Assessment, the USA, was completed in 2003 and this provided an update with respect to air quality issues within Denbighshire. The 2003 USA concluded that no Detailed Assessment of air quality was required. All Air Quality Objectives were expected to be met. The Progress Reports 2004 and 2005 similarly concluded that all AQS objectives were expected to be met.

The first phase of the Third Round of Review and Assessment, the USA, was completed in April 2006 and this provided a further update with respect to air quality issues within Denbighshire. The USA 2006 concluded that all objectives were expected to be met and no Detailed Assessment was required. In 2007 and 2008 Denbighshire County Council submitted Annual Progress Reports for air quality. The reports considered the latest monitoring data and concluded that no significant changes in pollutant concentrations had occurred and there were no predicted exceedences of air quality objectives.

The first phase of the Fourth Round of Review and Assessment, the USA, was completed in August 2009 and this provided a further update with respect to air quality issues within Denbighshire. The USA 2009 concluded that all objectives were expected to be met and no Detailed Assessment was required. In 2010 Denbighshire County Council submitted an Annual Progress Report for air quality. The report considered the latest monitoring data and concluded that no significant changes in pollutant concentrations had occurred and there were no significant exceedences of the air quality objectives, although the level of Nitrogen Dioxide (NO₂) on Vale Street, Denbigh was of concern. Additional diffusion tubes were installed to monitor the air quality in the location and as agreed with advisors in the Welsh Assembly Government, the situation was reviewed in the 2011 Progress

Report. This resulted in a Detailed Assessment being undertaken in 2011 to assess the level of NO₂ in more detail.

The 2011 Detailed Assessment concluded that the decision on whether to declare an AQMA should be delayed until the full 2011 diffusion tube results were available, if there are no monitored exceedences in 2011 then an AQMA should not be required. There were a number of construction projects being undertaken in the town between 2009 and 2011, which may have increased idling traffic and associated emissions.

The first phase of the Fifth Round of Review and Assessment, the USA, was completed in June 2012. The Report concluded that there were no exceedences of the Air Quality Objectives within the county in 2011. Monitoring methods showed that NO₂ concentrations had decreased at the majority of monitoring sites from the 2010 concentrations. Exceedences observed in 2010 had not been repeated. In line with the recommendations from the 2011 Detailed Assessment, it was not necessary to declare an AQMA. In 2013 and 2014 Denbighshire County Council submitted Annual Progress Reports for air quality. The reports considered the latest monitoring data and concluded that no significant changes in pollutant concentrations had occurred and there were no predicted exceedences of air quality objectives.

The first phase of the sixth Round of Review and Assessment, the USA, was completed in November 2015. The Report concluded that there were no exceedences of the Air Quality Objectives within the county in 2014.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

There is currently no automatic monitoring undertaken in Denbighshire.

2.1.2 Non-Automatic Monitoring Sites

Denbighshire County Council undertook monitoring at 26 NO₂ diffusion tube sites in 2015 (see figure 2.1).

The diffusion tubes are supplied and analysed by Environmental Services Group Didcot (ESG) and were prepared by spiking acetone:triethanolamine (50:50) onto the grids prior to the tubes being assembled. The tubes were desorbed with distilled water and the extract analysed using segmented flow autoanalyser with ultraviolet detection. ESG participate in the Workplace Analysis Scheme for Proficiency (WASP) for NO₂ diffusion tube analysis. This provides strict performance criteria for participating laboratories to meet, thereby ensuring NO₂ concentrations reported are of a high calibre. In WASP NO₂ PT Rounds 121-124 and AIR NO₂ PT AIR NO₂ PT rounds AR001, 3, 4, 6, 7, 9, 10 and 12 ESG have scored 100% for all rounds and in AIR PT AR006 they scored 87.5%. The percentage score reflects the results deemed to be satisfactory based upon the z-score of $< \pm 2$.

A bias adjustment factor has been applied to the data, which is an estimate of the difference between diffusion tube concentrations and continuous monitoring, the latter assumed to be a more accurate method of monitoring. The technical guidance LAQM.TG (09) provides guidance with regard to the application of a bias adjustment factor to correct diffusion tubes. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data from NO_x / NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

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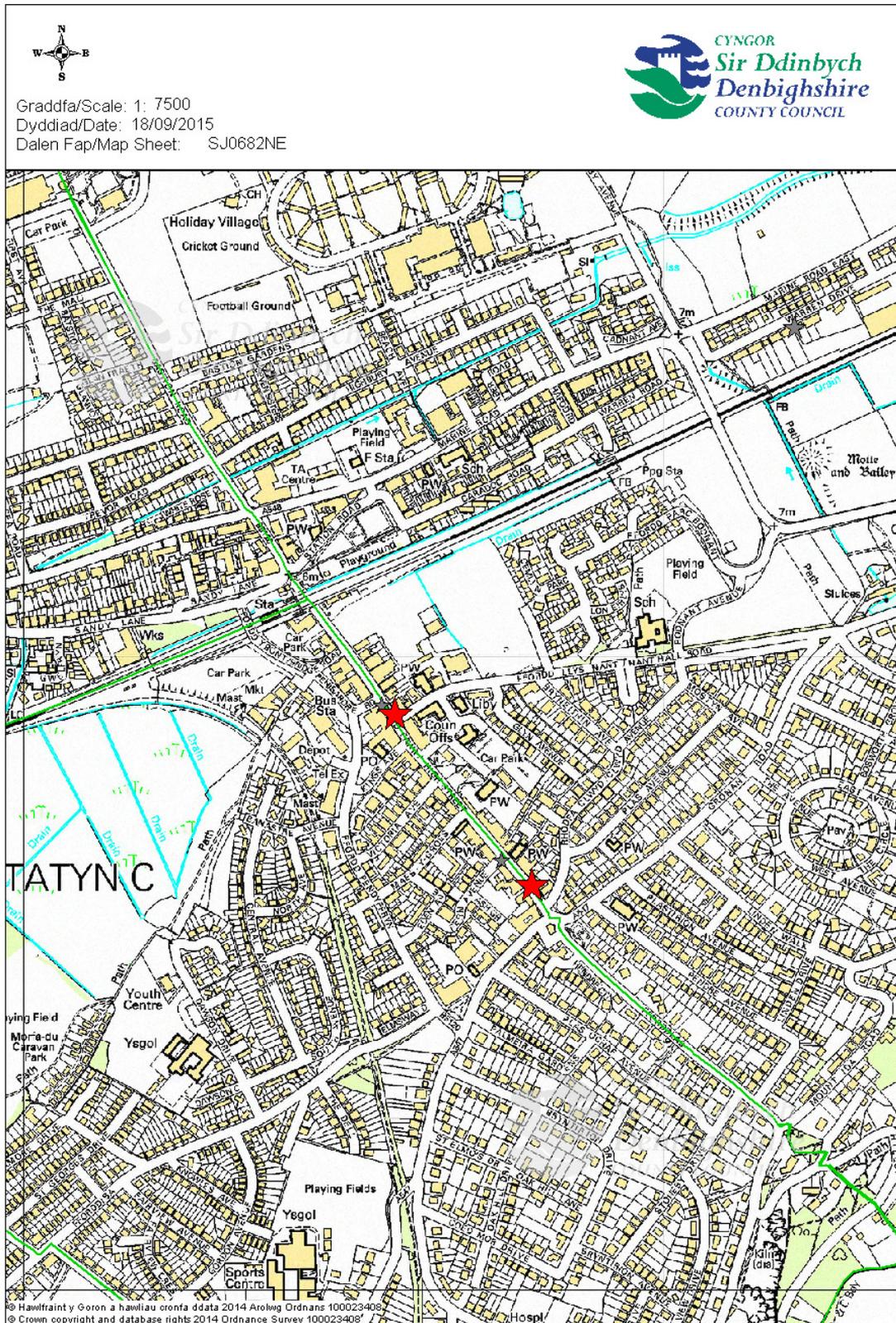
Denbighshire County Council does not operate any continuous NO₂ monitoring sites and as such a local bias adjustment factor cannot be calculated. In the absence of a local bias correction factor, the national bias correction factor has been applied. This factor, calculated as 0.79 for 2015 based on 26 studies has been obtained from the Defra website:-

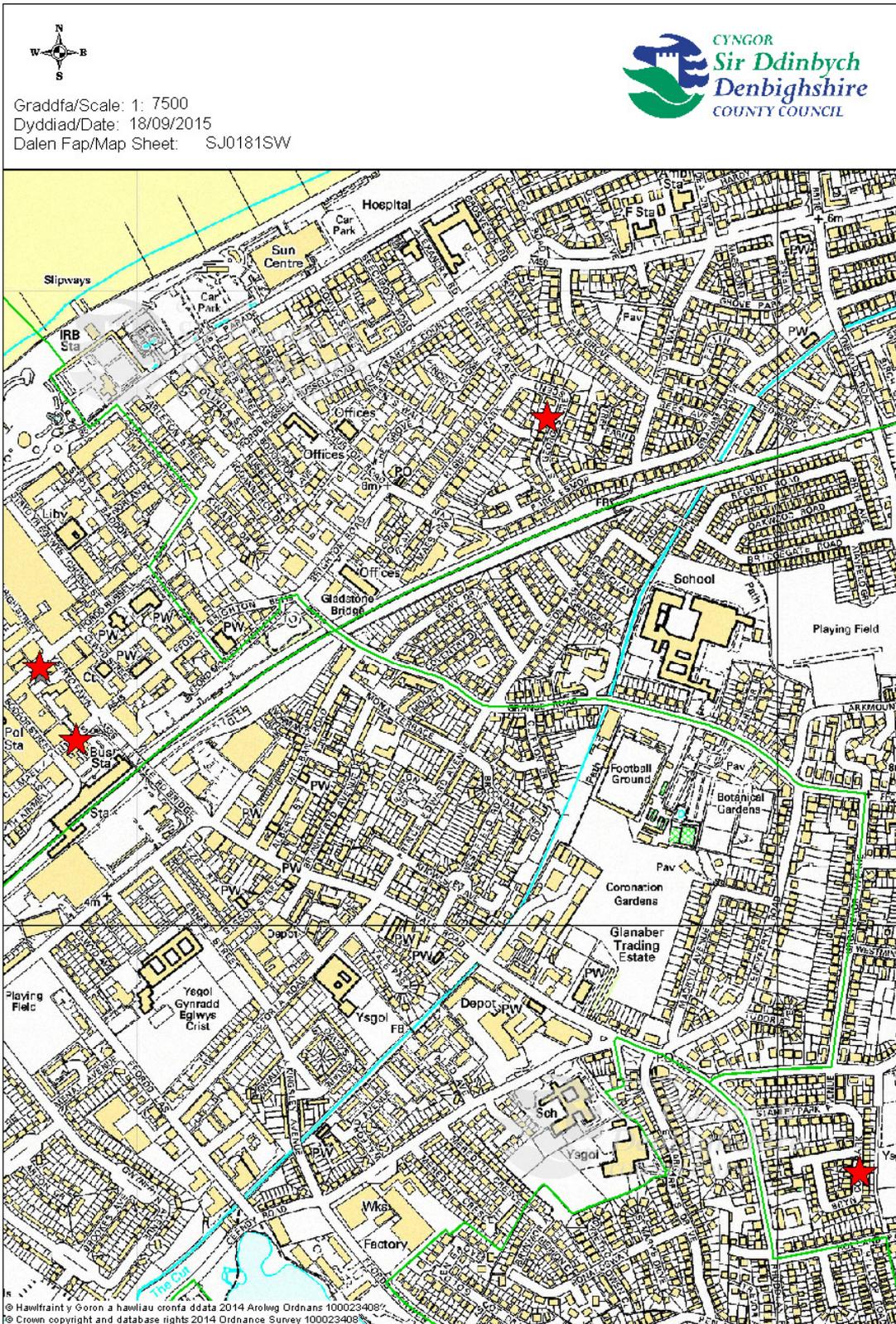
http://laqm.defra.gov.uk/documents/Database_Diffusion_Tube_Bias_Factors_v06_16-Final.xls

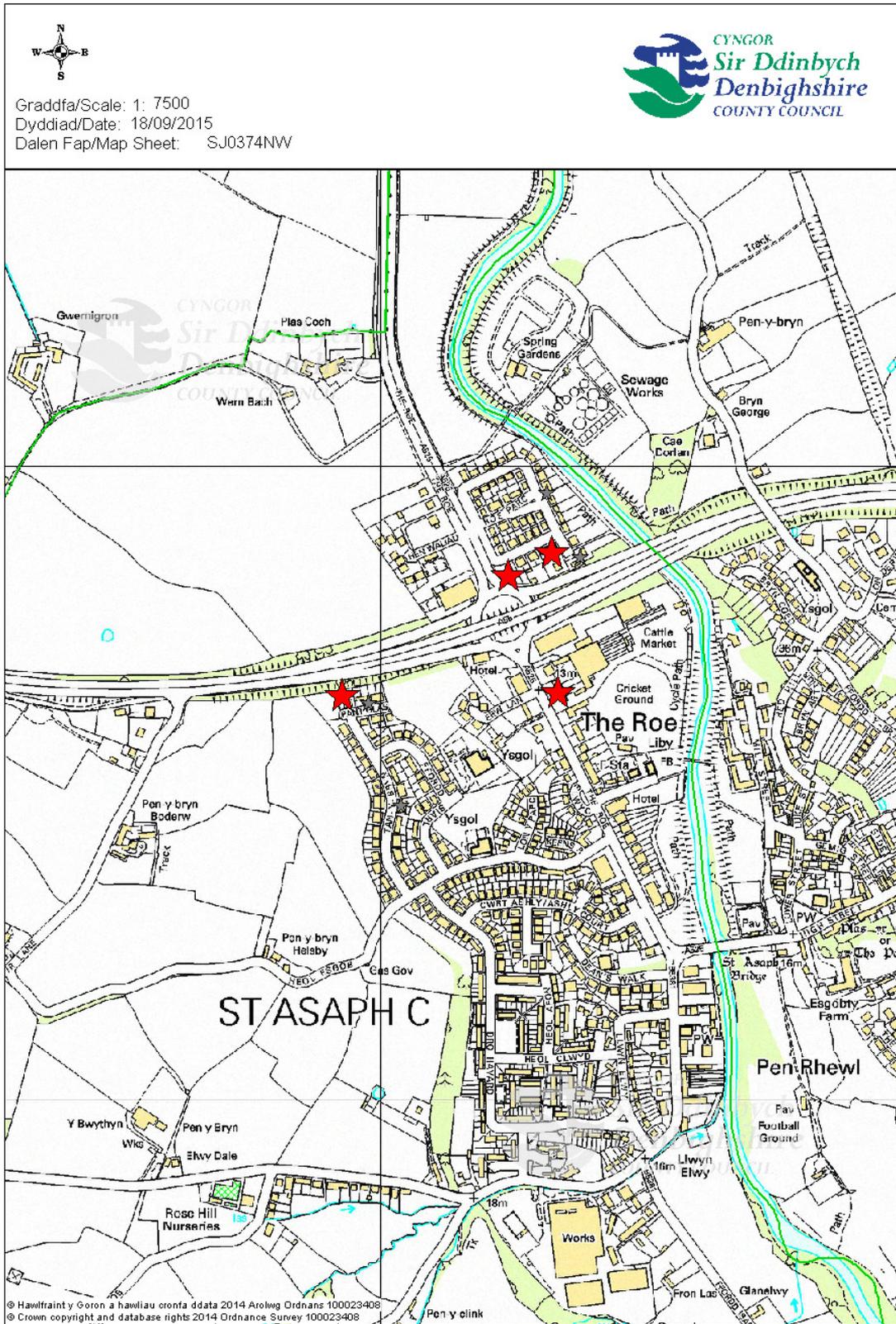
For previous data, years 2010 to 2014, the bias adjustment factors have been taken from the Council's previous LAQM annual reports. The factors used were 0.84 (2010), 0.83 (2011), 0.79 (2012), 0.8 (2013) and 0.81 (2014).

No collocation studies have been undertaken in Denbighshire and the results have not been distance adjusted for relevant exposure.

Figure 2.1 Maps of Non-Automatic Monitoring Sites







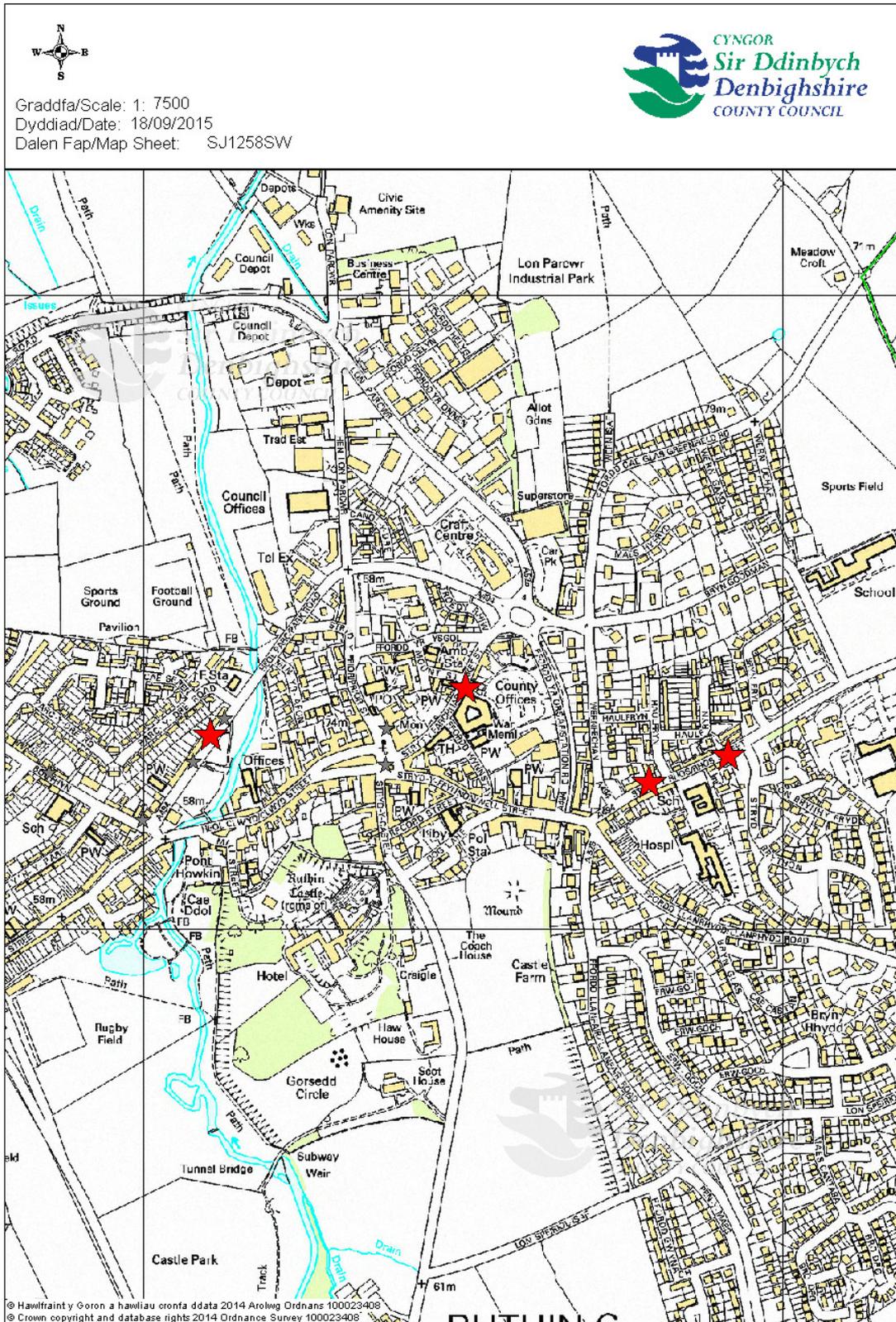


Table 2.1 Details of Non-Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Site Height (m)	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
Wellington Road, Rhyl	Roadside	300846	381407	2.3	NO ₂	N	N	Y - 0.5	2.2	Y
10 Kimmel Street, Rhyl	Roadside	300903	381292	2.5	NO ₂	N	N	Y - 2.5	0.3	Y
5 St. Georges Cres., Rhyl	Suburban	301640	381800	2.1	NO ₂	N	N	Y - 0	15.1	Y
73 Bryn Coed Park, Rhyl	Suburban	302128	380611	2.3	NO ₂	N	N	Y - 4.7	1.7	Y
2 Pant Glas, St. Asaph	Suburban	302938	374638	2.0	NO ₂	N	N	Y - 9.6	27.5	Y
Adj. 1 Vale Street, Denbigh	Roadside	305276	366119	2.4	NO ₂	N	N	Y - 0	1.0	Y
31 Ruthin Road, Denbigh	Roadside	305878	366424	2.5	NO ₂	N	N	Y - 1.4	2.5	Y
1 Plas Elwy Orchard, The Roe, St. Asaph	Suburban	303270	374640	2.0	NO ₂	N	N	Y - 0	19.4	Y
7 Roe Park, St. Asaph	Suburban	303197	374830	2.0	NO ₂	N	N	Y - 0	14	Y
13 Roe Park, St. Asaph	Suburban	303263	374867	2.0	NO ₂	N	N	Y - 0	47	Y
Denbigh Cutters, 21 Vale Street, Denbigh	Roadside	305330	366160	2.2	NO ₂	N	N	Y - 0	3	Y
25 Park Road, Ruthin.	Roadside	312106	358306	2.2	NO ₂	N	N	Y - 0	2.9	Y

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Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Site Height (m)	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
Adj HSBC Bank, Vale Street, Denbigh	Roadside	305314	366153	2.6	NO ₂	N	N	Y - 5.5	2.5	Y
Opp Rowlands Pharm, Vale Street, Denbigh	Roadside	305386	366191	2.6	NO ₂	N	N	Y - 1.7	1.2	Y
Adj 50 Vale Street, Denbigh	Roadside	305467	366246	2.5	NO ₂	N	N	Y - 3.9	2.0	Y
Haul Fryn Depot, Ruthin	Roadside	312789	358231	2.3	NO ₂	N	N	Y - 1	3.5	Y
Adj 62 Rhos Street, Ruthin	Roadside	312913	358273	2.6	NO ₂	N	N	Y - 0	2.3	Y
Adj. Swayne Johnston Solicitors, Vale Street, Denbigh	Roadside	305308	366130	2.9	NO ₂	N	N	N	1.8	Y
7 Vale Street, Denbigh	Roadside	305290	366130	2.3	NO ₂	N	N	N	2.0	Y
2 Rhyl Road, Denbigh	Kerbside	305805	366480	2.4	NO ₂	N	N	Y - 1.3	0.8	Y
47 High Street, Denbigh	Roadside	305193	366093	2.4	NO ₂	N	N	N	5.9	Y
Adj CO-OP, High Street, Denbigh	Roadside	305229	366082	2.3	NO ₂	N	N	N	5.3	Y
Adj Fairyburn, Rhyl Road, Denbigh	Kerbside	305863	366661	2.5	NO ₂	N	N	Y - 11.4	0.9	Y

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Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Site Height (m)	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
79 High Street, Prestatyn	Roadside	306580	382906	2.6	NO ₂	N	N	N	1.0	N
Adj. Sarone Court, High Street, Prestatyn	Roadside	306795	382638	2.6	NO ₂	N	N	N	1.0	N
Adj. 2 Market Street, Ruthin	Roadside	312502	358376	2.2	NO ₂	N	N	Y - 4	1.4	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide (NO₂)

There are two Air Quality Objectives for nitrogen dioxide, namely:

- the annual mean of 40µg/m³, and
- the 1-hour mean of 200µg/m³ not to be exceeded more than 18 times a year.

There is no continuous monitoring of NO₂ within Denbighshire County Council; therefore compliance with the hourly mean objective cannot be accurately assessed.

The nitrogen dioxide diffusion tube data are summarised in Table 2.2. The full dataset (monthly mean values) are included in Appendix B.

For the 2015 dataset there were no sites where the annual mean Air Quality Objective was exceeded.

There was good data capture across the monitoring network, with the exception of Site DBR43 which had less than 9 month's data available due to the tubes being removed by persons unknown.

There are no sites where the annual mean is greater than 60µg/m³, therefore there are no sites likely to be at risk of exceeding the hourly AQS Objective.

Table 2.2 Results of Nitrogen Dioxide Diffusion Tubes in 2015

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2011 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.79)
								2015 ($\mu\text{g}/\text{m}^3$)
DBK1	Wellington Road, Rhyl	Roadside	N	N	12	N	N	23.11
DBR2	10 Kinmel Street, Rhyl	Roadside	N	N	9	N	N	26.75
DBB3	5 St. Georges Cres., Rhyl	Suburban	N	N	12	N	N	9.31
DBB4	73 Bryn Coed Park, Rhyl	Suburban	N	N	12	N	N	9.88
DBR5	2 Pant Glas, St. Asaph	Suburban	N	N	12	N	N	13.97
DBR48	Adj 1 Vale Street, Denbigh	Roadside	N	N	11	N	N	25.74
DBR23	31 Ruthin Road, Denbigh	Roadside	N	N	12	N	N	17.24
DBR8	1 Plas Elwy Orchard, The Roe, St. Asaph	Suburban	N	N	12	N	N	14.72
DBR9	7 Roe Park, St. Asaph	Suburban	N	N	12	N	N	21.23
DBR10	13 Roe Park, St. Asaph	Suburban	N	N	12	N	N	14.55
DBR24	Denbigh Cutters, 21 Vale Street, Denbigh	Roadside	N	N	12	N	N	32.52
DBR20	25 Park Road, Ruthin.	Roadside	N	N	12	N	N	21.15

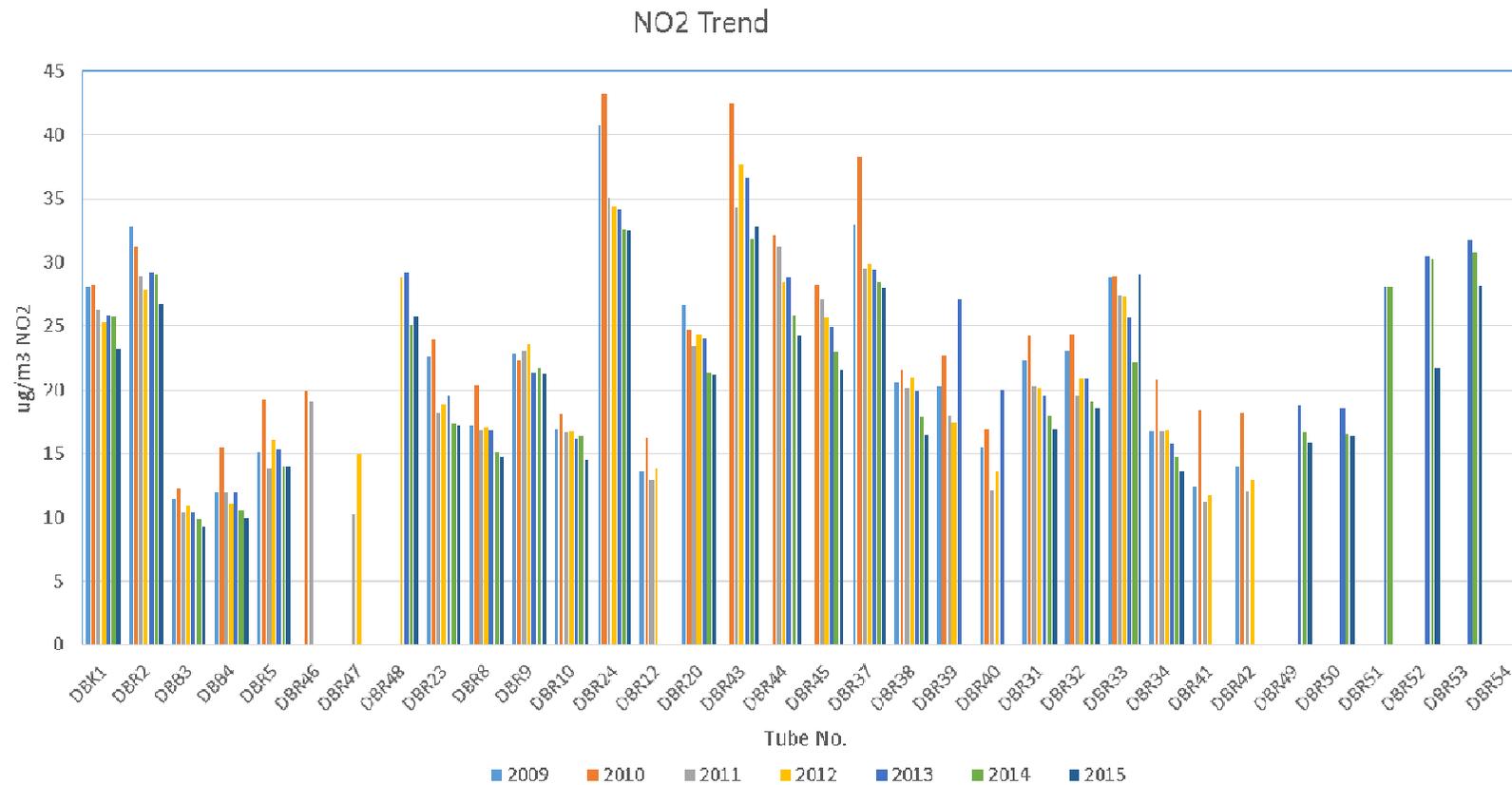
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Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2011 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.79)
								2015 ($\mu\text{g}/\text{m}^3$)
DBR43	Adj HSBC Bank, Vale Street, Denbigh	Roadside	N	N	7	Y	N	32.80
DBR44	Opp Rowlands Pharm, Vale Street, Denbigh	Roadside	N	N	11	N	N	24.18
DBR45	Adj 50 Vale Street, Denbigh	Roadside	N	N	12	N	N	21.57
DBR37	Haul Fryn Depot, Ruthin	Roadside	N	N	12	N	N	27.97
DBR38	Adj 62 Rhos Street, Ruthin	Roadside	N	N	12	N	N	16.47
DBR52	Adj. Swayne Johnston Sol., Vale Street, Denbigh	Roadside	N	N	12	N	N	21.74
DBR53	7 Vale Street, Denbigh	Roadside	N	N	12	N	N	28.24
DBR31	2 Rhyl Road, Denbigh	Kerbside	N	N	12	N	N	16.97
DBR32	47 High Street, Denbigh	Roadside	N	N	12	N	N	18.50
DBR33	Adj CO-OP, High Street, Denbigh	Roadside	N	N	10	N	N	29.05
DBR34	Adj Fairyburn, Rhyl Road, Denbigh	Kerbside	N	N	12	N	N	13.60
DBR49	79 High Street, Prestatyn	Roadside	N	N	12	N	N	15.96
DBR50	Adj., Saronie Court, High Street, Prestatyn	Roadside	N	N	12	N	N	16.39
DBR54	Adj. 2 Market Street, Ruthin	Roadside	N	N	12	N	N	13.19

Table 2.3 Results of Nitrogen Dioxide Diffusion Tubes (2011 to 2015)

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) $\mu\text{g}/\text{m}^3$				
			2011 (Bias Adjustment Factor = 0.83)	2012 (Bias Adjustment Factor = 0.79)	2013 (Bias Adjustment Factor = 0.80)	2014 (Bias Adjustment Factor = 0.81)	2015 (Bias Adjustment Factor = 0.79)
DBK1	Roadside	N	26.3	25.3	25.9	25.8	23.11
DBR2	Roadside	N	28.9	27.9	29.3	29.1	26.75
DBB3	Suburban	N	10.4	10.9	10.4	9.8	9.31
DBB4	Suburban	N	11.9	11.1	11.9	10.5	9.88
DBR5	Suburban	N	13.9	16.1	15.3	14	13.97
DBR46	Roadside	N	19.1	-	-	-	-
DBR47	Suburban	N	10.3	15.0	-	-	-
DBR48	Roadside	N	-	28.8	29.3	25.1	25.74
DBR23	Roadside	N	18.2	18.9	19.5	17.3	17.24
DBR8	Suburban	N	16.9	17.1	16.9	15.1	14.72
DBR9	Suburban	N	23.1	23.6	21.3	21.8	21.23
DBR10	Suburban	N	16.7	16.8	16.2	16.4	14.55
DBR24	Roadside	N	35.1	34.4	34.1	32.6	32.52
DBR12	Suburban	N	13.0	13.9	-	-	-
DBR20	Roadside	N	23.5	24.4	24.0	21.3	21.15
DBR43	Roadside	N	34.3	37.7	36.7	31.9	32.80
DBR44	Roadside	N	31.3	28.5	28.8	25.9	24.18
DBR45	Roadside	N	27.1	25.7	24.9	23	21.57
DBR37	Roadside	N	29.5	29.9	29.4	28.5	27.97
DBR38	Roadside	N	20.1	21.0	19.9	17.9	16.47
DBR39	Roadside	N	18.0	17.4	27.2	-	-
DBR40	Roadside	N	12.2	13.6	20.0	-	-
DBR31	Kerbside	N	20.3	20.1	19.6	18	16.97
DBR32	Roadside	N	19.6	20.9	20.9	19.1	18.50
DBR33	Roadside	N	27.4	27.3	25.7	22.1	29.05
DBR34	Kerbside	N	16.8	16.9	15.8	14.7	13.60
DBR41	Roadside	N	11.2	11.7	-	-	-
DBR42	Roadside	N	12.1	13.0	-	-	-
DBR49	Roadside	N	-	-	18.8	16.7	15.96
DBR50	Roadside	N	-	-	18.5	16.5	16.39
DBR51	Roadside	N	-	-	28.1	28	-
DBR52	Roadside	N	-	-	30.5	30.3	21.74
DBR53	Roadside	N	-	-	31.7	30.7	28.24
DBR54	Roadside	N	-	-	-	16.1	13.19

Figure 2.2 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites



The above figure shows the trend of NO2 concentrations at all the monitoring sites from 2009 through to 2015. From this it can be seen that the 2015 concentrations are lower than those observed in 2010. The 2015 results are at the lower end of the 7 year trend for most sites.

2.2.2 Particulate Matter (PM₁₀)

There is currently no monitoring undertaken for PM₁₀ within Denbighshire.

2.2.3 Sulphur Dioxide (SO₂)

There is currently no monitoring undertaken for Sulphur Dioxide within Denbighshire.

2.2.4 Benzene

There is currently no monitoring undertaken for Benzene within Denbighshire.

2.2.5 Summary of Compliance with AQS Objectives

Denbighshire County Council has examined the results from monitoring in the County. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

3 New Local Developments

3.1 Road Traffic Sources

There are no new/newly identified road traffic sources within Denbighshire.

3.2 Other Transport Sources

There are no new/newly identified other transport sources within Denbighshire.

3.3 Industrial Sources

There are no new/newly identified industrial sources within Denbighshire.

3.4 Commercial and Domestic Sources

There is a new proposed short-term operating reserve (STOR) facility near St Asaph that was granted planning permission on 17th February 2016. An air quality assessment was included in the supporting documentation and it concluded that there will be no exceedences of the relevant air quality objectives:

“Executive Summary

MLM Consulting Engineers Ltd (MLMCEL) has been commissioned by St Asaph Power Ltd (‘the Client’), to carry out an assessment of local air quality impacts associated with the proposed development of a short-term operating reserve (STOR) peaking power plant at their site on land at Cwitr Lane in St Asaph, Denbighshire. The site lies within the administrative area of Denbighshire County Council. The St Asaph Power Ltd STOR at Cwitr Lane comprises of eight spark ignition engines, fuelled by natural gas, for electricity generation that together will generate a total of 16MWe.

The potential impacts of the proposed development on local air quality during the operational phase has been assessed. Dispersion modelling using the Breeze AERMOD 7.9.0.15 dispersion model (version 14134) to predict ground-level

concentrations of pollutants at sensitive human receptor locations has been completed.

The type, source and potential impacts are identified and the measures that should be employed to minimise these impacts are described.

The assessment has found that there will be no exceedences of the relevant air quality objectives at locations of relevant exposure as a result of emissions from the proposed STOR.”

The documents associated with this application reference 46/2015/0984 can be found on the planning website:-

http://planning.denbighshire.gov.uk/Planning/lg/plansearch.page?org.apache.shale.dialog.DIALOG_NAME=gfplanningsearch&Param=lg.Planning

3.5 New Developments with Fugitive or Uncontrolled Sources

There are no new developments with fugitive or uncontrolled sources within Denbighshire.

Denbighshire County Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

Denbighshire County Council confirms that all the following have been considered:

- **Road traffic sources**
- **Other transport sources**
- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

4 Air Quality Planning Policies

Denbighshire County Council's Local development plan 2006 – 2021 was adopted in June 2013 and is available on line at:-

http://www.denbighldp.co.uk/english/adopted_LDP.htm

Policy RD 1 – 'Sustainable development and good standard design' on page 14 of the above document is relevant to air quality issues.

5 Local Transport Plans and Strategies

The Local Transport Plans and Strategies for this County are included in the latest version of the TAIITH – North Wales Regional Transport Plan. This document is available at the following website:-

<http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUK Ewibh5aLn9PPAhWpD8AKHSGyDncQFggnMAA&url=http%3A%2F%2Fwww.flintshire.gov.uk%2Fen%2FPDFFiles%2FPlanning%2FLDP-evidence-base%2FLocal%2FNorth-Wales-Joint-Local-Transport-Plan-2015.pdf&usq=AFQjCNGzBgsUilp9umfJxEXdkbfDwYKx4w>

The Welsh Government no longer funds any of the Travel Consortium and all four (Taith – the North Wales Regional Transport Consortium, TraCC – Covering Mid-Wales, SEWTA – covering South East Wales and SWWITCH – covering South West Wales) were subsequently disbanded. However, Taith, like TraCC and the umbrella ‘Swansea Bay City Region’ which encompasses the four local authorities of Neath Port Talbot, City and County of Swansea, Carmarthenshire and Pembrokeshire, continue to work collaboratively regionally. The title SWWITCH is no longer used.

6 Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

The review of new monitoring data has shown that there are no exceedences of the AQ Objectives in 2015 at any monitoring location in Denbighshire County Council.

6.2 Conclusions relating to New Local Developments

The review of sources of pollution within Denbighshire County Council's area did not identify any new sources likely to result in any exceedances of the Air Quality Objectives and as such there is no requirement for a detailed Assessment to be undertaken.

6.3 Proposed Actions

The Progress Report has considered new monitoring data and a review of emission sources in the area. The assessment identified that there were no exceedences of the air quality objective within the county from existing and new emission sources.

Proposed actions arising from the Progress Report are as follows:

- Continue to monitor air quality within the district; and
- Proceed to a Progress Report in 2017.

7 References

- Local Air Quality Management Technical Guidance LAQM TG.(09) February 2009, published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland
- Denbighshire County Council 2009 – Updating and Screening Assessment
- Denbighshire County Council 2010 – Progress Report
- Denbighshire County Council 2011 – Progress Report
- Denbighshire County Council 2011 – Detailed Assessment
- Denbighshire County Council 2012 – Updating and Screening Assessment
- Denbighshire County Council 2013 – Progress Report
- Denbighshire County Council 2014 – Progress Report
- Denbighshire County Council 2015 – Updating and Screening Assessment
- Denbighshire County Council planning applications available on the planning website:-

<http://www.denbighshire.gov.uk/en-gb/DNAP-8B8F4E>

- TAITH – North Wales Joint Local Transport Plan 2015. This document is available at the following website:-

<http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUK Ewibh5aLn9PPAhWpD8AKHSGyDncQFggnMAA&url=http%3A%2F%2Fwww.flintshire.gov.uk%2Fen%2FPDFFiles%2FPlanning%2FLDP-evidence-base%2FLocal%2FNorth-Wales-Joint-Local-Transport-Plan-2015.pdf&usq=AFQjCNGzBgsUilp9umfJxEXdkbfDwYKx4w>

- Denbighshire County Council's Local development plan 2006 – 2021
This document is available at the following website:-

http://www.denbighldp.co.uk/english/adopted_LDP.htm

- Bias Adjustment Factor Spreadsheet from website:

http://laqm.defra.gov.uk/documents/Database_Diffusion_Tube_Bias_Factors_v06_16-Final.xls

- Biomass calculator tool from website:

<http://laqm.defra.gov.uk/review-and-assessment/tools/emissions.html>

- QA QC Framework pages on the Defra website:-

<http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html>

Appendices

Appendix A: QA/QC Data

Appendix B: 2015 Nitrogen Dioxide diffusion tube results in $\mu\text{g}/\text{m}^3$

Appendix C: Annualisation Table

Appendix A: QA/QC Data

Diffusion Tube Bias Adjustment Factors

The diffusion tubes are supplied and analysed by Environmental Services Group utilising the 50% Triethanolamine (TEA) in acetone preparation method. The bias adjustment factor for 2015 is 0.79 based on 26 studies has been obtained from the Defra website:-

[http://laqm.defra.gov.uk/documents/Database Diffusion Tube Bias Factors v06 16 -Final.xls](http://laqm.defra.gov.uk/documents/Database%20Diffusion%20Tube%20Bias%20Factors%20v06%2016-Final.xls)

Factor from Local Co-location Studies

Denbighshire County Council does not have any continuous monitors within the County and therefore a co-location study is not available to derive a local bias factor.

Discussion of Choice of Factor to Use

Denbighshire County Council does not have any continuous monitors within the County and therefore a co-location study is not available to derive a local bias factor. Thus the national bias adjustment calculator has been used, as for all previous LAQM reports.

PM Monitoring Adjustment

No PM₁₀ monitoring is carried out in the County.

Short-term to Long-term Data adjustment

There was good data capture across the monitoring network, with the exception of Site DBR43 which had less than 9 month's data available due to the tubes being removed by persons unknown.

The data was annualised for this site. See appendix C.

QA/QC of automatic monitoring

Denbighshire County Council did not undertake any automatic monitoring in 2015 and thus there are no QA/QC procedures to report.

QA/QC of diffusion tube monitoring

Environmental Services Group (ESG Didcot) currently holds UKAS accreditation and participates in the Workplace Analysis Scheme for Proficiency (WASP) for NO₂ diffusion tube analysis and the NO₂ Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO₂ concentrations reported are of a high calibre. Quarterly summaries of participating laboratories' performance in the AIR-PT/WASP scheme over the preceding 12 months was obtained from QA QC Framework pages on the Defra website:-

<http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html>

Appendix B: 2015 Nitrogen Dioxide diffusion tube results in $\mu\text{g}/\text{m}^3$

Results of Analysis of Nitrogen Dioxide Diffusion Tubes																					
Station Code	Site Name	WAQF ref No	Site Classification	Part of UK Network	Grid Ref	Tube No.	Nitrogen Dioxide Concentration in Air ($\mu\text{g}/\text{m}^3$) 2015												Tube No.	Average	Bais Adjustment
							January	February	March	April	May	June	July	August	September	October	November	December			
																				0.79	
DBK1	Wellington Road, Rhyl	RHBC/006	A	Yes	SJ 008 814	1	24.6	35.4	35.9	34.6	23.1	23.1	24.2	27.9	29.3	36.5	25.4	31.1	1	29.26	23.11
DBR2	10 Kimmel Street, Rhyl	RHBC/017	A	Yes	SJ 009 813	2	32.3	40	37.4	34.5		22.7	25			41.3	35	36.5	2	33.86	26.75
DBB3	5 St. Georges Cres., Rhyl	RHBC/004	C	Yes	SJ 016 818	3	13.2	18.5	15.2	13	7.5	5.7	6.3	8.6	11.6	16	12.9	12.9	3	11.78	9.31
DBB4	73 Bryn Coed Park, Rhyl	RHBC/005	C	Yes	SJ 021 806	4	13.7	19	16.3	13.9	6.8	7.2	8	9.3	12.3	17.2	14.3	12	4	12.50	9.88
DBR5	2 Pant Glas, St. Asaph	RHBC/007	B	No	SJ 029 746	5	15	22.3	23.9	21.2	16.7	15.4	15.9	14.2	19.2	23.5	15.3	9.6	5	17.68	13.97
DBR48	Adj. 1 Vale Street, Denbigh	RHBC/051	A	No	SJ 053 661	6	34.9	30.1	41.1	33.2	A	25.7	25.7	26.5	35.9	43.7	31.9	29.7	6	32.58	25.74
DBR23	31 Ruthin Road, Denbigh	RHBC/026	A	No	SJ 059 664	7	27.7	24.3	26.8	22.4	16.7	13.1	18.2	17.3	25.3	28.7	22	19.3	7	21.82	17.24
DBR8	1 Plas Elwy Orchard, The Roe, St. Asaph	RHBC/010	B	No	SJ 033 746	8	22.9	15.5	25.2	21.2	16.9	15.8	14.4	17.5	18.1	21.7	18	16.4	8	18.63	14.72
DBR9	7 Roe Park, St. Asaph	RHBC/011	B	No	SJ 032 749	9	27.9	34.2	30	27.5	20.6	22.3	21.5	23.1	27.7	28.9	27.1	31.7	9	26.88	21.23
DBR10	13 Roe Park, St. Asaph	RHBC/012	B	No	SJ 033 749	10	19.9	24.5	21	19.8	11.6	13.8	14.6	10.2	21	24.2	20.5	19.9	10	18.42	14.55
DBR24	Denbigh Cutters, 21 Vale Street, Denbigh	RHBC/027	A	No	SJ 053 662	11	51.3	53.2	53	46.4	36.9	28.5	31.6	18.8	45.7	51.3	40.4	36.8	11	41.16	32.52
DBR54	Adj. 2 Market Street, Ruthin	RHBC/057	A	No	SJ 125 584	12	20.3	21.1	21.7	15.6	13.4	11.3	11.5	7.9	17.4	23.1	17.6	19.4	12	16.69	13.19
DBR20	25 Park Road, Ruthin.	RHBC/023	A	No	SJ 121 583	13	32.8	37.3	29.3	29.7	25.3	18.5	22.3	11.7	29.4	34.1	26.5	24.4	13	26.78	21.15
DBR43	Adj HSBC Bank, Vale Street, Denbigh	RHBC/046	A	No	SJ 053 662	14	47.8	A	51	42.6	A	29	33.6				44.1	42.5	14	41.51	32.80
DBR44	Opp Rowlands Pharm., Vale Street, Denbigh	RHBC/047	A	No	SJ 054 662	15	24.4	A	41.7	38.6	26.4	27.6	24.2	12.4	37	42.7	33.1	28.6	15	30.61	24.18
DBR45	Adj 50 Vale Street, Denbigh	RHBC/048	A	No	SJ 055 662	16	31.1	29.4	32.2	25.2	23.9	21.7	20.5	12.3	32.3	36	30	33.1	16	27.31	21.57
DBR37	Haul Fryn Depot, Ruthin	RHBC/040	A	No	SJ 128 582	17	35.6	41.9	46.3	35.4	33.2	32.6	31.5	16.6	44.9	51	29.8	26.1	17	35.41	27.97
DBR38	Adj 62 Rhos Street, Ruthin	RHBC/041	A	No	SJ 129 583	18	25.5	25.7	23.1	21.8	16.2	16.7	19.9	10	21.7	27.1	20.9	21.6	18	20.85	16.47
DBR52	Adj. Swayne Johnston Sol., Vale Street, Denbigh	RHBC/055	A	No	SJ 053 661	19	30.4	31.3	34.2	25.4	22	20.5	23.4	25.8	26.8	30.2	30.3	30	19	27.53	21.74
DBR53	7 Vale Street, Denbigh	RHBC/056	A	No	SJ 053 661	20	41.9	32.6	47.9	38.7	33.9	31.1	32.7	5.4	43.8	45.5	38.7	36.8	20	35.75	28.24
DBR31	2 Rhyl Road, Denbigh	RHBC/034	A	No	SJ 058 665	21	23.3	25.8	27.4	20.5	16.7	15.9	15.3	17.2	23.6	29	23.7	19.4	21	21.48	16.97
DBR32	47 High Street, Denbigh	RHBC/035	A	No	SJ 052 661	22	25.2	28.7	28.5	29.6	20.7	16.4	19.2	20.1	26.2	26	22.3	18.1	22	23.42	18.50
DBR33	Adj CO-OP, High Street, Denbigh	RHBC/036	A	No	SJ 053 661	23	33.6	42.3	41	37.2	A	28.5	A	30.4	34.4	42.8	34.9	42.6	23	36.77	29.05
DBR34	Adj Fairburn, Rhyl Road, Denbigh	RHBC/037	A	No	SJ 059 667	24	17.1	21.8	22	19	12.3	13.2	10.7	15.4	15.9	23.6	17	18.6	24	17.22	13.60
DBR49	79 High Street, Prestatyn	RHBC/052	A	No	SJ 066 829	25	13.8	23.6	25.8	25.6	16.1	14.5	15.9	17.3	23.2	31.1	18.3	17.2	25	20.20	15.96
DBR50	Adj. Saronie Court, High Street, Prestatyn	RHBC/053	A	No	SJ 068 826	26	14.5	23	28.1	25.9	16.7	14.4	17.6	19.9	23.9	29.6	18.7	16.7	26	20.75	16.39
A)	Sample tube not returned by client																				
B)	Sample tube damaged, unable to analyse																				
C)	Sample tube contaminated, unable to analyse																				
D)	Sample lost during analysis																				
F)	Result widely different and so ignored.																				

Appendix C: Annualisation Table

3 close sites to DBR43 have over 75% data capture so can be used to annualise the tube.																						
Station Code	Site Name	WAQF ref No.	Site Classification	Part of UK Network	Grid Ref	Tube No.	Nitrogen Dioxide Concentration in Air (ug/m3) 2015												Tube No.	Average		
							January	February	March	April	May	June	July	August	September	October	November	December				
DBR24	Denbigh Cutters, 21 Vale	RHBC/027	A	No	SJ 053 662	11	51.3	53.2	53	46.4	36.9	28.5	31.6	18.8	45.7	51.3	40.4	36.8	11	41.2		
DBR43	Adj HSBC Bank, Vale Street, Denbigh	RHBC/046	A	No	SJ 053 662	14	47.8	A	51	42.6	A	29	33.6				44.1	42.5	14	41.5		
Value of DBR24 when DBR43 available							51.3		53	46.4		28.5	31.6				40.4	36.8		41.1		
														Therefore R = 41.2 /41.1 =		1.0						
DBR52	Adj. Swayne Johnston Sol., Vale Street, Denbigh	RHBC/055	A	No	SJ 053 661	19	30.4	31.3	34.2	25.4	22	20.5	23.4	25.8	26.8	30.2	30.3	30	19	27.5		
DBR43	Adj HSBC Bank, Vale Street, Denbigh	RHBC/046	A	No	SJ 053 662	14	47.8	A	51	42.6	A	29	33.6				44.1	42.5	14	41.5		
Value of DBR52 when DBR43 available							30.4		34.2	25.4		20.5	23.4				30.3	30		27.7		
														Therefore R = 27.5 /27.7 =		1.0						
DBR53	7 Vale Street, Denbigh	RHBC/056	A	No	SJ 053 661	20	41.9	32.6	47.9	38.7	33.9	31.1	32.7	5.4	43.8	45.5	38.7	36.8	20	35.8		
DBR43	Adj HSBC Bank, Vale Street, Denbigh	RHBC/046	A	No	SJ 053 662	14	47.8	A	51	42.6	A	29	33.6				44.1	42.5	14	41.5		
Value of DBR53 when DBR43 available							41.9		47.9	38.7		31.1	32.7				38.7	36.8		38.3		
														Therefore R = 35.8 /38.3 =		0.9						
Average R is 1 and so the annualised average for site DBR43 is 41.5 x 1 =							41.5ug/m3															