2011 Air Quality Progress Report for Eden District Council

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

June 2011

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Executive Summary

This report fulfills Eden District Council's legal responsibilities under the Local Air Quality Management process as set out in Part IV of the Environment Act 1995 and the Air Qulity Strategy for England, Scotland, Wales and Northern Ireland. It represents Eden District Council's fifth progress report.

The report provides an update of recent air quality issues in the district, including results of recent monitoring undertaken in the Borough and also any potentially significant sources of air pollution which have been identified since the last assessment which could lead to the risk of an air quality objective being exceeded.

Eden District Council undertook a review of it's air monitoring in the District in early 2010. As a consequence some long term monitoring sites have been discontinued with monitoring being transferred to more urban roadside locations. Results from the new monitoring sites are reported in this Progress Report and indicate that the annual mean air quality objective for NO2 is at risk of being exceeded at 5 locations due to road traffic emissions.

There are currently no Air Quality Management Areas within the District.

There have been no new relevant industrial installations and no new or substantially altered roads within the District since the last report. There are also no new significant commercial, domestic or fugitive sources of emissions.

An application for a large mixed residential/commercial development was approved in 2010 and is due to open in December 2011. It is considered that the predicted increase in traffic around the new development site will have an impact on local air quality. Eden District Council will continue to monitor at relevant locations surrounding the site.

Subsequent proposed actions as a result of this report are:

Proceed to a Detailed Assessment for possible exceedence of NO2 Air Quality Objectives at 5 new monitoring locations where measured NO2 concentrations are close to or above the objective level for this pollutant.

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Appendices

1. Introduction

1.1 Description of Local Authority Area

Eden District Council has the largest geographical area of all Cumbrian Authorities. At 2,146 Km^2 and with a population of 51,700 it is the second largest and most sparsely populated district within England. Approximately one-fifth of the District lies within the Lake District National Park and one quarter within the North Pennines Area of Outstanding Natural Beauty (AONB). It stretches from North Lakeland in the west, to the Pennines in the east, with the Eden Valley running through the centre.

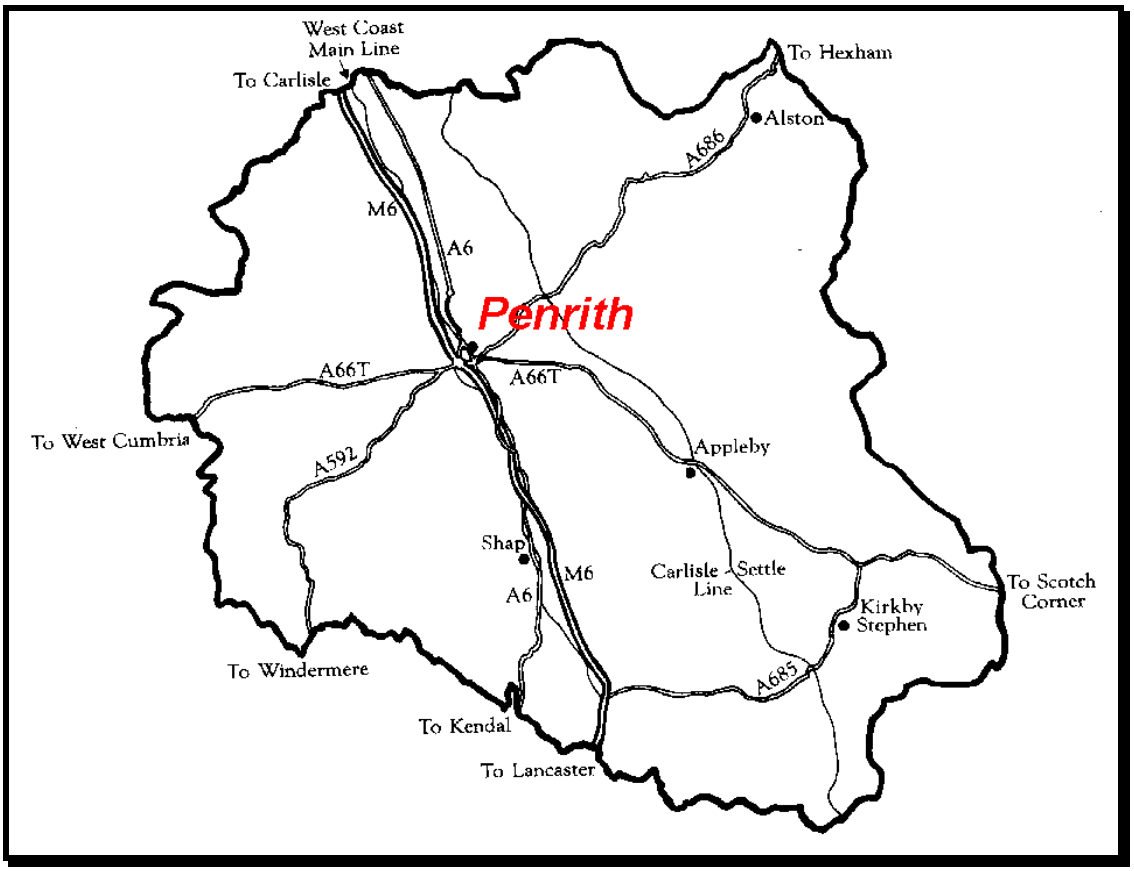
The District benefits from good road transport links running east to west along the A66 trunk road and north/south via the M6 and A6. Most of the county is within a travel time of one hour.

The West Coast Mainline provides rail links to the north and south and the regional railway link from Carlisle to Leeds (via Settle/Carlisle) is of particular importance to settlements in the Eden Valley.

The population of 51,700 is scattered in small villages through a wide rural area. Penrith, Kirkby Stephen, Alston and Appleby are the four main towns with Penrith the largest having a population of 14,882.

A map of the district including the location of all A-roads/trunk roads and the M6 motorway is shown below

Map Of Eden District Council



Map of area showing major highways and settlements

1.2 Purpose of Progress Report

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 Local Air Quality Management 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 Local Air Quality Management (LAQM) **in England** are set out in the Air Quality (England) Regulations 2000 (SI 928), and the Air Quality (England) (Amendment) Regulations 2002 (SI 3043). They are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre $\mu g/m^3$ (for carbon monoxide the units used are milligrammes per cubic metre, mg/m^3). Table 1.1. includes the number of permitted exceedences in any given year (where applicable).

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

Pollutant	Concentration	Measured as	Date to be achieved by
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	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

The Council has been monitoring air quality within the District since 1996 as part of it's local air quality management duties. Previous rounds of review and assessment undertaken by Eden District Council are listed in Table 1.2 below. The first stage review and assessment for Eden District Council was published in 2000. It concluded that the risk of the air quality objectives in respect of carbon monoxide, benzene, 1.3 butadiene, lead, nitrogen dioxide, sulphur dioxide and fine particulates not being met within the prescribed time scales was negligible.

To date, the Council has published three Updating and Screening Assessments of local air quality, in 2003, 2006 and 2009. These reports concluded that air quality currently was meeting tha national objectives and that it was not necessary to undertake a Detailed Assessment or to declare an Air Quality Management Area (AQMA).

The Council has published four previous Progress Reports on Air Quality, in 2004, 2005, 2007, 2008 and 2010. The results of these reports confirmed that a Detailed Assessment for air quality within Eden District Council was not required for any pollutants.

Table 1.2 Summary of Previous Review and Assessments

Year	Monitored Or Calculated Exceedence	Detailed Assessment/ Aqma Required?	Concerns	Actions	Comments
2000 Stage 1	N	N	N	N	N
2003 USA	N	N	N	N	N
2004 Progress Report	Y NO2 Monitoring Brunswick Rd & The Narrows – Annual mean>40	N	NO_2 results:Brunswick Rd for relevant exposure	Relocate NO_2 diifussion tube @ Brunswick Rd for relevant exposure	No relevant exposure at Narrows;diffusion tube @ Brunswick Rd too close to kerb for relevant exposure
2005 Progress Report	Y NO_2 monitoring Brunswick Rd	DA required for NO2	Brunswick Rd	Planning condition requires submission of AQ impact for proposed town centre mixed development	The proposed town centre mixed develop-ment would have potential impacts on traffic flows and air quality
2006 USA	N	Possible DA required for NO2	Brunswick Rd	Decision about Detailed Assessment delayed until modelling data received	
2007 Progress Report	N	N	N	N	p.8 mistaken reference to 50% TEA in water instead of 50% TEA in acetone lab preparation for diffusion tubes
2008 Progress Report	N	N	Air quality impacts of proposed mixed development assessed as not likely to cause AQ objectives to be exceeded	Increased NO_2 concentrations likely at some locations due to mixed dev. Examine in 2009 USA	Since this AQ report was published the development is being redesigned due to collapse of funding
2009 USA	N	N	Future of new mixed development still uncertain.Further update to be provided in the next Progress Report (due in 2010)		
2010 Progress Report	N	N	Future of new mixed development still uncertain.Further update to be provided in the next Progress Report (due in 2011)	Relocate diffusion tubes from outlying areas to Penrith urban areas	Since this AQ report was published a revised air quality impact assessment has recently been submitted which indicates that there will be exceedences of the annual mean objective adjacent to a junction which will be newly formed as part of the development. The assessment along with the proposed mitigation measures are currently being reviewed

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Eden District Council has no automatic monitoring sites within its boundaries.

2.1.2 Non-Automatic Monitoring

Nitrogen dioxide is currently monitored within Eden District Council through the use of passive diffusion tubes. Details of each site are given below. The Council utilises tubes provided and analysed by Gradko International Ltd using 50% TEA (Triethanolamine) in acetone, which are typically exposed for four week periods in accordance with the National NO_2 Network exposure calendar. The laboratory is accredited to NAMAS and UKAS BS EN ISO 9001 and has implemented the methodology set out in the Harmonisation Practical Guidance. Results from the WASP[1] scheme show good performance and the laboratory precision is also good.

The 2010 results have been corrected for a bias using a factor of 0.99 for Gradko (R&A website, spreadsheetversion 4/11). Further information on quality assurance/quality control for the diffusion tubes is provided in Appendix B.

Eden District Council undertook a review of the Council's nitrogen dioxide monitoring programme at the beginning of 2010. As a result of this review new monitoring locations were identified and some were discontinued. The review has led to an increase in monitoring within the main urban centre of Penrith. Diffusion tubes have also been located to relevant locations adjacent to the A6 (Eamont Bridge) and the A66 (Kirby Thore). A summary of the discontinued, relocated and new monitoring sites is shown in the table below.

The results of the new monitoring data is presented in Table 2.1 and Table 2.2 below.

Note: [1] The Workplace Ananlysis Scheme for Proficiency Scheme is an independeant analytical performance testing scheme operted by the Health and Safety laboratory

Table 2.1 Summary of Discontinued, Relocated and New Monitoring Locations

Location	Status	Grid reference
Tebay	Discontinued	X361742 Y504785
Threlkeld (Guard House)	Discontinued	X334634 Y526258
The Narrows	Discontinued	X351531 Y530206
Brunswick Rd	Relocated to relevant location on Brunswick St	X351485 Y530357
Middlegate	New Site	X351485 Y530248
Bridge Lane	New site	X351838 Y529734
Victoria Rd	New site	X351733 Y529918
Sticklandgate	New site	X351322 Y530516
Eamont Bridge (A6)	New site	X363521 Y525330
Kirkby Thore (A66)	New site	X363521 Y525330
Kirkby Stephen(Nateby Junction)	Relocated to new relevant location in Kirby Stephen	X377511 Y508537
Alston	Relocated to new site in Alston	X371722 Y546488
Appleby	Relocated to a new site in Appleby	X368365 Y520361
Env Agency	No change	X351072 Y529081

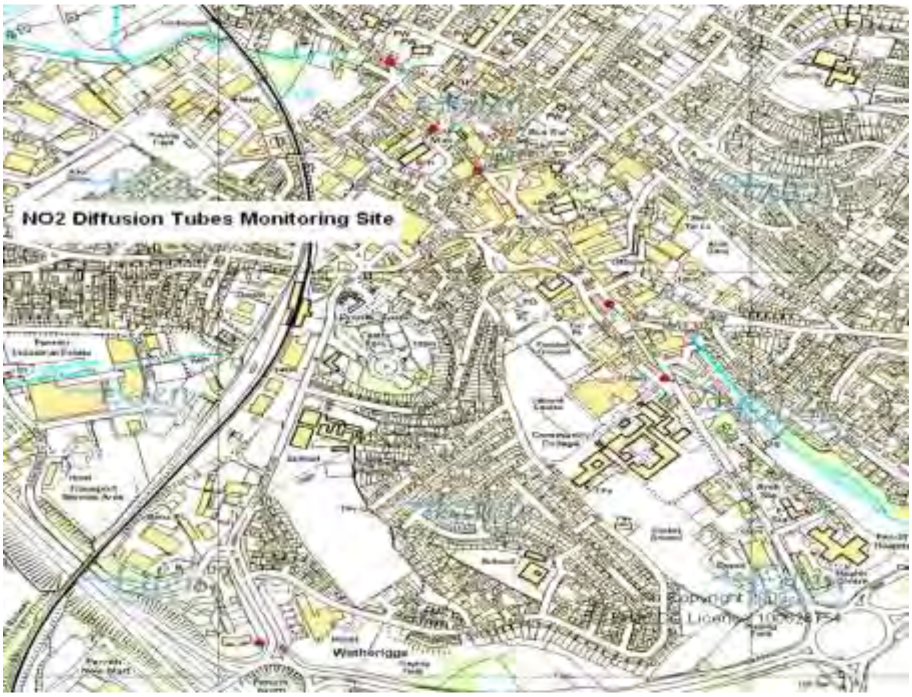
Note: All sites monitored during 2010 with the exception of the EA represent new monitoring locations.

Table 2.2 Details of New Non- Automatic Monitoring Sites 2010

Site Name	**Site Type**	**OS Grid Ref**	**Pollutants Monitored**	**In 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?**
Victoria Rd	Roadside	X351733 Y529918	NO_2	N	Y	2.5m	Y
Kirkby Stephen	Roadside	X377511 Y508537	NO_2	N	Y	3m	Y
Appleby	Roadside	X368365 Y520361	NO_2	N	Y	3.5m	Y
Env Agency	Urban Background	X 351075 Y 529082	NO_2	N	N	20m	Y
Middlegate	Roadside	X351485 Y530248	NO_2	N	Y	7m	Y
Brunswick Rd	Roadside	X351402 Y530351	NO_2	N	Y	2m	Y
Stricklandgate	Roadside	X351322 Y530516	NO_2	N	Y	2m	Y
Alston	Roadside	X371722 Y546488	NO_2	N	Y	1.5m	Y
Bridge Lane	Roadside	X351838 Y529734	NO_2	N	Y	4m	Y
Kirkby Thore	Roadside	X363523 Y525329	NO_2	N	Y	5m	Y
Eamont Bridge	Roadside	X352246 Y528667	NO_2	N	Y	2.5m	Y

Maps of Non-Automatic Monitoring Sites 2010

Penrith

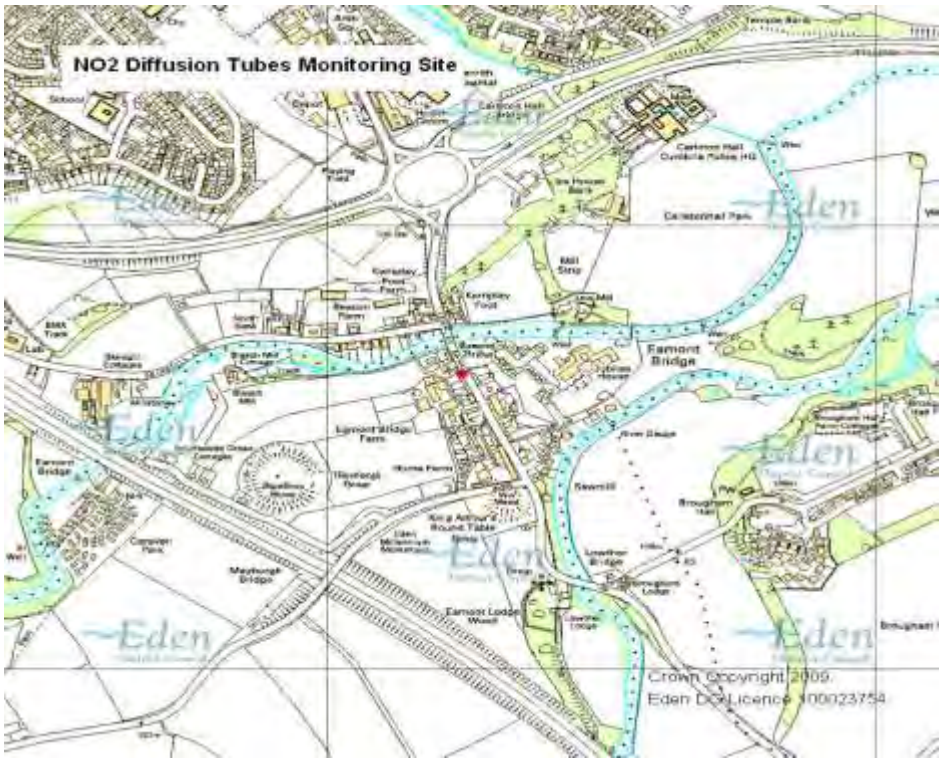


Kirkby Stephen

Alston

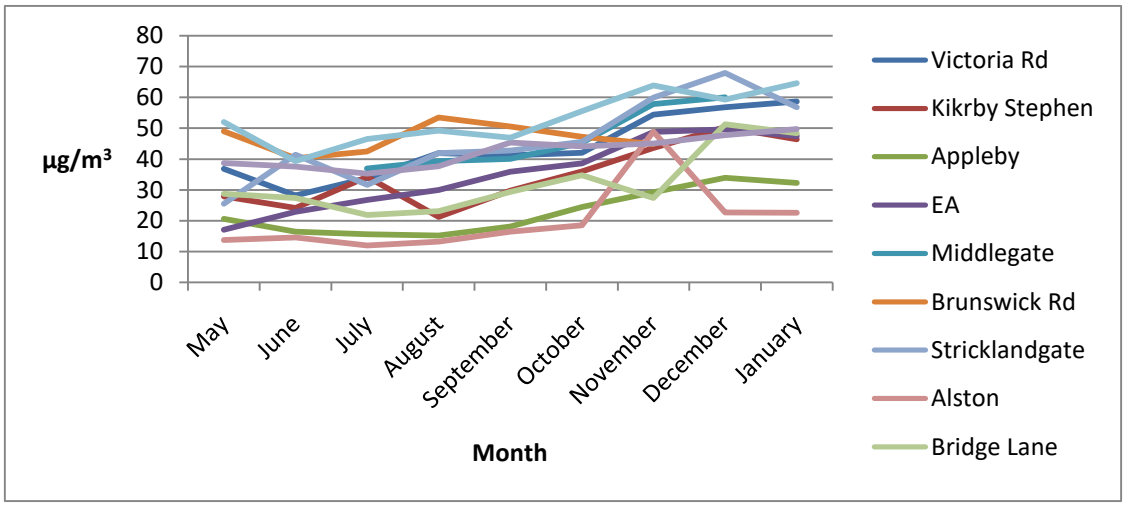
Kirkby Thore

Eamont Bridge



2.2 Comparison of New Monitoring Results with Air Quality Objectives

Figure 2.1 Monthly Mean NO_2 Concentrations 2010



As a general observation the seasonal variations in Figure 2.1 above shows higher concentrations of nitrogen dioxide in the winter months across the District.

Table 2.3 Results of Nitrogen Dioxide Diffusion Tubes 2010

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2009 %	*Bias Adjusted Annual Mean Conc
ED1	Victoria Rd	N	66.7	44.7
ED2	Kirkby Stephen	N	66.7	35.4
ED3	Appleby	N	66.7	22.9
ED4	Env Agency	N	100	37.1
ED 5	Middlegate	N	66.7	44.6**
ED6	Brunswick Rd	N	66.7	58.8
ED7	Stricklandgate	N	66.7	47.2
ED8	Alston	N	66.7	21
ED9	Bridge Lane	N	75	33.4
ED10	Kirkby Thore	N	66.7	43.9
ED11	Eamont Bridge	N	66.7	54.6

*Bias adjustment factors obtained from the UWE website applied to the annual mean diffusion tube results.

2004 Bias Adjustment Factor = 1.10

2005 Bias Adjustment Factor = 1.10

2006 Bias Adjustment Factor = 1.01

2007 Bias Adjustment Factor = 1.04

2008 Bias Adjustment Factor = 0.93

2009 Bias Adjustment Factor = 0.99

2010 Bias Adjustment Factor = 0.99

** Location represents the main shopping area where people may be present for 1 hour or more. It is non residential therefore the I hour objective level of 60 ugm-3 applies.

Long term to Short Term Adjustment

It should be noted that results with the exception of ED4, are based on the estimation of the annual mean from short term monitoring data (period means). The period means have been adjusted following the guidance set out in Box 3.2 of LAQM.TG(09). Details of how the results have been adjusted are set out in Appendix A.

2.2.2 Results of Non- Automatic Nitrogen Dioxide Monitoring: Comparison with Nitrogen Dioxide Objectives

The estimated annual mean results from new monitoring sites located in 2010 indicates that there are 5 locations where there may be a risk of the annual mean nitrogen dioxide objective level of 40μg/mg3 being exceeded. There is therefore a requirement for Eden District Council to undertake a Detailed Assessment of these locations.

The aim of the Detailed Assessment is to determine, with reasonable certainty, whether or not there is a likelihood of the objectives not being achieved. The assumptions within the Detailed Assessment will be considered in depth, and the data that is used or collected, quality assured to a high standard. This is to allow the authority to have confidence in the decision that it reaches to declare or not declare an Air Quality Management Area. Where a likely exceedence of the objective is identified, then the authority will also need to determine the magnitude and geographical extent of the exceedence.The results of the Detailed Assessment will be reported in 2012.

2.2.3 Particulates

No monitoring for PM10 has been undertaken by the Council. Previous Review and Assessments have not identified any significant sources.

2.2.4 Sulphur Dioxide

There is currently no automatic or non-automatic monitoring of SO_2 concentrations carried out by Eden District Council. Previous SO_2 monitoring using a 'bubbler' has indicated it is unlikely the AQ objectives will be exceeded in a densely populated

2.2.5 Benzene

No monitoring for benzene has been undertaken by the Council. Previous Review and Assessment has not identified any significant sources.

2.2.6 Other Pollutants Monitored

No monitoring for other pollutants has been undertaken by the Council. Prvious Review and Assessment work has not identified any significant sources.

2.2.7 Summary of Compliance with AQS Objectives

Monitoring undertaken in Eden District Council during 2010 has identified five locations where there may be a risk of the annual mean nitrogen dioxide objective level being exceeded.

Eden District Council has examined the results from monitoring undertaken in 2010. Concentrations have indicated that there may be a risk of the annual mean nitrogen dioxide objective level being exceeded at five locations, therefore there is a requirement for Eden District Council to proceed to a Detailed Assessment.

3. New Local Developments

This section deals with any changes within Eden District Council since the last Review and Assessment Report in 2009 that may affect air quality.

3.1 Road Traffic Sources

3.1.1 Narrow congested streets with residential properties close to the kerb

Concentrations are often higher where traffic is slow moving, with stop/start driving, and where buildings on either side reduce dispersion. Recent government guidance advises that the passed use of screening models such as the DMRB have not proved helpful at identifying potential exceedences at a national level. New guidance produced in 2009 indicates that these can only be identified by monitoring. Previous assessments undertaken by Eden DC have identified “The Narrows” as being a worst case location as a narrow congested street. Nitrogen dioxide has been monitored at this site for several years and has indicated that concentrations are below the objective levels for this pollutant. As discussed in section 2 a review of our monitoring sites was undertaken in 2010 and further consideration was given to residential properties which are located adjacent to the narrow congested streets close to junctions where traffic flows exceed 5000 vehicles per day. Residential property on Stricklandgate, Victoria Rd, King Street and Eamont Bridge have been identified for monitoring which is currently underway. Results of this monitoring is reported in section 2. There are currently no newly identified locations since the last review and assessment report.

Eden District Council confirms that there are no new/newly identified locations where residential property is close to a road with buildings either side since the last review and assessment.

3.1.2 Busy Streets where people may spend more than 1 hour or more

Busy street locations (more than 10,000 vehicles per day) where individuals may regularly spend 1 hour or more have been considered and identified in previous review and assessment work ie the town centres shopping areas of Penrith, Kirkby Stephen, Alston and Appleby. Monitoring at these locations has not identified any exceedences of either objective level for nitrogen dioxide.

Eden District Council confirms that there are no new/newly identified locations where people spend more than 1 hour or more since the last review and assessment.

3.1.3 Roads with a High Flow of Buses and/or Heavy Goods Vehicles

Penrith has one industrial estate located on the southern outskirts of the town and situated just off junction 40. The main route into the estate is not close to residential property and there is no relevant exposure within 10m of the road.

Previous review and assessment work has also considered the M6 and the A66 which passes through the District. Use of the DMRB screening tool has indicated that exceedences of the PM10 and NO_2 objectives along these routes is unlikely.

Recent limited traffic counts have been carried out on the main routes into Penrith where relevant exposure is possible. The counts have indicated that flows of buses and HGV's are low <5%.

Eden District Council confirms that there are no new/newly identified roads with high flows of buses/HGV's

3.1.4 Junctions

Previous assessment work has considered the two busiest junctions in the District ie Junction 40 M6 Motorway Roundabout and Kemplay Roundabout. Use of the DMRB screening tool has indicated that exceedences of the PM10 and NO_2 objectives at these junctions is unlikely. Results from a nitrogen dioxide tube monitoring site located on the Environment Agency building adjacent to the roundabout confirms that levels are significantly below the objective levels. A large mixed development known as Penrith New Squares (due to open in Dec 2011) will result in the formation of new junction on Victoria Rd. An air quality impact assessment has been undertaken which confirms that there will be a deterioration in air quality as a result. The assessment and the mitigation measures are presently being reviewed by the Council. Monitoring of nitrogen dioxide levels at relevant locations adjacent to the new juntion is currently being undertaken and will continue. Results from this monitoring will be reported in the next Progress Report

Eden District Council confirms that there will be a new junction which will need to be considered in future review and assessment work. Monitoring is currently underway and will continue. Results from this monitoiring will be reported in the next review and assessment report.

3.1.5 New Roads Constructed or Proposed since the last Review and Assessment

As part of the Penrith New Squares development two new roads will be constructed on the site. An air quality assessment has been undertaken which indicates that there will be a deterioration in air quality as a result. The assessment is currently being reviewed.

Eden District Council has identified two new proposed roads which will need to be considered in future review and assessment work. Monitoring will be undertaken once the roads have been constructed and in use.Results from this monitoring will be reported in the next review and assessment report.

3.1.6 Roads with Significantly Changed Traffic Flows

Updated traffic data indicates that there are no roads within the authority which have experienced a significant change (25% increase) in traffic since the last review and assessment. It should however be noted that the Penrith New Squares Development is predicted to result in a significant increase in traffic flows along Victoria Rd and the surrounds. An air quality impact assessment has been undertaken which confirms that there will be a deterioration in air quality as a result. The assessment is currently being reviewed by the Council. Monitoring of nitrogen dioxide levels along this traffic route is currently being undertaken and will continue. Results from this monitoring will be reported in the next Progress Report.

Eden District Council confirms that there are roads which are likely to experience a significant change in traffic following the opening of the Penrith New Sqaures Development (scheduled Dec 2011). Monitoring is currently underway and will continue. Results will be reported in the next review and assessment report (April 2012).

3.1.7 Bus and Coach Stations

Penrith has one small bus station located in Sandgate. Information provided by the operator indicates bus movements are well below 2,500 movements per day. Technical Guidance LAQM.TG(09) considers bus stations with less that 2,500 bus movements per day as not being significant. Therefore no further consideration of this section is required.

Eden District Council confirms that there are no relevant bus stations within the local authority area.

3.2 Other Transport Sources

3.2.1 Airports

Eden District Council confirms that there are no airports in the Local Authority area.

3.2.2 Railways (Diesel and Steam Trains)

The main West Coast railway line, the main passenger train route between the South and Glasgow, passes through Penrith and minerals are transported from and to locations within Eden.

3.2.3 Stationary Trains

Locations where diesel locomotives may regularly remain stationary for 15 mins or more have been considered in previous review and assessments. Two locations have been previously identified involving the loading/unloading of products at Shap Blue Quarry and at British Gypsum. However there is no relevant exposure within 15m of these locations. No other locations within the district have been identified where trains remain stationary for more than 15 minutes.

3.2.4 Heavily Trafficked Railway Lines

The section of railway track passing through the Eden DC area is not listed in Table 5.1 of the Technical Guidance and is therefore not considered to be sufficiently heavily trafficked as to cause an exceedence of an air quality objective, furthermore background concentrations do not exceed 25$\mu g/m^3$ in any part of the district.

Eden District Council confirms that there are no new locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m, or has any railway lines which are considered heavily trafficked

3.2.5 Ports (Shipping)

Not applicable.

3.3 Industrial Sources

A list of all permitted processes located within the authority is provided in appendix C.

There have been no new industrial installations, major fuel storage depots, petrol stations or poultry farms introduced into the area since the last Review and Assessment. In fact the number of permitted processes has decreased slightly from the previous year; a quarry has been ‘mothballed’ for 12 months and a mobile crusher has surrendered its permit.

Eden District Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority

3.4 Commercial and Domestic Sources

3.4.1 Domestic

Eden District Council confirms that there are no new/newly identified domestic sources that have not been adequately considered in previous rounds of Review and Assessment.

3.4.2 Commercial

Two biomass combustion plants located within the local authority area; at Newton Rigg College and the Veterinary Laboratories Agency (VLA) were considered in previous review and assessments. Both are rated at 150KW and are situated in very rural locations. Neither plant exceeds the threshold emission rates provided in the nomograms in Figs 5.19 and 5.20 of the technical guidance.

A biomass boiler is proposed as part of the Penrith New Squares development. The biomass boiler will provide a thermal capacity of circa 750kW and will be fuelled by a renewable source of wood pellets. An air quality impact assessment was required as part of the application and concludes that the impact will be negligible. The assessment is currently being reviewed.

Eden District Council confirms that there are no relevant biomass combustion plant in the Local Authority

3.5 New Developments with Fugitive or Uncontrolled Sources

Potential sources of fugitive or uncontrolled particulate matter include landfill sites, quarries, unmade haulage roads on industrial sites, waste transfer stations and potential sources of fugitive particulate emissions. There are no known sources of fugitive or uncontrolled sources of PM_{10} which have not been previously considered or controlled in the R & A regime since the last review and assessment. A review of complaints received by Eden District Council during 2010/2011 has not indicated any significant dust nuisance complaints within the district

Eden District Council confirms that there are no new potential sources of fugitive particulate matter emissions in the Local Authority area.

4 Local/Regional Air Quality Strategy

Eden District Council does not have Local Air Quality Strategy but contributes to the regional Local Transport Plan (LPT 2)

5 Planning Applications

An application for a large mixed residential/commercial development on Southend Rd was approved in 2010. The application had an extant permission however a revised Air Quality Impact Assessment was undertaken at the request of the Council. The impact assessment concludes that there will be a deterioration in air quality as a result of the development. The assessment including the mitigation measures proposed are currently being reviewed.

Land to the eastern outskirts of Penrith is currently being considered for the allocation 2,500 residential property The council is in the process of commissioning a report on the possible impact this would have on the local road network.

An application was approved in Oct 09 for a supermarket on Brunswick Rd. The supermarket is due to open at the end of the year. As part of the application an air quality impact assessment was submitted. The assessment indicated that the development would result in a negligible impact on air quality. Monitoring along Brunswick Rd has been undertaken for a number of years and will continue.

Land to the north of Eden Business Park has been allocated for the extension of the Gillwilly Industrial Estate. A new road linking the industrial estate directly to Junction 40 will form part of the proposals.

6 Air Quality Planning Policies

Eden District Council's local development framework 'Core Strategy Development Plan' was adopted at full council on the 31 March 2010. The Strategy sets out a strategic vision and strategic policies to guide the growth of the District up to the year 2025. It also contains a range of development control policies against which planning applications will be assessed. It is accompanied by a Final Sustainability Appraisal undertaken by Entec (setting out the likely social, economic and environmental effects of the policies and proposals).

This Progress Report lists the Council's policies which may have an affect on air quality. It should be noted that Eden District Council's Environmental Protection Unit also follows the guidance set out in the Environmental Protection UK Guidance 'Air Quality: Planning for Development' when considering planning applications where air quality may be a material consideration. This updated guidance deals with air quality concerns within the development control process and is closely followed to ensure there is a clear understanding between environmental health, planning. and the applicant. In the event that an AQIA is required we endeavour to work closely with any private consultants involved from an early stage to help specify the extent of the investigation that will be required. Once the AQIA is submitted we evaluate it's findings and suitability and then make comments to the planning department.

Development Control policies include:

CS 5 Transport and Accessibility

The council will work with partner organisations to ensure that development accords with the following principles:

1. **Focus the majority of new development in the Key services Centres of Penrith, Appleby, Alston and Kirby Stephen and the Local Service Centres which are accessible by a variety of modes of transport, in particular public/community transport**.
2. **Promote development that will reduce reliance on the private car to access shops, services and employment opportunities**.
3. Promote improvements in accessibility for all people regardless of disability, age, gender or ethnicity.
4. **Support the maintenance and enhancement of the public transport network including access to and use of rail services (including freight transport).**
5. **Support justified proposals for improvements on the national and regional road networks where this would resolve safety problems or facilitate environmental enhancement and planned development, including the provision of a new road linking the Gilwilly Industrial Estate/Eden Business Park to Junction 41 of the M6.**
6. Provide adequate levels of car parking to service the key centres of Penrith, Appleby, Alston and Kirkby Stephen
7. **Promote the use of walking and cycling by making those modes more integrated, accessible, safer and attractive**
8. **Promote a healthy lifestyle through travel choice**
9. **Reduce the environmental impact of travel, to conserve energy and reduce air pollution by limiting the growth in traffic**
10. **Promote transport proposals that will protect or enhance the built and natural environment**
11. **Promote community based alternatives to traditional public such as car pools, car sharing and community mini bus services such as Fellrunner and Plusbus**
12. **Promote the use of travel plans for larger developments**

CS6 Developer Contributions

Planning obligations will be sought where implementation of a development would create a need to provide additional or improved infrastructure, amenities or facilities.

Contributions may be sought for the following:

1. Affordable Housing
2. Education
3. Health facilities
4. **Transport infrastructure**

5. Open space and leisure
6. Community and cultural facilities
7. **Environmental Improvements**
8. Drainage/flood prevention
9. Water and sewerage infrastructure

CS8 Making Efficient Use of Land

Housing Schemes should;

1. Have a minimum density of 30 dwellings per hectare. Higher densities will be expected in locations close to town centres which are accessible by a range of means of transport. Lower densities may be considered where there is a need to preserve the character of the area.
2. Provided at least 30% of new dwellings district wide on brownfield land and buildings including the conversion of traditional agricultural/farm buildings

CS19 Energy Conservation, Efficiency and Production in New Developments

Applications for new developments should seek to maximise the potential for energy conservation and efficiency and the use of low carbon energy sources. Consideration should be given to design, construction, layout, orientation,massing, internal design, materials used, insulation and heat recovery of the scheme.

CS20 Renewable Energy

Renewable energy proposals will be supported particularly where they contribute towards meeting and exceeding the minimum renewable energy targets set out in the RSS and where there are no significant unacceptable effects which cannot be mitigated or are not outweighed by the national and regional need for renewable energy development or the wider environmental, social and economic benefits that the scheme may bring.

7 Local Transport Plans and Strategies

The Local Transport Plan (LTP) is the statutory document that sets out the County Council's vision, strategy and policies for transport. The majority of air quality issues in the UK relate to emissions from the road transport sector. Measures to improve air quality on a local scale are thus closely related to the Local Transport Plan (LTP2). A number of strategies have been developed through the LTP2 to encourage and improve public transport, cycling and walking. Measures within the LTP that can have an effect on bringing about air quality improvements in Eden District Council are identified below:

The County Council will continue to develop local cycle networks in Penrith, Kirkby Stephen and Appleby. Recent improvements include upgrading the cycling/walking routes from Newton Rigg to Penrith and improved signage around Penrith.

Support for bus services will be focussed on links to and from Key Service Centres of Penrith, Appleby, Alston and Kirkby Stephen and on Penrith town services.

Priority rail stations in Eden for improvements including accessibility of platforms and provision of real time information are Penrith and the North Lakes on the West Coast mainline, and Langwathby, Lazonby, Appleby and Kirkby Stephen on the Settle-Carlisle line.

Priorites for work travel plans will be the county council's own offices, the district council and the Environment Agency.

In Kirkby Stephen and Appleby the county council will continue to work with local authorities and other agencies to integrate transport measures with proposed urban design and public realm projects.

Realistic opportunities will be sought to take forward the Gilwilly link road proposal in Penrith through developer funding, in the interests of facilitating economic regeneration while reducing the impact of traffic and enhancing the town centre environment.

8 Climate Change Strategies

The Council is committed to tackling the causes and effects of climate change and is in the process of drafting its Climate Change Strategy timetabled for publication in November 2011. This Strategy will draw together the various commitments the Council has made to carbon reduction and to improving its environmental performance including the following:

- Carbon Management Plan (Carbon Trust)
- Cumbria Business Environment Network
- Cumbria Climate Change Action Plan and Cumbria Climate Change Commitment (Eden Variation)
- Eden District Council Environmental Policy and Environmental Policy Action Plan
- Nottingham Declaration

The Eden Climate Change Strategy will serve as the overarching policy framework for delivering the Council's various commitments under these initiatives and will align with other Eden District Council policies, including this one and the Core Strategy. Further details will be provided in the next Progress Report due in 2011.

9. Implementation of Action Plans

Eden District Council has not declared any Air Quality Management Area's and therefore there is no requirement or necessity to produce an Air Quality Action Plan.

10 Conclusions and Proposed Actions

10.1 Conclusions from New Monitoring Data

Results from monitoring NO2 levels during 2010 at 5 new locations; Kirkby Thore, Eamont Bridge, Stricklandgate, Brunswick Rd and Victoria Rd, using single passive diffusion tubes has identified that there may be risk of the annual mean nitrogen dioxide level being exceeded. Eden District Council is therefore required to undertake a Detailed Assessment at these locations. The Detailed Assessment will be completed in 2012.

There are currently no Air Quality Management Areas within the District.

10.2 Conclusions relating to New Local Developments

The Penrith New Squares development was approved in 2010 and is due to open in December 2012. An Air Quality Impact Assessment has been undertaken and is currently being reviewed by the Council. The impact of the development on local air quality will be considered in future Review and Assessment reports.

A new supermarket on Brunswick St is due to open later this year. The impact of the development on local air quality will be considered in future review and assessment reports.

10.3 Proposed Actions

Results from the new monitoring sites indicates that there is a risk of the nitrogen dioxide annual mean objective being exceeded at 5 locations within the district. Eden District Council is therefore required to proceed to a Detailed Assessment. The purpose of the Detailed Assessment will be to determine with reasonable certainty whether or not there is a likelihood of the annual mean objective not being achieved. The assumptions within the Detailed Assessment will be considered in depth, and the data that is collected quality assured to a high standard.to allow the local authority to have confidence in the decision that it reaches to declare or not declare an Air Quality Management Area. The Detailed Assessment will be completed in 2012.

An application for a major mixed use development was approved in 2010. The impact of the development will be considered in future Review and Assessments.

11 References

Technical Guidance LAQM.TG(09)

Eden District Council Air Quality Review and Assessment Reports:

Air Quality Review and Assessment Stage 1 Report

Air Quality Review and Assessment Updating and Screening Assessment 2003

Air Quality Review and Assessment Progress Report 2004

Air Quality Review and Assessment Progress Report 2005

Air Quality Review and Assessment Updating and Screening Assessment 2006

Air Quality Review and Assessment Progress Report 2007

Air Quality Review and Assessment Progress Report 2008

Air Qualtiy Review and Assessment Updating and Screening Report 2009

Air Quality Review and Assessment Progress Report 2010

Defra Local AuthoritySupport Website

https://laqm.defra.gov.uk/

Cumbria County Council Local Transport Plan (LPT2)

Appendices

Appendix A: Monthly Mean Nitrogen Dioxide Concentrations 2010

Raw unbiased results from the NO2 diffusion tube survey are presented below

Site ID	Location	Nitrogen Dioxide Monthly Mean Concentrations µg/m³												Period mean
		Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	
ED 1	Victoria Road					36.8	28.2	33.8	41.9	41.2	42	54.3	56.7	41.8
ED 2	Kirkby Stephen					27.8	24.1	34.2	21.2	29.7	36	43.5	50.3	33.5
ED 3	Appleby					20.6	16.4	15.6	15.2	18.1	24.4	29.2	33.9	21.7
ED 4	Env Agency	45.4	50.2	43.6	36.5	17	22.8	26.7	29.9	35.9	38.6	48.8	49.6	37.1
ED 5	Middlegate					C	A	36.9	39.3	40	45.2	57.8	60	46.5
ED 6	Brunswick Road					48.9	40.2	42.4	53.4	50.5	47.2	44.8	-	46.7
ED 7	Stricklandgate					25.5	41.4	31.6	41.9	42.7	45.6	59.9	67.9	44.65
ED 8	Alston					13.7	14.5	11.9	13.1	16.4	18.5	48.9	22.6	19.9
ED9	Bridge Lane				34.4	28.7	27.3	21.8	23	29.3	34.7	27.3	51.3	30.9
ED10	Kirkby Thore					38.6	37.5	35.2	37.6	45.3	44.1	45	47.7	41.4
ED11	Eamont Bridge					52	39.3	46.5	49.2	46.9	55.5	63.9	59.3	51.6

Short-term to Long-term Data Adjustment

The NO_2 concentrations presented above are in essence period means. Period means are not directly comparable with the annual mean AQO and therefore all monitoring data have been adjusted based upon the methodology contained within LAQM.TG(09). The approach is based on the principle that patterns in pollutant concentrations are usually consisitent across broad regions and therefore considers the relationship between period means and annual means at monitoring stations in the same region. The adjustment procedure is as follows:

1. Identify two to four nearby, long term, continuous monitoring sites, ideally those forming part of the national network. These should be background sites to avoid any local effects that may occur at roadside locations, and should wherever possible lie within a 50 mile radius. Unfortunately due to Eden's remote location, analysers located up to approximately 100 mile radius have been used. This has been undertaken after consultation with the Defra helpdesk.
2. Obtain the annual mean,Am, for the calendar year for these sites
3. Work out the period means, Pm, for the periods of interest

4. Calculate the ratios, R, of the annual mean to period mean
5. Multiply the measured period mean concentration,M by this adjustment factor R to give an estimate of the annual mean for 2010.

Victoria Rd- Annual to Period Mean Factor

Monitoring Site	Annual Mean NO_2 concentration 2010	Data Capture (%)	Period Mean Conc 7.5.10-11.1.01	Data capture (%)	Ratio Annual:Period
Blackpool	30.8	16.1	-	-	-
Preston	40.8	75.2	43.6	66.0	-
Sunderland	15.5	96.2	14.5	95.15	1.07
Wigan	26..5	99.3	24.1	99.5	1.08
Average					1.08

Kirkby Stephen- Annual to Period Mean Factor

Monitoring Site	Annual Mean NO_2 concentration 2010	Data Capture (%)	Period Mean Conc 1.5.10-11.1.11	Data capture (%)	Ratio Annual:Period
Blackpool	30.8	16.1	-	-	-
Preston	40.8	75.2	44.2	65.55	-
Sunderland	15.5	96.2	14.6	94.97	1.06
Wigan	26.5	99.3	24.7	99.49	1.07
Average					1.07

Appleby- Annual to Period Mean Factor

Monitoring Site	Annual Mean NO_2 concentration 2010	Data Capture (%)	Period Mean Conc 1.5.10-11.1.11	Data capture (%)	Ratio Annual:Period
Blackpool	30.8	16.1	-	-	-
Preston	40.8	75.2	44.2	65.55	-
Sunderland	15.5	96.2	13.32	94.97	1.06
Wigan	26.5	99.3	24.7	99.49	1.07
Average					1.07

Middlegate- Annual to Period Mean Factor

Monitoring Site	Annual Mean NO_2 concentration 2010	Data Capture (%)	Period Mean Conc 30.6.10-11.1.11	Data capture (%)	Ratio Annual:Period
Blackpool	30.8	16.1	-	-	-
Preston	40.8	75.2	49.8	65.7	-
Sunderland	15.5	96.2	14.3	93.7	0.96
Wigan	26.5	99.3	27.4	99.4	0.98
Average					0.97

Brunswick Rd- Annual to Period Mean Factor

Monitoring Site	Annual Mean NO_2 concentration 2010	Data Capture (%)	Period Mean Conc 4.5.10-17.12.10	Data capture (%)	Ratio Annual:Period
Blackpool	30.8	16.1	-	-	-
Preston	40.8	75.2	36.6	61.08	-
Sunderland	15.5	96.2	12.2	94.35	1.27
Wigan	26.5	99.3	20.8	99.56	1.27
Average					1.27

Stricklandgate- Annual to Period Mean Factor

Monitoring Site	Annual Mean NO_2 concentration 2010	Data Capture (%)	Period Mean Conc 1.5.10-11.01.11	Data capture (%)	Ratio Annual:Period
Blackpool	30.8	16.1	-	-	-
Preston	40.8	75.2	44.2	65.5	-
Sunderland	15.5	96.2	14.6	94.9	1.06
Wigan	26.5	99.3	24.7	99.5	1.07
Average					1.07

Alston- Annual to Period Mean Factor

Monitoring Site	Annual Mean NO_2 concentration 2010	Data Capture (%)	Period Mean Conc 1.5.10-11.01.11	Data capture (%)	Ratio Annual:Period
Blackpool	30.8	16.1	-	-	-
Preston	40.8	75.2	44.2	65.55	-
Sunderland	15.5	96.2	14.6	94.97	1.06
Wigan	26.5	99.3	24.3	99.49	1.09
Average					1.07

Bridge Lane- Annual to Period Mean Factor

Monitoring Site	Annual Mean NO_2 concentration 2010	Data Capture (%)	Period Mean Conc 1.4.10-11.01.11	Data capture (%)	Ratio Annual:Period
Blackpool	30.8	16.1	-	0	-
Preston	40.8	75.2	40.3	69.76	-
Sunderland	15.5	96.2	14.4	95.63	1.08
Wigan	26.5	99.3	24.1	99.55	1.09
Average					1.09

Kirkby Thore- Annual to Period Mean Factor

Monitoring Site	Annual Mean NO_2 concentration 2010	Data Capture (%)	Period Mean Conc 7.5.10-11.01.11	Data capture (%)	Ratio Annual:Period
Blackpool	30.8	16.1	-	-	-
Preston	40.8	75.2	43.57	66.03	-
Sunderland	15.5	96.2	14.6	95.05	1.06
Wigan	26.5	99.3	24.7	99.5	1.07
Average					1.07

Eamont Bridge- Annual to Period Mean Factor

Monitoring Site	Annual Mean NO_2 concentration 2010	Data Capture (%)	Period Mean Conc 1.5.10-11.01.11	Data capture (%)	Ratio Annual:Period
Blackpool	30.8	16.1	-	-	-
Preston	40.8	75.2	44.19	65.55	-
Sunderland	15.5	96.2	14.6	94.97	1.06
Wigan	26.5	99.3	24.7	99.49	1.07
Average					1.07

Bias Annually Adjusted Monitoring Results

	Adjustment Factor	NO_2 Concentrations		
		Period Mean	Annual Mean	Bias Adj Annual Mean
Victoria Rd	1.08	41.9	45.2	44.7
Kirkby Stephen	1.07	33.5	35.8	35.4
Appleby	1.07	21.7	23.2	22.9
Middlegate	0.97	46.5	45.1	44.6
Brunswick Rd	1.27	46.8	59.4	58.8
Stricklandgate	1.07	44.6	47.7	47.2
Alston	1.07	19.9	21.3	21
Bridge Lane	1.09	30.9	33.7	33.4
Kirkby Thore	1.07	41.4	44.3	43.9
Eamont Bridge	1.07	51.6	55.2	54.6

Appendix B: Quality Assurance and Quality Control

Laboratory QA/QC of diffusion tube monitoring utilised by Eden DC

The laboratory supplying and analysing the nitrogen dioxide diffusion tubes used by Eden District Council is Gradko International Ltd. The preparation used by the laboratory is 50% TEA v/v in acetone and analyses are carried out using UV spectrophotometry. The laboratory follows the procedures set out in the Harmonisation Practical Guidance. Gradko International Ltd have been rated good in the WASP reports.

In order to ensure that NO_2 concentrations reported are of a high caliber, strict performance criteria need to be met through the execution of quality assurance and control procedures. A number of factors have been identified in government research as influencing the performance of diffusion tubes including the laboratory preparing and analyzing the tubes and the tube preparation method. Quality assurance and control procedures are, therefore, integral features of any monitoring programme, ensuring that uncertainties in the data are minimised and allowing the best estimate of true concentration. The Harmonisation Working Paper published its findings in February 2008 as the Practical Guidance[1]. This guidance provides a set of preparation and analytical procedures and guidelines for the deployment of diffusion tubes with the aim to standardize both. Gradko International were members of the Working Party and were key partners in the standardization of diffusion tubes.

Gradko International Ltd conducts rigorous quality control and assurance procedures in order to maintain the highest degree of confidence in their laboratory measurements. These are discussed in more detail below.

The Workplace Analysis Scheme for Proficiency (WASP) is an independent analytical performance testing scheme, operated by the Health and safety Laboratory (HSL).

Wasp formed a key part of the former UK NO2 Network's QA/QC, and remains an important QA/QC exercise for laboratories supplying diffusion tubes to Local Authorites for use in the context of Local Air Quality Management (LAQM).

The WASP performance testing scheme uses artificially spiked diffusion tubes to test each participating laboratory's analytical performance on a quaterly basis. Every quarter each laboratory receives four diffusion tubes doped with an amount of nitrite known to HSL but not the participants. At least two tubes are usually duplicates, which enables precision as well as accuracy to be assessed The mass of nitrite on the spiked tubes is different each quarter, and reflects the range encountered in actual ambient monitoring. The participants analyse the tubes, and report the results to HSL. HSL assign a performance score to each laboratory's results, based on their deviation from the known mass of nitrite in the anayte.

Performance scores are currently based upon the Z-score statistic but HSL are moving towards a scoring system based on the Rolling Performance Indicator, and it is this new scoring system which is given below. The Rolling Performance Index allows long term trends in performance to be monitored. It is calculated as the arithmetic mean of the best four Performance Index Values from the most recent five rounds

[1] AEA(2008) Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance for Laboratories and Users.

The performance criteria set by HSL are as follows:

- Good: Results obtained by the participating laboratory are on average within 13% of the assigned value.
- Acceptable: Results are on average within 13-26% of the assigned value.
- Warning: Results are on average within 26-39% of the assigned value.
- Failure: results differ by more than 39% of the assigned value.

As of Round 111 (Oct 2010) the performance criteria has been tightened to the following

- Good Results obtained by the participating laboratory are on average within 7.5% of the assigned value.
- Acceptable: Results are on average within 15% of the assigned value.
- Unacceptable: Results differ by more than 15% of the assigned value.

Both sets of performance criteria that have been used to compile the table below, which shows laboratories which have demonstrated acceptable performance in the WASP scheme, over rounds 104 (Jan 09) to 108 (Jan 10). Due to WAPS's confidentiality provisions, laboratories that have not demonstrated satisfactory performance over the past five rounds are not included.

Laboratory	Performance on basis of RPI, Old Criteria best 4 out of the 5 rounds 104-108	Performance on basis of RPI, New Crietria, best 4 out of 5 rounds 104-108
Aberdeen Public Analysts	Good	Good
Bristol City Council	Good	Good
Cardiff Scientific Services	Good	Acceptable
Edinburgh City Council	Good	Good
Env Services Group	Good	Good
Exova	Good	Acceptable
Glasgow Scientific Services	Good	Good
Gradko International	Good	Good
Harwell Scientifics	Good	Good
Kent Scientific Services	Good	Good
Kirklees MBC	Good	Acceptable

Laboratory	Performance on basis of RPI, Old Criteria best 4 out of the 5 rounds 104-108	Performance on basis of RPI, New Crietria, best 4 out of 5 rounds 104-108
Lambeth Scientific Services	Good	Acceptable
Lancs County Analysts	Good	Acceptable
Miton Keynes Council	Good	Acceptable
Northampton BC	Good	Acceptable
South Yorkshire Labs	Good	Good
Staffordshire CC	Good	Good
Tayside	Good	Good
Walsall MBC	Participated in less than 4	of the last 5 rounds
West Yorks Analytical Services	Good	Acceptable

Network Field Inter-Comparison Exercise

Gradko International Ltd also takes part in the NO_2 Network Field Inter-Comparison Exercise, operated by AEA (formerly NETCEN), which complements the WASP scheme in assessing sampling and analytical performance of diffusion tubes under normal operating conditions. This involves the regular exposure of a triplet of tubes at an Automatic Urban Network site (AUN) site. These sites employ continuous chemiluminescent analysers to measure NO_2 concentrations. Of particular interest is the bias of the diffusion tube measurement relative to the automatic analyser that gives an indication of accuracy. AEA have established performance criterion for participating laboratories in line with the EU 1st Daughter Directive requirement for indicative monitoring techniques, as the 95% confidence interval of the annual mean bias which should not exceed $\pm$ 25%.

In conjunction with this, a measure of precision is determined by comparing the triplet co-located tube measurements commonly referred to as the coefficient of variation (CoV). This value is useful for assessing the uncertainty of results due to sampling and analytical techniques. The AEA performance criterion for precision is that the mean coefficient of variation for the full year should not exceed 10%.

The Field Inter-Comparison Exercise has historically generated the bias and precision results for each laboratory on an annual basis. This changed in 2004 to results being reported on a monthly basis. This enables a full year's inter-comparison against the AEA performance criteria to be carried, as shown in Table 3. The results indicate that Gradko International Ltd diffusion tubes are well within the performance targets set by AEA.

Eden District Council QA/QC of Diffusion Tube Monitoring

Eden District Council follows the guidance set out in the 'Diffusion Tubes for Ambient NO2 Monitoring: Practical Guidance for laboratories and Users' which includes advise on selection of site, the location of the samplers, instructions for exposure and collocation with analysers.

Bias Adjustment of Diffusion Tubes

Diffusion tubes do have their limitations as they cannot provide hourly readings and have poor accuracy. As a result the government recommends that a bias adjustment factor is determined and applied to data. Technical guidance gives a method for this, which involves the collocation of these tubes with a chemiluminescent analyser.

Authorities are asked to report the bias adjustment factor determined from their own study (where applicable) and the national bias adjustment factor determined by Air Quality Consultants (AQC) who, on behalf of Defra collate and assess data from NO2 collocation studies across the UK. The table below provides information on the collocation studies for diffusion tubes prepared with 50% TEA in acetone used by Eden District Council

National Diffusion Tube Bias Adjustment Factor

Local Authority	Site Type	Length of study	Diffusion tube mean	Automatic tube mean	Bias %	Tube Precision	Bias Adjustment factor
Reading	R	12	40	46	13.2	G	1.15
East Hampshire	R	11	27	25	6.5	G	0.94
Wolverhampton CC	R	12	42	41	4.1	G	0.96
Wolverhampton CC	R	12	38	38	0.8	G	0.99
Exeter CC	R	12	42	40	5.6	G	0.95
Lewisham CC	R	10	74	51	46	G	0.69
LB Brent	B	10	28	28	-1.5	G	1.01
Worthing BC	R	10	44	42	6	G	0.94
Boston BC	R	10	57	33	74.1	G	0.57
LB Brent	B	10	28	28	-1.5	G	1.01
LB Richmond	R	12	39	41	-5.7	G	1.06
LB Richmond	B	12	28	26	4.8	G	0.95
Reading BC	UB	9	20	26	-20.5	G	1.26
Sandwell MBC	UB	12	27	30	-10.2	G	1.11
Sandwell MBC	R	12	43	47	-7.3	G	1.08
Sandwell MBC	R	12	32	40	-18.6	N/A	1.23
Sandwell MBC	UB	11	19	23	-15.9	N/A	1.19
OVERALL FACTOR						USE	0.99

Local Diffusion Tube Bias Adjustment Factor (if available)

There are no local co-location studies available

Discussion of Choice of Factor to Use

The bias factor of 0.99 obtained from the Review and Assessment web-site (http://www.uwe.ac.uk/aqm/review/R&Asupport/diffusiontube050509.xls) has been used to correct 2010 annual mean concentrations:measured in Eden District Council.

PM Monitoring Adjustment

Eden District Council does not carry out any PM_{10} monitoring.

QA/QC of automatic monitoring

Eden District Council carries out no automatic monitoring

Appendix C: Pollution Prevention & Control Act 1999

Operating Installations 2010/2011 as from 01 April 2010

1. Part A2 Installations: Responsibility of Local Authority

Operator	Reference Number	Date of Application	Date of Permit
Alba Proteins Ltd Wildriggs Penrith	EPA39		20/04/06 HIGH

2. Part B Installations: Responsibility of Local Authority

	Operator	Reference Number	Date of Application	Date of Authorisation
Timber Installations				**RISK RATING**
1	Jeldwen (Penrith UK) Ltd Mardale Road Penrith Industrial Estate Penrith Cumbria	EPA12	30/09/91	24/09/92 MEDIUM
2	A W Jenkinson Forest Products Clifton Moor Clifton Cumbria	EPA84	18/04/00	15/06/00 LOW
Animal Feed Manufacturers				**RISK RATING**
3	Carrs Billington Agriculture Ltd High Mill Langwathby Penrith Cumbria	EPA34	14/08/92	22/07/93 LOW
4	BOCM Pauls Limited Animal Feed Compounding Penrith Industrial Estate Penrith Cumbria	EPA36	17/09/92	22/07/93 MEDIUM
5	J Stobart & Sons Limited Newlands Mill Hesket Newmarket Wigton Cumbria	EPA40	29/09/92	22/07/93 LOW

Operator		Reference Number	Date of Application	Date of Authorisation
Cement and Lime Manufacture				**RISK RATING**
6	Hanson Limited (Premix Plant) The Brickworks Station Yard Blencowe Penrith Cumbria	EPA19	16/03/92	26/11/92 LOW
7	Cemex Concrete Products (UK) Barbary Plains Edenhall Penrith Cumbria	EPA21	24/03/92	26/11/92 LOW
8	PD Bricks Ltd The Brickworks Blencowe Penrith Cumbria	EPA22	24/03/92	26/11/92 LOW
9	Tarmac Topmix Limited Gilwilly Industrial Estate Penrith Cumbria	EPA29	25/03/92	25/02/93 LOW
10	Lakeland Concrete Products Flusco House Penrith Cumbria	EPA43	29/07/93	07/10/93 MEDIUM
11	L Hoist UK Ltd Hartley Quarry Hartley Kirkby Stephen CA17 4JJ	EPA55	30/04/97	01/07/97 LOW
12	Russell Hogg and Sons Old Depot Crackenthorpe Appleby Cumbria	EPA56	08/12/97	13/03/97 LOW

Operator		Reference Number	Date of Application	Date of Authorisation
Mineral Process				**RISK RATING**
13	Cemex - Hartley Quarry Kirkby Stephen Cumbria	EPA18	19/02/92 Mothballed 2009/10	25/02/93 LOW
14	Hanson Aggregates Shap Beck Quarry Shap Penrith Cumbria	EPA24	11/03/92	25/02/93 MEDIUM
15	Cemex Shap Blue Quarry Shap Penrith Cumbria	EPA32	11/03/92	25/02/93 MEDIUM
16	Sherburn Stone Company Ltd Helbeck Quarry Brough Cumbria	EPA33	30/03/92	25/02/93 LOW
Iron and Steel Process				**RISK RATING**
17	Bonds Precision Casting Ltd Potters Loaning Alston Cumbria	EPA23	25/03/92	25/02/93 HIGH
Carbon Manufacture Process				**RISK RATING**
18	Lakeland Carbons Limited Flusco Penrith Cumbria	EPA44	10/01/94	24/02/94 MEDIUM
Dry Cleaners				
19	Sunlight Dry Cleaners 16 Middlegate Penrith CA11 7PG	EPA95	30/07/06 Surrendered 07.06.10	02/10/06

Operator		Reference Number	Date of Application	Date of Authorisation
Mobile Crushers/Screeners			**RISK RATING REQUIRED from 09/10**	
20	Metcalfe Plant Hire Ltd Gilwilly Road Gilwilly Industrial Estate Penrith CA11 9BL	EPA77 Extec Turbotrac Screener 5950	13/10/99 Surrendered 30.04.10	19/10/99 LOW
21	Metcalfe Plant Hire Ltd Gilwilly Road Gilwilly Industrial Estate Penrith CA11 9BL	EPA79 Extec Robotrac Screener 5872	13/10/99	17/10/99 LOW
22	Metcalfe Plant Hire Ltd Gilwilly Road Gilwilly Industrial Estate Penrith CA11 9BL	EPA90 Warrior 1400 Power Screener 12200370	18/02/04 Surrendered 30.04.10	07/06/04 LOW
23	Metcalfe Plant Hire Ltd Gilwilly Road Gilwilly Industrial Estate Penrith Cumbria	EPA94 Extec C-12 Crusher 9401		LOW
Waste Oil Burners			**RISK RATING REQUIRED from 09/10**	
24	Armstrong & Fleming Limited Roper Street Penrith CA11 8HT	EPA1	30/05/91	26/11/92
25	Firwood Garage Winskill Penrith CA10 1PA	EPA3	20/09/91	27/05/93
26	Potter Brothers Garage Rowgate Garage Kirkby Stephen CA17 4SR	EPA5	27/09/91	27/05/93
27	New Rent Workshop Hutton in the Forest Penrith Cumbria	EPA9	09/10/91	27/05/93

Operator		Reference Number	Date of Application	Date of Authorisation
28	Bridge Street Garage Appleby Cumbria	EPA13	24/10/91	27/05/93
29	J S & M G Bowness Bridge Garage Bampton Penrith Cumbria	EPA35	09/10/92	07/10/93
30	Braithwaite Garage Newbiggin Stainton Penrith Cumbria	EPA45	03/02/94	26/05/94
31	C Harrison Sidings Industrial Estate Tebay Penrith Cumbria	EPA46	16/02/94	26/05/94
32	Davidson's Garage (J40) Ullswater Road Penrith CA11 8LT	EPA51	20/05/94	28/07/94
33	Neil Bousfield Motors Cromwell Road Penrith Cumbria	EPA81	20/01/00	07/02/00
34	Chambers Garage Tirril Penrith Cumbria	EPA88	02/04/02	30/06/02
35	Thompsons of Penrith Ltd The Garage Mardale Road Penrith Industrial Estate Penrith Cumbria	EPA89	24/02/04	17/03/04

Operator		Reference Number	Date of Application	Date of Authorisation
36	Mr C Griffiths Manor House Garage Ltd Manor House Garage Plumpton Penrith Cumbria	EPA91	07/07/04	14/07/04
37	NBM Ltd Unit 57 Gilwilly Industrial Estate Penrith CA11 9BF	EPA92	01/4/05	16/08/05
38	Laces The Garage Kirkoswald Penrith CA10 1DG	EPA95	14/08/06	05/09/06
Petrol Filling Stations		**RISK RATING REQUIRED from 09/10**		
39	Johnstone Garage Kirkby Stephen Cumbria	EPA61	06/05/98	17/07/98
40	KTEE Ltd Kirkby Thore Penrith Cumbria	EPA62	08/06/98	20/08/98
41	Hills Corby Hill Scotland Road Penrith Cumbria	EPA63	08/06/98	25/08/98
42	M6 Diesel Services Junction 38 Tebay Penrith Cumbria	EPA64	12/06/98	30/07/98
43	Westmorland Motorway Services North-Bound Tebay Service Area Orton Penrith	EPA65	01/07/98	11/08/98

Operator		Reference Number	Date of Application	Date of Authorisation
44	Davidsons Garage Penrith Ltd Scotland Road Penrith Cumbria	EPA67	29/10/98	16/12/98
45	Wm Morrison Supermarkets Plc Brunswick Road Penrith Cumbria	EPA68	02/11/98	16/11/98
46	Shell UK Bridge Lane Penrith Cumbria	EPA69	05/11/98	23/11/98
47	Moto Services (North) Southwaite Filling Station M6 Penrith Cumbria	EPA70	07/12/98	14/12/98
48	Roc UK Ltd (Esso) Bridge Lane Service Station Penrith Cumbria	EPA71	27/11/98	06/10/98
49	Mark Johns Motors Edensyde Garage Kirkby Stephen Cumbria	EPA72	18/12/99	18/01/00
50	Ullswater Body Repairs Ltd Ullswater Road Penrith Cumbria	EPA73	18/12/98	19/02/99
51	Moto Services (South) Southwaite Filling Station M6 Penrith Cumbria	EPA74	07/12/98	14/12/98

Operator		Reference Number	Date of Application	Date of Authorisation
52	Westmorland Services Southbound Tebay Service Area Orton Penrith	EPA75	26/01/99	04/02/99
53	Hopes Garage Meadow Court Langwathby Penrith Cumbria	EPA80	22/12/99	18/01/00
54	Westmorland Motorway Services Ltd Rheged Filling Station Redhills Penrith Cumbria	EPA83	28/02/98	01/06/00

3. Applications REVOKED/SURRENDERD 2010/11

Operator	Reference Number	Date Surrendered/ Revoked
Sunlight Dry Cleaners	EPA95	07.06.10
Metcalfe Plant Hire Ltd	EPA77 & 90	30.04.10

NB From 01 April 2010 -EPA57 & 58 - Odourising Natural Gas no longer in LAPC regime.

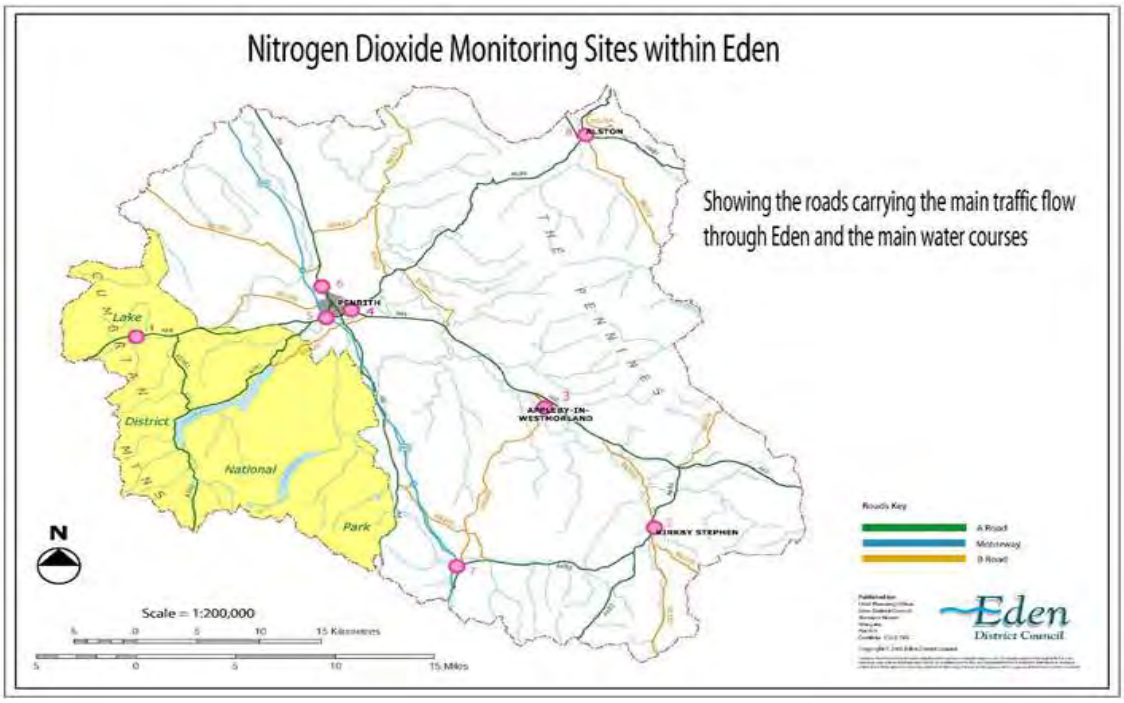
4. Permit Applications received in 2010/11

Operator	Reference Number	Date Permitted
Metcalfe Plant Hire Ltd	EPA98	17.11.10
Metcalfe Plant Hire Ltd	EPA99	25.11.10

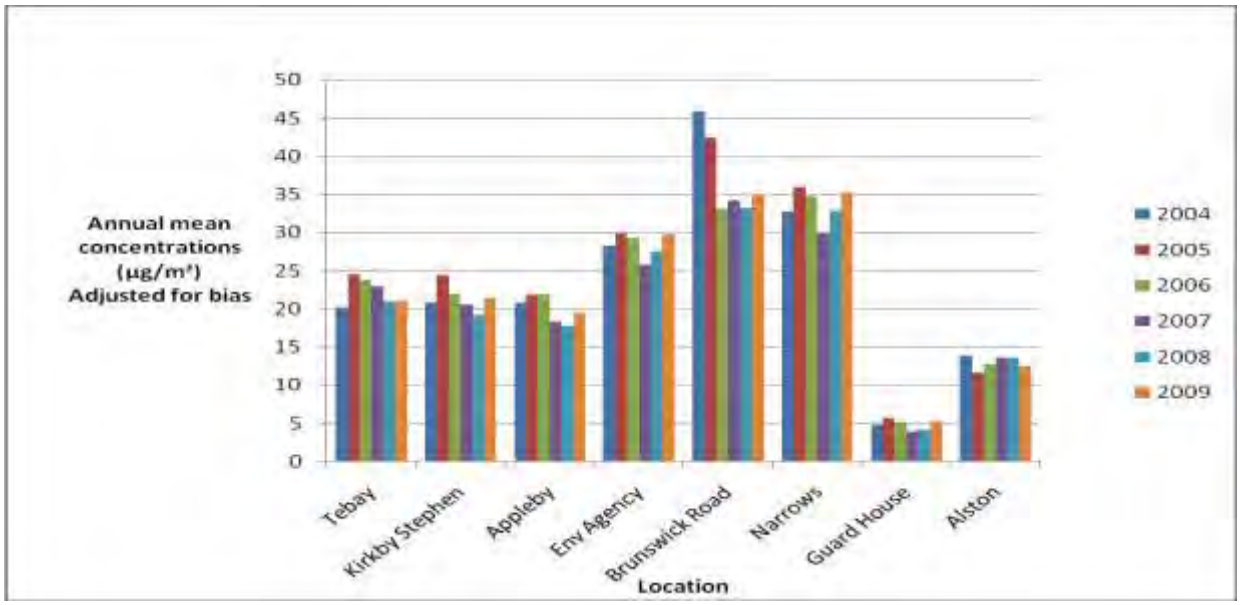
Details of Previous Monitoring Undertaken by Eden District Council

Map of Non-Automatic Monitoring Sites up to end of 2009

The location of each monitoring site is shown below



Annual Mean Nitrogen Dioxide Trends 2004 – 2009



Results of Nitrogen Dioxide Diffusion Tube Monitoring 2004-2010

Site ID	Location	Within AQMA?	Data Capture for monitoring period %	Data Capture for full calendar year 2009 %	Annual mean concentrations (µg/m^3) Adjusted for bias*						
					2004	2005	2006	2007	2008	2009	2010
ED 1	Tebay	N	100	100	20.2	24.6	23.8	23.0	21.0	21.1	
ED 2	Kirkby Stephen	N	100	100	20.9	24.5	22.0	20.6	19.2	21.5	
ED 3	Appleby	N	100	100	20.8	21.8	22.0	18.4	17.8	19.5	
ED 4	Env Agency	N	100	100	28.3	30.0	29.3	25.8	27.6	29.8	37.1
ED 5	Brunswick Road	N	100	100	45.9	42.4	33.1	34.2	33.3	35	
ED 6	Narrows	N	100	100	32.7	36.0	34.7	29.9	32.9	35.2	
ED 7	Guard House	N	100	100	4.9	5.7	5.2	4.0	4.2	5.3	
ED 8	Alston	N	92	92	13.9	11.7	12.8	13.7	13.6	12.5	
ED1	Victoria Rd	N		75							44.7
ED2	Kirkby Stephen	N		75							35.4
ED3	Appleby	N		75							22.9
ED5	Middlegate	N		75							44.6**
ED6	Brunswick Rd	N		75							58.8
ED7	Stricklandgate	N		75							47.2
ED8	Alston	N		75							21
ED9	Bridge Lane	N		75							33.4
ED10	Kirkby Thore	N		75							43.9
ED11	Eamont Bridge	N		75							54.6