2010 Air Quality Progress Report for *Eden District Council*

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

May 2010

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Executive Summary

Monitoring of Nitrogen Dioxide (NO_2) concentrations within the District during 2009 indicates the Air Quality Objectives for NO_2 will not be exceeded at any of the locations monitored.

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

There have been no new or newly identified sources within the District which are likely to impact on air quality since the last Updating and Screening Report in 2009 and it is considered unlikely that the Air Quality Objectives for all pollutants listed in Table 1.1 will be exceeded. An application for a large mixed residential/commercial development is due to be resubmitted in the near future. An air quality impact assessment undertaken for a previous application in 2005 predicted neutral effects. A revised air quality impact assessment will be required as part of the new application.

A review of air monitoring in the District was undertaken in early 2010. As a consequence some sites have now been discontinued with monitoring being transferred to urban roadside locations .Results from the new monitoring sites will be reported in the next Progress Report (due April 2011).

Subsequent proposed actions as a result of this report are:
- Submit 2011 Progress Report
- If necessary, proceed to Detailed Assessment for possible exceedence of NO_2 Air Quality Objectives at new monitoring locations should measured NO_2 concentrations be close to the objective 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 Km2 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, Kirby Stephen, Alston and Appleby are the four main towns with Penrith the largest having a population of 14,882. Eden is the most sparsely populated district in England with only 0.24 people per hectare compared with a national average of 3.9 persons per hectare.

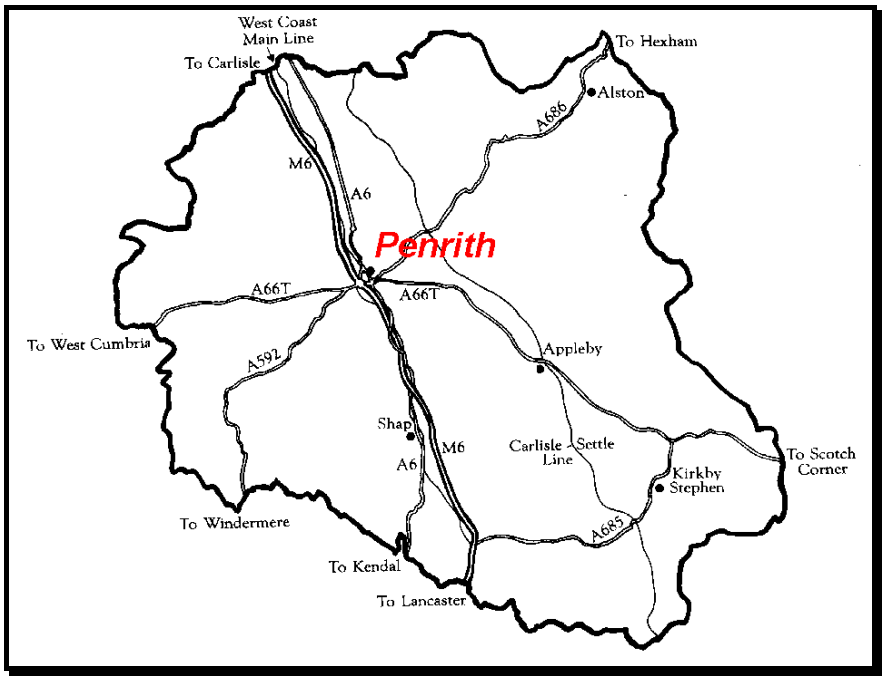
From 2003 to 2006, the population of Eden rose from 50,900 to 51,700. Eden is expected to continue to grow by 10-12% over the next 25 years. The District's past and expected future growth has been greatly driven by immigration due to the attractive lifestyle and environment of the District and also the influx of migrant workers.

There are just over 27,000 people employed within the district. Distributive trades, hotels and restaurants account for more than a third of those employed. Tourism related jobs account for 21% of the workforce, and this was the sector which experienced the most significant growth between 2000 and 2005. The proportion of manufacturing jobs, just under 10% is slightly lower than the national average. Jobs in the financial sector are fewer in Eden, representing only 10% of employee jobs in contrast to about 21% nationally. Self employed accounts for almost 10% of the working population, higher than both the North West Figure of 8% and the national figure of 9%.

There are 3,350 businesses registered for VAT in Eden. This represents 65 businesses per 1000 population, as compared to an approximate figure of 33 nationally. The District has a higher proportion of small businesses employing less than 10 people than nationally with a correspondingly lower proportion of larger businesses. Business survival rates are higher than nationally but formation rates are lower.

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



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 micrograms 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 μg/m^3	Running annual mean	31.12.2003
	5.00 μg/m^3	Running annual mean	31.12.2010
1,3-Butadiene	2.25 μg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 μg/m^3	Annual mean	31.12.2004
	0.25 μg/m^3	Annual mean	31.12.2008
Nitrogen dioxide	200 μg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 μg/m^3	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 μg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 μg/m^3	Annual mean	31.12.2004
Sulphur dioxide	350 μg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 μg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 μg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

Eden District Council has been monitoring air quality within the local authority area since 1996. A summary of the findings of this assessment work is provided in the table below.

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 the publication of 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)		

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Automatic monitoring provides more accurate real time data on pollutant concentrations. However the equipment is expensive to purchase and to operate. Previous review and assessment work has not identified any location within the District which is at risk of exceeding an air quality objective and therefore automatic monitoring is currently not being undertaken.

2.1.2 Non-Automatic Monitoring

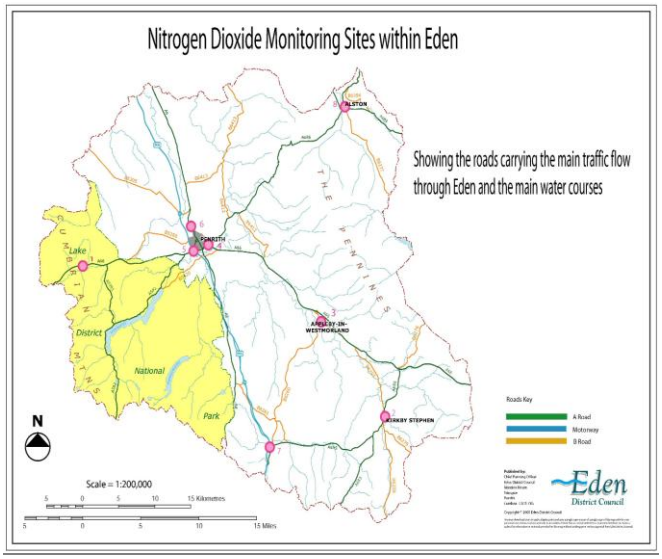
Nitrogen dioxide is currently monitored within Eden District Council through the use of passive diffusion tubes. Details of each site are given below. Information on quality assurance/quality control for the diffusion tubes is provided in Appendix B.

Table 2.2 Details of Non- Automatic Monitoring Sites Up To End Of 2009

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?**
Tebay	Kerbside	X 361742 Y 504785	NO_2	N	N	1m	
Kirkby Stephen	Urban Background	X 377246 Y 508131	NO_2	N	N	3m	
Appleby	Urban background	X 368348 Y 520358	NO_2	N	N	3m	
Env Agency	Urban Background	X 351075 Y 529082	NO_2	N	N	20m	
Brunswick Road	Kerbside	X 351399 Y 530356	NO_2	N	Y	5m	
Middlegate	Kerbside	X 351531 Y 530206	NO_2	N	N	1m	
Guard House	Rural Background	X 334634 Y 526258	NO_2	N	N	NA	
Alston	Kerbside	X 371726 Y 546499	NO_2	N	N	2m	

Figure 2.2 Map of Non-Automatic Monitoring Sites Up To End Of 2009

The location of each monitoring site is shown below



2.1.3 Review of Council's Monitoring Programme

The Updating and Screening Assessment Report in 2009 concluded that a new monitoring location on Brunswick Rd should be identified to represent a more relevant location. In addition that a review of the council's monitoring programme should be undertaken with a view to discontinuing some more rural sites and concentrating monitoring in more urban roadside locations. A review of the Council's monitoring programme was undertaken at the beginning of 2010. As a result of this review new monitoring locations have been identified and some have been discontinued. The review has led to an increase in monitoring within the main urban centre of Penrith. A summary of the discontinued, relocated and new monitoring sites is shown below. Diffusion tubes have also been located on relevant locations adjacent to the A6 (Eamont Bridge) and the A66 (Kirby Thore).

Table 2.3 Details of Non- Automatic Monitoring Sites 2010 Onwards

Location	Status	Grid reference	Site Type	Relevant Location	Worst case location
Tebay	Discontinued	X361742 Y504785	Kerbside	N	N
Threlkeld (Guard House)	Discontinued	X334634 Y526258	Rural background	N	Y
The Narrows	Discontinued	X351531 Y530206	Roadside	N	N
Brunswick Rd	Relocated to relevant location on Brunswick St	X351485 Y530357	Roadside	Y	Y
Middlegate	New Site	X351485 Y530248	Roadside	Y	Y
Bridge Lane	New site	X351838 Y529734	Roadside	Y	Y
Victoria Rd	New site	X351733 Y529918	Roadside	Y	Y
Sticklandgate	New site	X351322 Y530516	Roadside	Y	Y
Eamont Bridge (A6)	New site	X352257 Y528644	Roadside	Y	Y
Kirby Thore (A66)	New site	X363521 Y525330	Roadside	Y	Y
Kirby Stephen(Nateby Junction)	Relocated to new relevant location in Kirby Stephen	X377511 Y508537	Roadside	Y	Y
Alston	Relocated to new site in Alston	X371722 Y546488	Roadside	Y	Y
Appleby	Relocated to a new site in Appleby	X368365 Y520361	Roadside	Y	Y
Env Agency	No change	X351072 Y529081	Urban background	N	N

The number of monitoring sites has increased from 8 to 11 with an increase in monitoring in the urban centre of Penrith. Results from the new monitoring programme will be reported in the next Progress Report (2011) once a full data set is available.

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

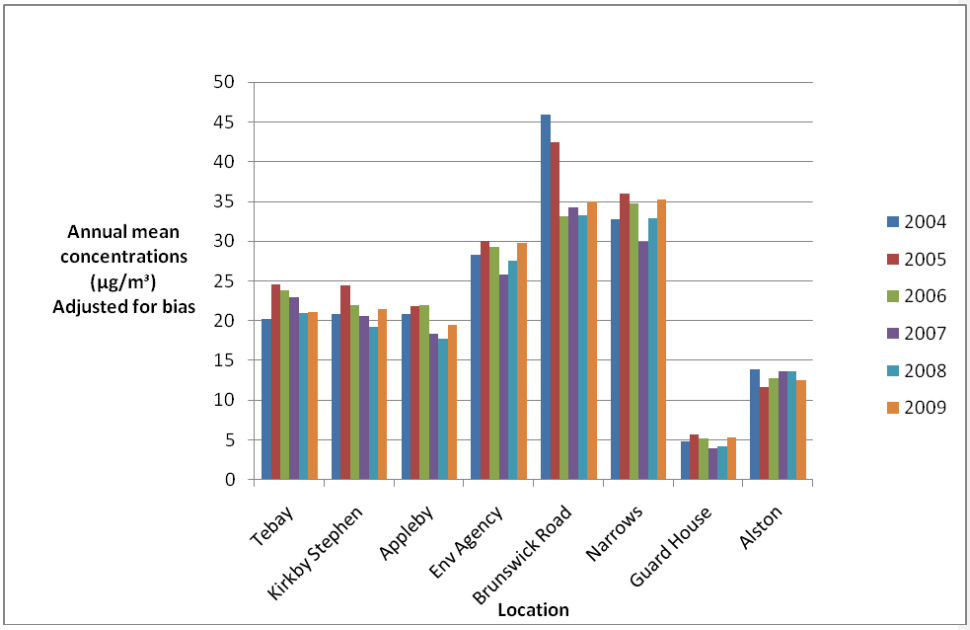
Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes 2004 - 2009

Site ID	Location	Within AQMA?	Data Capture for monitoring period %	Data Capture for full calendar year 2009 %	Annual mean concentrations ($\mu g/m^3$) Adjusted for bias*					
					2004	2005	2006	2007	2008	2009
ED	Tebay	N	100	100	20.2	24.6	23.8	23.0	21.0	21.1
ED	Kirkby Stephen	N	100	100	20.9	24.5	22.0	20.6	19.2	21.5
ED	Appleby	N	100	100	20.8	21.8	22.0	18.4	17.8	19.5
ED	Env Agency	N	100	100	28.3	30.0	29.3	25.8	27.6	29.8
ED	Brunswick Road	N	100	100	45.9	42.4	33.1	34.2	33.3	35
ED	Narrows	N	100	100	32.7	36.0	34.7	29.9	32.9	35.2
ED	Guard House	N	100	100	4.9	5.7	5.2	4.0	4.2	5.3
ED	Alston	N	92	92	13.9	11.7	12.8	13.7	13.6	12.5

*Bias adjustment factors obtained from the UWE website have been applied to the annual mean diffusion tube results. The bias adjustment factors are as follows:-

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

Figure 2.4 Annual Mean Nitrogen Dioxide Trends 2004 – 2009



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

Results from bias adjusted data indicates that none of the annual mean NO_2 concentrations measured within the District up to the end of 2009 exceeded the objective level of 40µg/mg3.There is therefore no need to proceed to a Detailed Assessment at the present time. Results from new monitoring locations implemented in 2010 will be published in 2011.

2.2.3 Particulates

There is no automatic monitoring of PM10 concentrations carried out in Eden District Council

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~~2.2.3~~2.2.4 Sulphur Dioxide

There is 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

~~2.2.4~~2.2.5 Benzene

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There is no automatic or non-automatic monitoring of benzene concentrations carried out by Eden District Council.

2.2.6 Summary of Compliance with AQS Objectives

Monitoring undertaken in Eden District Council during 2009 has not identified an exceedence of the nitrogen dioxide annual mean or one hour objective levels.

Eden District Council has examined the results from nitrogen dioxide monitoring undertaken in the District. Concentrations are all below the objectives, therefore there is no need 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 last year 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. Whilst concentrations are higher than most other locations monitored within the District it is still below the objective levels for this pollutant. As discussed in section 2 a review of our monitoring sites has been undertaken and further consideration has been given to residential properties which are located adjacent to the narrow congested streets where traffic flows exceed 5000 vehicles per day. Residential property on Stricklandgate, Victoria Rd and Eamont Bridge have been identified for monitoring which is currently underway. Results of this monitoring will be included in the Progress Report 2011

Eden District Council has three newly identified locations where residential property is close to a road with buildings either side. Monitoring is currently being undertaken and results will be reported in early 2011

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 i.e. the town centres shopping areas of Penrith, Kirby 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 I hour or more

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.

Eden District Council confirms that there are no new/newly identified junctions

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

Eden District Council confirms that there are no new or proposed roads since the last 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 a large mixed development known as the New Squares Development (new application pending) is likely to result in a significant change in traffic flows along Victoria Rd. An air quality impact assessment will be required as part of the new application and nitrogen dioxide levels along this traffic route is currently being undertaken. Results from the impact assessment and monitoring will be reported in the next Progress Report.

Eden District Council confirms that there are no roads which have experienced a significant change in traffic since the last review and assessment report.

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.

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

Previous assessments have concluded there is no potential for outdoor exposure from loading of quarry products at Shap Blue Quarry or unloading of material at British Gypsum. No other locations within the district have been identified where trains remain stationary for more that 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 the background concentrations does not exceed 25$\mu g/m^3$ in any part of the district.

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

3.2.5 Ports (Shipping)

Previous Review and Assessment work has concluded that whilst Eden DC is landlocked, there are no boats on lakes within the Lake District National Park which use sulphur- containing fuels.

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~~3.3~~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 covers an area of 2,142Km^2 with a population of around 52,000. Penrith, the largest population centre, has around 15,000 residents. The population of Eden DC is therefore distributed throughout the area in relatively small population centres. There is only one possible area within the District where more than 100 properties may have solid fuel appliances: the Castletown area of Penrith. This was considered in the 2003 USA. Previous monitoring indicated that objectives for both SO_2 and PM_{10} were not being exceeded. There has not been any change since this review was carried out.

3.4.2 Commercial

There are two individual biomass combustion plants located within the local authority area; at Newton Rigg College and the Veterinary Laboratories Agency (VLA). 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.

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 2009/2010 has not indicated any 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.

Comment [f1]:

4 Local / Regional Air Quality Strategy

Policy guidance recommends that all local authorities (particularly those that have not had to declare an AQMA and do not expect to declare one in the future, but which have areas close to the AQS Objectives), should consider drawing up a Local Air Quality Strategy. Monitoring undertaken by Eden District Council has not identified any locations which are above or close to exceeding an air quality objective and at present does not have an Air Quality Strategy.

5 Planning Applications

An application for a large mixed residential/commercial development on Southend Rd was received by Eden DC in 2005. At that time an Air Quality Impact Assessment was undertaken at the request of the Council (this has been referred to in previous review and assessment reports). The impact assessment indicated that the development was unlikely to have a significant impact on local air quality. To date no building work has commenced and it is likely the application will have to be re-submitted. Due to the time lapse a revised air quality impact assessment will be required as part of the new planning to take account of new traffic data and new relevant locations.

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. 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 31st 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).

In respect to air quality management the policies set out in local authority planning documents determine the authority's approach to the relationship between development and local air quality. They are important as new developments are

judged against these policies. This Progress Report lists the Council's policies which may have an affect on air quality. It should be noted that Eden District Council 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 Kirby 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, Kirby 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 Kirby 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 Kirby 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 Kirby 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 June2010. 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 at 8 locations around the District during 2009, using single passive diffusion tubes have not identified any exceedences of the air quality objective for NO2.

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

10.2 Conclusions relating to New Local Developments

There has been no new local development within the Eden District Council since the last Updating and Screening Assessment Report which is likely to give rise to an exceedence of an air quality objective.

Planning permission has recently been granted for a medium sized supermarket on Brunswick Rd. An air quality impact assessment submitted as part of the planning application indicates that the development will have negligible impact on air quality Nitrogen dioxide levels have been monitored along Brunswick Rd for several years and will continue.

A revised application is imminent for the New Squares Development. An updated air quality impact assessment to take account of new relevant locations and updated traffic data will be required.

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~~10.4~~10.3 Proposed Actions

The Updating and Screening Assessment Report in 2009 concluded that a new monitoring location on Brunswick Rd should be identified to represent relevant locations. In addition that a review of the monitoring programme should be undertaken with a view to discontinuing some more rural sites and transferring to urban roadside locations. This was undertaken in early 2010. Results from the new monitoring sites will be published in the next Progress Report due in April 2011.

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 2003 Updating and Screening Assessment
Air Quality Review and Assessment 2004 Progress Report
Air Quality Review and Assessment 2005 Progress Report
Air Quality Review and Assessment 2006 Updating and Screening Assessment
Air Quality Review and Assessment 2007 Progress Report
Air Quality Review and Assessment 2008 Progress Report
Air Qualtiy Review and Assessment 2009 Updating and Screening Report

Appendices

Appendix A: Monthly Mean Nitrogen Dioxide Concentrations 2009

TUBE NO	Grid Reference	Monthly mean nitrogen dioxide concentrations												Raw Annual Mean	Bias Adjusted Annual Mean
		Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec		
1		29.9	29.4	21.3	19.7	13.7	18.9	17	13.5	20.2	24.4	20.8	27	21.3	21.1
2		32.1	27.3	18.5	18.4	15.6	18.6	18.2	16.9	21.9	23.8	24.2	25.3	21.7	21.5
3		27.5	24.9	17.6	18.9	14.4	17.1	16.3	14.9	16.3	21.8	23.4	23.6	19.7	19.5
4		38	31.1	29	34.5	27.1	32.7	26.8	21.8	23.4	34.1	28.4	34.6	30.1	29.8
5		42.8	39.6	30.3	40.5	30.5	34.5	24.6	24.7	26.7	37.6	40	52.8	35.4	35
6		47.8	43.9	37.6	33.4	25.1	31.3	28.2	27.9	34.7	37.1	38.1	42.3	35.6	35.2
7		9.9	5.9	3.9	4.3	12.5	2.9	2.7	3.1	3.3	6.8	5.8	4.3	5.4	5.3
8		19.4	17.3	14	6.9	2.8	12.3	14.1	10.4	13.4	16.7	11.7	missing	12.6	12.5

Appendix B Quality Assurance and Quality Control

Nitrogen Dioxide Diffusion Tubes

Laboratory QA/QC of diffusion tube monitoring

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 last two WASP reports.

The EU Daughter Directive set data quality objectives for nitrogen dioxide along with other pollutants. Under the Directive, annual mean NO_2 concentration data derived from diffusion tube measurements must demonstrate an accuracy of $\pm$25 % to enable comparison with the Directive air quality standards for NO_2. These standards remain unchanged with the Clean Air for Europe (CAFÉ) Directive (2009) which incorporated the first three Daughter Directives.

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.

Workplace Analysis Scheme for Proficiency (WASP)

Gradko International Ltd participates in the Health and Safety Laboratory WASP[2] NO_2 diffusion tube scheme. This is a recognised performance-testing programme for laboratories undertaking NO_2 diffusion tube analysis as part of the UK NO_2 monitoring network. The scheme is designed to help laboratories meet the European

[1] AEA(2008) Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance for Laboratories and Users.
[2] Health and Safety Executive, Workplace Analysis Scheme for Proficiency

Standard EN482[3]. The laboratory performance for 2009 is shown below and signifies a high level of accuracy for laboratory measurements.
#
Feb: Set 1: Spike Value – 2.02ug Measured Value : 1.85ug Z Score -0.7
Set 2 Spike Value – 1.22ug Measured Value ; 1.20ug Z Score -0.1

April Set 1 : Spike value – 1.68ug Measured Value; 1.62ug Z Score -0.4
Set 2 : Spike Value – 0.96ug Measured Value : 0.92ug Z Score -0.5

July Set 1 Spike Value – 1.84ug Measured Value 1.88ug Z Score +0.3
Set 2 Spike Value – 1.42ug Measured Value 1.34ug Z Score -0.8

Oct Set 1 Spike Value 2.03ug Measured Value 1.87ug Z Score -1.1
Set 2 Spike Value 2.20ug Measured Value 1.99ug Z Score -1.4

The criteria for Z- scores awarded are:

Z Score of < +/- 2 = Satisfactory
Z Score of > +/- 2 and < +/- 3 = Questionable Results
Z Score of > +/- 3 = Unsatisfactory Results

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 below indicate that

[3] European Committee for Standardisation (CEN) Workplace Atmospheres, General requirements for the performance of procedures for the chemical measurement of chemical agents, EN482, Brussels, CEN 1994.

Gradko International Ltd diffusion tubes are well within the performance targets set by AEA.

Table 1 Summary of NO_2 Network Field Inter-Comparison Results, 2009

Annual Mean Bias		Precision	
AEA Performance Target	Gradko Annual Mean Bias	AEA Performance Target	Gradko Precision
±25%	**-11 %**	**10%**	**3 %**

Gradko International Ltd performs blank exposures that serve as a quality contol check on the tube preparation procedure. All results are not blank subtracted before they are issued to the relevant Borough.

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

Local Authority	Site Type	Length of study	Diffusion tube mean	Automatic tube mean	Bias	Tube Precision	Bias Adjustment factor
Richmond	R	12	43	43	-0.3%	G	1.00
Richmond	S	12	27	28	-2.4%	G	1.02
Reading	R	11	41	44	-7.8%	G	1.09
Stevenage	R	12	38	29	32%	G	0.76
Sandwell	R	12	45	44	3%	G	0.97
Sandwell	UB	11	17	17	-1.6%	S	1.02
Sandwell	UB	11	27	28	-6.6%	G	1.07
Sandwell	R	12	38	40	-3.6%	S	1.04
Sheffield	UB	10	33	38	-12.9%	G	1.15
Uttlesford	UC	9	24	25	-1.7%	G	1.02
West Berkshire	R	12	45	54	-	P	1.19

					15.9%		
AEA tech Intercomparison	K	12	106	107	-0.9%	G	1.01
Boston BC	R	11	45	33	35.2%	G	0.74
East Hampshire	R	12	27	25	8.5%	G	0.92
LB Brent	B	10	32	31	2.7%	G	0.97
	OVERALL FACTOR (15 STUDIES)						0.99

Factor from Local Co-location Studies (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 2009 annual mean concentrations:measured in Eden District Council.

PM Monitoring Adjustment

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

Short-term to Long-term Data adjustment

This has not been required for the diffusion tube monitoring carried out by Eden District Council

QA/QC of automatic monitoring

Eden District Council carries out no automatic monitoring

Appendix C: Permitted Industrial Processes within Eden District Council 2009

Operator	***Reference Number***	***Date of Application***	***Date of Authorisation/ Permit***
Steel Process			
British Steel Shap Penrith Cumbria	EPA41		
A J Forester Greengill Footsite Penrith Cumbria	EPA 207A		
A.J Forster Maidenhill Penrith Cumbria	EPA 207B		
Frank Bird Poultry LTD Underline Langwathby Penrith Cumbria	EPA 205		
Part B Installations: Responsibility of Local Authority			
Operator	***Reference Number***	***Date of Application***	***Date of Authorisation/ Permit***
Timber Installations			
1 Penrith Door Company Mardale Road Penrith Industrial Estate Penrith Cumbria	EPA12	30/09/91	24/09/92
2 A W Jenkinson Forest Products Clifton Moor Clifton Cumbria	EPA84	18/04/00	15/06/00
Animal Feed Manufacturers			
3 Carrs Bilington Agriculture High Mill Langwathby Penrith Cumbria	EPA34	14/08/92	22/07/93
4 BOCM Pauls Limited Animal Feed Compounding Penrith Industrial Estate Penrith	EPA36	17/09/92	22/07/93

Operator		Reference Number	Date of Application	Date of Authorisation/ Permit
	Cumbria			
5	J Stobart & Sons Limited Newlands Mill Hesket Newmarket Wigton Cumbria	EPA40	29/09/92	22/07/93
6	Carrs Billington Agriculture Ltd Gilwilly Industrial Estate Penrith Cumbria	EPA37	21/09/92	22/07/93
Animal By-product Rendering				
7	Alba Proteins Greystoke Road Penrith Cumbria	EPA39	28/09/92	14/07/95
Cement and Lime Manufacture				
8	Hanson Limited (Premix Plant) The Brickworks Station Yard Blencowe Penrith Cumbria	EPA19	16/03/92	26/11/92
9	Hanson Limited (Premix Plant) Shap Beck Quarry Shap Penrith Cumbria (Ready Mixed Concrete)	EPA20	16/03/92	26/11/92
10	RMC Concrete Products (UK) Ltd Barbary Plains Edenhall Penrith Cumbria	EPA21	24/03/92	26/11/92
11	PD Bricks Ltd The Brickworks Blencowe Penrith Cumbria	EPA22	24/03/92	26/11/92
12	RMC Concrete Products Shap Penrith Cumbria CA10 3QQ	EPA28	31/03/92	25/02/93
13	Tarmac Topmix Limited Gilwilly Industrial Estate Penrith Cumbria	EPA29	25/03/92	25/02/93
14	Lakeland Concrete Products	EPA43	29/07/93	07/10/93

Operator		Reference Number	Date of Application	Date of Authorisation/ Permit
	Flusco House Penrith Cumbria			
15	L Hoist UK Ltd Hartley Quarry Hartley Kirkby Stephen Cumbria CA17 4JJ	EPA55	30/04/97	01/07/97
16	Russell Hogg and Sons Old Depot Crackenthorpe Appleby Cumbria	EPA56	08/12/97	13/03/97
Mineral Process				
18	RMC Aggregates Ltd Hartley Quarry Kirkby Stephen Cumbria	EPA18	19/02/92	25/02/93
19	Hanson Aggregates Shap Beck Quarry Shap Penrith Cumbria	EPA24	11/03/92	25/02/93
20	British Gypsum Limited Newbiggin Mine Kirkby Thore Penrith Cumbria	EPA26	31/03/92	25/02/93
21	RMC Roadstone Limited Shap Pink Quarry Shap Penrith Cumbria	EPA31	27/0392	25/02/93
22	RMC Roadstone Limited Shap Shap Blue Quarry Shap Penrith Cumbria	EPA32	11/03/92	25/02/93
23	Sherburn Stone Company Ltd Helbeck Quarry Brough Cumbria	EPA33	30/03/92	25/02/93
Iron and Steel Process				
24	Precision Products (Cumberland) Ltd Potters Lonning Alston Cumbria	EPA23	25/03/92	25/02/93

Operator		Reference Number	Date of Application	Date of Authorisation/ Permit
Plaster Process				
25	British Gypsum Limited Kirkby Thore Penrith Cumbria	EPA27	24/03/92	25/02/93
Carbon Manufacture Process				
26	Lakeland Carbons Limited Flusco Penrith Cumbria	EPA44	10/01/94	24/02/94
Odourising Natural Gas Processes				
27	Transco Site Shap Penrith Cumbria	EPA57	20/10/97	02/03/98
28	Transco Site Melkinthorpe Nr Penrith Cumbria	EPA58	20/10/97	02/03/98
Mobile Crushers/Screeners				
29	Metcalfe Plant Hire Ltd Gilwilly Road Gilwilly Industrial Estate Penrith Cumbria CA11 9BL	EPA76	23/2/99	04/03/99
30	Metcalfe Plant Hire Ltd Gilwilly Road Gilwilly Industrial Estate Penrith Cumbria CA11 9BL	EPA77	13/10/99	19/10/99
31	Metcalfe Plant Hire Ltd Gilwilly Road Gilwilly Industrial Estate Penrith Cumbria CA11 9BL	EPA79	13/10/99	17/10/99
32	Metcalfe Plant Hire Ltd Gilwilly Road Gilwilly Industrial Estate Penrith Cumbria CA11 9BL	EPA87	28/02/02	14/03/02
33	Metcalfe Plant Hire Ltd Gilwilly Road Gilwilly Industrial Estate	EPA90	18/02/04	07/06/04

Operator		Reference Number	Date of Application	Date of Authorisation/ Permit
	Penrith Cumbria			
Waste Oil Burners				
34	Armstrong & Fleming Limited Roper Street Penrith Cumbria CA11 8HT	EPA1	30/05/91	26/11/92
35	Firwood Garage Winskill Penrith Cumbria CA10 1PA	EPA3	20/09/91	27/05/93
36	Potter Brothers Garage Rowgate Garage Kirkby Stephen Cumbria CA17 4SR	EPA5	27/09/91	27/05/93
37	New Rent Workshop Hutton in the Forest Penrith Cumbria	EPA9	09/10/91	27/05/93
38	Bridge Street Garage Appleby Cumbria	EPA13	24/10/91	27/05/93
39	Roy Ashley The Sands Appleby Cumbria CA16 6XN	EPA15	13/11/91	27/05/93
40	J S & M G Bowness Bridge Garage Bampton Penrith Cumbria	EPA35	09/10/92	07/10/93
41	Braithwaite Garage Newbiggin Stainton Penrith Cumbria	EPA45	03/02/94	26/05/94
42	C Harrison Sidings Industrial Estate Tebay Penrith Cumbria	EPA46	16/02/94	26/05/94
43	Davidson's Garage (J40) Ullswater Road Penrith Cumbria CA11 8LT	EPA51	20/05/94	28/07/94
44	Neil Bousfield Motors Cromwell Road	EPA81	20/01/00	07/02/00

Operator		Reference Number	Date of Application	Date of Authorisation/ Permit
	Penrith Cumbria			
45	Chambers Garage Tirril Penrith Cumbria	EPA88	02/04/02	30/06/02
46	J R & A Thompson The Garage Mardale Road Penrith Industrial Estate Penrith, Cumbria	EPA89	24/02/04	17/03/04
47	Mr C Griffiths Manor House Garage Ltd Manor House Garage Plumpton Penrith, Cumbria	EPA91	07/07/04	?
Petrol Filling Stations				
48	Johnstone Garage Kirkby Stephen Cumbria	EPA61	06/05/98	17/07/98
49	Kirkby Thore Filling Station Kirkby Thore Penrith Cumbria	EPA62	08/06/98	20/08/98
50	Hills Corby Hill Scotland Road Penrith Cumbria	EPA63	08/06/98	25/08/098
51	M6 Tebay Services Tebay Penrith Cumbria	EPA64	12/06/98	30/07/98
52	Westmorland Services North-Bound Tebay Penrith	EPA65	01/07/98	11/08/98
53	Davidsons Garage Scotland Road Penrith Cumbria	EPA67	29/10/98	16/12/98
54	Morrissons Brunswick Road Penrith Cumbria	EPA68	02/11/98	16/11/98
55	Shell UK Bridge Lane Penrith Cumbria	EPA69	05/11/98	23/11/98

Operator		Reference Number	Date of Application	Date of Authorisation/ Permit
56	Southwaite Filling Station M6 Penrith Cumbria	EPA70	07/12/98	14/12/98
57	Bridge Lane Service Station Penrith Cumbria	EPA71	27/11/98	06/10/98
58	Mark Johns Motors Edensyde Garage Kirkby Stephen Cumbria	EPA72	18/12/99	18/01/00
59	Mark John's Motors Ullswater Road Penrith Cumbria	EPA73	18/12/98	19/02/99
60	Southwaite Filling Station M6 North	EPA74	07/12/98	14/12/98
61	Westmorland Services Southbound Tebay Penrith	EPA75	26/01/99	04/02/99
62	Hopes Garage Meadow Court Langwathby Penrith Cumbria	EPA80	22/12/99	18/01/00
63	Bousfield Motors Cromwell Road Penrith Cumbria	EPA81	20/01/00	07/02/00
64	Rheged Filling Station Redhills Penrith Cumbria	EPA83	28/02/98	01/06/00
65	Armstrong & Fleming Roper Street Penrith Cumbria	EPA86	21/01/02	16/04/02