2018 Air Quality Annual Status Report (ASR)
Allerdale Borough Council

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

June 2018

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Executive Summary: Air Quality in Our Area

Air Quality in the Allerdale Borough

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[1].

Allerdale has relatively low levels of pollution due to the rural nature of the area and to date, no Air Quality Management Areas have been designated. Allerdale is aware that air quality in both urban and rural areas is constantly threatened by pollution from human activity.

The main pollutant of concern in the Allerdale area is Nitrogen Dioxide (NO_2). Nitrogen Dioxide pollution in Allerdale is predominantly associated with road traffic sources and other transport links.

In 2017 monitoring of Nitrogen Dioxide was carried out in Allerdale via diffusion tube monitoring sites. The sites were positioned at ten locations across Allerdale felt most affected by road traffic pollution. As with previous years of monitoring the 2017 data demonstrates Nitrogen Dioxide levels are well below the national objectives.

Other pollutants of concern include Sulphur Dioxide (SO_2) and Particulate Matter in the form of PM_{10} and $PM_{2.5}$. Allerdale takes a proactive approach to tackling these pollutants via smoke control areas, planning requirements, permitting polluting processes and general air pollution regulatory activities under the Clean Air Act.

Allerdale do not currently sample for SO_2 however brief studies and screening were previously carried out in relation to identifying possible SO_2 hotspots which may qualify for detailed assessment. This initial screening discounted the need for detailed assessment in relation to SO_2.

[1] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

Recent information provided by DEFRA on domestic $PM_{2.5}$ sources such as wood burning stoves and other solid fuel appliances is triggering further investigation work in Allerdale to help identify domestic source hotspot areas of $PM_{2.5}$ .Educational leaflet and social media campaigns are being planned to improve awareness and hopefully change fuel use behaviours in any identified hotspot areas and across the borough in general.

Predictive data from 2015 in relation to $PM_{2.5}$ has been collated and modelled nationally by Public Health England. This can be viewed on the Public Health Wider Determinants website https://fingertips.phe.org.uk/profile/wider-determinants/data#page/0. Allerdale is proud to have been stated in the above as the borough with the lowest $PM_{2.5}$ human exposure rate in the country.

Due to the good quality of our air demonstrated by monitoring and data gathered, there is no requirement for an air quality management area in Allerdale to date. Allerdale recognise the significance of maintaining good air quality for good health and will continue to pursue further improvements where possible.

We work with our partners in relation to local transport, highways, land use planning and public health in managing Air Quality.

Actions to Improve Air Quality

A new transport hub at Workington Railway Station to encourage more sustainable travel was successfully opened in May 2017. The new transport hub, which was funded by Cumbria Local Enterprise Partnership, aims to encourage people to travel by train along the Cumbrian Coast, reduce traffic congestion and improve access to Workington rail station. Rail travel is known to be significantly less polluting in terms of emissions than car travel.

Photograph of Workington Transport Hub

Allerdale promote and encourage green travel, a review was undertaken of green fleet vans to carry out Council Services. On conclusion of the review the community services fleet are now all Euro 6 complaint and include 3 electric vehicles. An electric vehicle charging point has been positioned at the Allerdale council offices in Workington after Cumbria County Council secured funding from the Governments Office of Low Emission Vehicles and a private investor.

Allerdale promote and encourage a home working policy for its staff, reducing the need for daily commute and cutting road/ rail travel related pollution within the borough.

Via the planning process Allerdale has been pro-active in ensuring the borough maintains its low levels of pollution. Air quality assessments have been required for developments including potentially polluting industrial applications. Industrial applications, combined heat and power systems or other combustion method energy production such as gas turbine or biomass boilers.

Allerdale Borough Council continues with its duties to regulate and control in regards to emissions from all Part A2 and B Processes located within the borough. Allerdale ensure best available techniques are adhered to and pollutant emissions are minimised.

Allerdale promote, support and influence plans and policies that may have a positive effect on the Allerdale air pollution levels.

Conclusions and Priorities

No exceedances of objectives were identified in this 2018 ASR. The general trend is that the Borough has very good air quality. This has been previously highlighted by Public Health England as the lowest (best) borough in the country in relation to Human $PM_{2.5}$ exposure.

Given the above our priority is to maintain the good air quality within the Allerdale Borough. The main challenge for Allerdale is managing the potential air quality impacts of ongoing major developments both individually and collectively.

Projects and potential major developments have included

- United Utilities West Cumbria Water Supplies Project,
- National Grid Northwest Coast Connections
- NuGen Moorside Nuclear Power Station. (Cross Boundary Effects)

Alongside detailed Air Quality Assessments being required from developers via the planning process. Further monitoring sites have also been identified by Allerdale specifically in relation to potential road Improvement and increased road traffic / rail traffic associated with the transport links running through Allerdale.

In light of recent public health concern $PM_{2.5}$ sources are to be investigated throughout the borough. We hope to educate with information to be distributed via online social media and leaflet drop campaigns. The focus being on changing the behaviours and choice of fuel by those reliant on solid fuels, particularly in off grid gas areas.

Local Engagement and How to get involved

There are a number of ways in which the public can get involved with maintaining / improving air quality such as considering alternative travel arrangements e.g. using public transport, car share schemes, using cycle networks, use of electric vehicles/cycles, walk/cycle to school/work groups.

Allerdale are working towards greater public awareness of Air Quality. Improvements have recently been made to the Allerdale website with information leaflets and Air

Quality reports now accessible to the public directly at https://www.allerdale.gov.uk/en/your-environment/air-quality/

Allerdale will make information about local Air Quality more accessible to all with leaflets drops planned for late 2018- 2019. The main focus areas being villages situated off mains gas with homes reliant on burning solid fuel for heating.

A new Visit Allerdale website is set to launch in 2018 and can be accessed on the following link http://visitallerdale.co.uk/ . The webpage is focussed on people visiting the area has considered travel arrangements and sustainable cleaner transport systems for visitors accessing the borough. The webpage contains a new interactive travel planning guide focused on our less polluting public transport system of rail and bus network before considering car travel.

The Visit Allerdale website also contains an array of information of our cycle and walking routes throughout the borough. Allerdale have worked closely with Sustrans in developing and maintaining the local safe cycle and walking network. Further information on the network maps and routes in the Allerdale borough is available on the Sustrans website https://www.sustrans.org.uk/

Allerdale are keen to get the message out that we can all help improve Air Quality from businesses and Industry to individuals or communities. Whether that be by using public transport alternatives to car journeys or simply taking the active option of walking or cycling.

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1 Local Air Quality Management

This report provides an overview of air quality in the Allerdale Borough during 2017. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Allerdale Borough Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England c.an be found in Table E.1 in Appendix E.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

Allerdale Borough Council has not identified from monitoring throughout 2017 or previous years any exceedance of an air quality objective and therefore no AQMAs have been declared. For reference, a map of Allerdale Borough Councils monitoring locations is available in Appendix D

2.2 Progress and Impact of Measures to address Air Quality in the Allerdale Borough

Defra's appraisal of the 2017 Annual Screening Report

"The position of Allerdale in the north west of Cumbria including part of the Lake District National Park provides the area with some of the lowest background pollution levels in the country.

Recent monitoring has confirmed that there are no recorded exceedances of the air quality objectives from any recent monitoring programmes,

Allerdale has had no basis for declaring any AQMAs.

New diffusion tube monitoring sites for nitrogen dioxide have been introduced in 2016 to enable a wider coverage of sites that may be expected to experience higher pollution levels. The results from the new sites are consistent with previous monitoring, with results significantly below objective levels.

Studies are ongoing in relation to highlighting SO2 hotspots which may qualify for detailed assessment. An initial screening assessment of domestic fuel use has determined that it is unlikely that the TG16 criteria for detailed assessment will be met.

The Cumbria Local Enterprise Partnership has developed rail transport hubs, promoting rail travel from stations in the Borough, including Workington, Maryport & Keswick, providing additional Park and Ride access to local rail stations.

Additional monitoring has been established to consider the additional street at Main Road, Harrington with traffic flow above 5,000 vehicles per day and with residential properties close to the kerb. The initial results of this monitoring are significantly below objective levels, and do not give rise to a further detailed assessment.

On the basis of the evidence provided by the local authority the conclusions reached are acceptable for all sources and pollutants, with the following commentary provided to inform future reports.

The report is well structured and provides most of the information specified in the Guidance."

DEFRA Concluding Comments

1. The results of most recent monitoring, including new sites that have been considered as sites where there may be raised pollution levels, continue to provide results significantly below objective levels.

Results for 2017 monitoring are again significantly below objective levels. Changes to monitoring site locations have again been made using TG16 methods for identifying possible receptors to raised pollution levels.

2. The Council have highlighted several further areas where there may expect to be future increases in local traffic levels, associated with siting of new major developments. These sites will benefit from background monitoring prior to development, as a basis for establishing local impacts of developments.

Monitoring sites were changed to assist in gathering background data in relation to the above. An increase in monitoring sites has been agreed and commenced for 2018 monitoring locations. The extra locations should enable more data to be gathered so that informed assessments of predicted impacts can be reliably undertaken and reviewed.

3. The policy of continuing to review monitoring sites should continue, to ensure the monitoring focusses on sites where pollution levels may be expected to increase from increased traffic levels.

Due to good results obtained from the previous annual sampling in 2016 diffusion tube sites have again been reviewed to monitor in areas felt to be worst case for 2017. Traffic data and improvements from 2017 have again been obtained from Cumbria County Council and the Highways Authority. There has been no improvement deemed as significant to warrant further assessment. Data in relation to traffic movement will be used to identify further areas for NO_2 monitoring in 2018 and beyond.

4. The latest results do not provide any basis for requiring further detailed assessments.

No detailed assessments were required or carried out in 2017.

Allerdale Borough Council has taken forward a number of direct measures during the current reporting year of 2017 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.1.

Key completed measures are:

Transport Hubs

- The Workington transport hub, which was funded by Cumbria Local Enterprise Partnership, aims to encourage people to travel by train along the Cumbrian Coast, reduce traffic congestion and improve access to Workington rail station this project was completed in May 2017.
    - A new 143-space car park
    - New access road to A597
    - Realignment of roads and footways
    - New paving and road surface treatments
    - Installation of street lighting, street furniture and bus shelter
    - Provision of drop-off area, disabled parking and bike parking facilities
- The Maryport Transport Hub –A similar rail based park and ride involved the construction of 78 space car park and 4 spaces for motorbikes. This development was completed in May 2018.
- A review was undertaken of green fleet vans to carry out Council Services. On conclusion of the review the community services fleet are now all Euro 6 complaint and include 3 electric vehicles. An electric vehicle charging point has been previously positioned at the Allerdale council offices in Workington after Cumbria County Council secured funding from the Governments Office of Low Emission Vehicles and a private investor.

Allerdale Borough Council expects the following measures to be completed over the course of the next reporting year:

- Review air sampling points for 2019 – Allerdale NO_2 monitoring to be re-sited on assessment of results.
- Review and improvements in Keswick, and the wider area as part of the Cumbria Transport Plan Strategy 2011 – 2026.

- Significant progress made for the cycleway between Allonby to Silloth, to support the promotion of travel alternatives.
- Completion of the Visit Allerdale tourism web page. In order to encourage the use of the public transport and improve awareness of improving air quality related issues when visiting Allerdale.

Allerdale Borough Council's priorities for the coming year are:

Allerdale Borough Council Environmental Health department will continue to work with the Planning Authorities with regard to new developments, focussing on air quality implications including major developments within the region.

- Working with developers on national significant infrastructure projects ongoing within and around the Allerdale borough.
- Allerdale Borough Council Environmental Health department will continue with its statutory duty in connection with Part A2 and B processes.
- Continue to develop and encourage Allerdale's home working policy.
- Allerdale Borough Council are considering screening to identify potential source appointments for $PM_{2.5}$.
- Increase public awareness of air pollution with a particular focus on domestic burning and $PM_{2.5}$
- Allerdale Borough Council will continue to regulate and monitor combustion plant emission sources such Combined Heat Power plant, Biomass Boilers and Diesel STOR generator plants via the planning process.

The principal challenges and barriers to implementation that Allerdale Borough Council anticipates facing are:

- Maximising the best use of resources available including officer time and funding.
- Allerdale Borough Council is a two-tier Borough Council with Cumbria County Council, we continue to work together to improve air quality within Allerdale.
- Funding issues regarding key national infrastructure projects some of which are now on hold..

Progress on the following measures has been slower than expected due to:

- Complete cycleway Allonby to Silloth – require match funding from DCLG, however progress is now being made.
- National infrastructure projects, NuGen – require funding from private investment.

Table 2.1 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Review Air Sampling Points for NO_2.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Allerdale Borough Council	2016	2017	Evidence based variation in sampling points.	N/A	Completed for 2018 ongoing for 2019	ongoing continual review	
2	National Significant Infra Structure Projects	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	NuGen	2015	Ongoing	N/A	N/A	Implementation on-going	Unknown	Funding issues
3	Review of traffic restrictrions in Workington, Maryport and Keswick as part of the Cumbria Transport Plan Strategy 2011 - 2026	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	Cumbria County Council	2018	2019	N/A	N/A	Not yet implemented	2019/2020	No major schemes such as on-way systems or parking zones to date. With the exception of areas in Keswick, Cumbria County Council are looking to implement a sizeable disc parking scheme. Within the wider area, work to look into a multi-agency basis at utilising existing parking provision more efficiently whilst looking at medium to longer term planning strategy in terms of vehicle use and parking.
4	Assessment for SO_2 in areas with domestic soilid fuel	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Allerdale Borough Council	2015	Ongoing	.Demonstrate compliance with Air Quality objective	N/A	Review of housing stock highlighted much fewer coal properties than expected. Detailed assessment not required.	2017	

5	Allerdale Borough Council Environmental Health to work with the Planning Authorities with regard to new developments considering air quality implications	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Allerdale Borough Council	Ongoing	Ongoing	Planning Consultations made in accordance with consultation period.	N/A	Environmental Health are consulted at pre-planning sate on all proposed developments which may impact on air quality. Via the planning process Allerdale has been pro-active in ensuring the borough maintains its low levels of pollution. Air quality assessments have been required for developments including potentially polluting industrial applications. Industrial applications, combined heat and power systems or other combustion method energy production such as gas turbine or biomass boilers.	Ongoing	
6	Allerdale Borough Council Environmental Health will continue with its statutory duty in connection with Part A2 and B processes. Environment Agency are responsible for Part A1	Environmental Permits	Introduction/increase of environment charges through permit systems and economic instruments	Allerdale Borough Council	Ongoing	Ongoing	Risk based inspections in accordance with Statutory Guidance	N/A	Allerdale Borough Council regulated permits for 32 Part B and 3 A2 processes. No enforcement action has required been during 2017 and no unexpected air pollution incidents have been recorded.	Ongoing	
7	Promote and encourage the Home Working Policy	Promoting Travel Alternatives	Encourage / Facilitate home-working	Allerdale Borough Council	Ongoing	Ongoing	Decrease the amount of travel undertaken in carrying out Council functions.	N/A	Ongoing	Ongoing	
8	Improvements Allerdale Borough Council website	Public Information	Via the Internet	Allerdale Borough Council	2017	2018	Public perception of issues.	N/A	Air Quality page on the Allerdale Borough Council website was revised in March 2018. Updated information on	Ongoing	

									how to reduce air pollution at source.		
9	Adopted Local Policy: Section 19 Renewable Energy and Low Carbon Technologies	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Allerdale Borough Council	Ongoing	Ongoing	N/A	N/A	N/A	2029	In order to achieve national renewable energy targets Allerdale Borough Council supports the development of new sources of renewable energy. On the understanding measures taken avoid significant negative impacts to the local amenity.
10	Adopted Local Policy: Section 22 - Sustainable Travel Choices	Transport Planning and Infrastructure	Other	Allerdale Borough Council	Ongoing	Ongoing	N/A	N/A	N/A	2029	Key objective of spatial planning is to ensure that jobs, housing, shopping, leisure and services are accessible by public transport, walking and cycling.
11	Complete cycleway Allonby to Silloth	Promoting Travel Alternatives	Promotion of cycling	Solway and Silloth Coastal Community Team	2015	Ongoing	Promote easy walking and cycling.	N/A	Working with DCLG on funding options	Ongoing	Consultancy team have been appointed reviewing landownership. Ecological work has been carried out and is a current work in progress for completion in late 2019. Recent public health and Love My Beach event in Silloth to promote cycling across the borough and coastal area.
12	Adopted Local Policy: Section 21: Developer contribution	Policy Guidance and Development Control	Other policy	Allerdale Borough Council	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	2029	Community Infrsastructure Levy (CIL) is currently being explored as a levy that the Council may use to charge on new developments. This ensures that without

											compromising development viability. Contributions will provide necessary enhancements including energy initiatives and Climate change solutions with regard to air quality.
13	Maryport Transport Hub	Alternatives to private vehicle use	Bus based Park & Ride	Cumbria County Council	2015	2016	Construction of 78 space car park and 4 spaces for motorcycles.	N/A	Completed	2018	
14	Investigation of complaints of black smoke and smoke nuisance and managing smokeless zone. When necessary enforcement action will be taken.	Public Information	Other	Allerdale Borough Council	Ongoin g	Ongoing	Reductions in the number of repeat offenders through engagement.	N/A	Revised web page in March 2018.	Ongoing	
15	Allerdale Borough Council - Visit Allerdale (Tourism web page)	Public Information	Via the Internet	Allerdale Borough Council	2018	Ongoing	Public perception of issues.	Page with information about cycling routes and making the most of public transport within the Allerdale region	Contributing with information and using public transport.	2018	
16	Cycle to work	Promoting Travel Alternatives	Promotion of cycling	Allerdale Borough Council	2017	Ongoing	Promote cycling to work	N/A	Implementation on going	Ongoing	Active in house travel plan. Tax free bike scheme to help employees save money on new bike and bike safety equipment.
17	National Significant Infra Structure Projects	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	United Utilities	2016	Ongoing	N/A	N/A	Implementation on going across Allerdale	2022	United Utilities West Cumbria Supplies project launched Tree Fund to community groups. The Cumbria Tree Fund is aimed to help support the planting of trees,

											hedges or woodlands to improve the environment and consequently improve air quality during 2018-2020.
18	National Significant Infra Structure Projects	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	National Grid	2015	On hold	N/A	N/A	On hold	Unknown	Funding issues regarding proposed NuGen development.
19	Reducing levels of PM 2.5 (fine particulates)	Public Information	Influence and change behaviour s	Allerdale Borough Council	2018	Ongoing	N/A	N/A	Implementation on going	Ongoing	Allerdale Borough Council are considering screening to identify potential source appointment in hotspots. In particular, targeting off grid areas using solid fuels.
20	Adopted Local Policy: Section 36 Air, Water and Soil Quality	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Allerdale Borough Council	Ongoin g	Ongoing	N/A	N/A	N/A	2029	The policy sets out Allerdale Borough Council's approach to ensuring that air and water quality are protected and enhanced and that soil quality is maintained and not eroded.
21	Workington Transport Hub	Alternatives to private vehicle use	Bus based Park & Ride	Cumbria County Council	2015	Apr-16	Construction of 143 car park spaces	N/A	Completed	2017	
22	Central Heating Fund	Promoting Low Emission Plant	Other Policy	Allerdale BC	2016	Improvement of 79 properties whose primary heat source would likely consist of solid fuel use such as wood or coal. The improvement to modern technology gas and oil central heating	79 Properties improved	PM2.5 Reduction	Completed	2018	Although not set out as an initial air pollution intervention, in light of recent information given regards the burning of solid fuel in domestic properties as a significant producer of PM2.5.The following information has been included in this report as positive and relevant.

						systems should gain substantial improvement in PM2.5 emissions.					

2.3 $PM_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

The Wider Determinants of Health document 2017 published by Public Health England have stated in their statistics the annual concentration of human-made fine particulate ($PM_{2.5}$) matter at an area level, adjusted to account for population exposure is the lowest in the country for the Allerdale area.

"*In 2015 the England average value was 8.3 µg/m3, and ranged from a low of 5.2 µg/m3 in Allerdale, up to 12.5 µg/m3 in the City of London"*

Allerdale Borough Council is taking the following measures to address $PM_{2.5}$.

- Allerdale Borough Council will continue with its duties to regulate and control in regards to emissions from all Part A2 and B Processes located within the local Authority area.
- Allerdale Borough Council will continue to work with developers in regards to the planning and implementation of major developments which may affect air quality.
- Allerdale Borough Council will continue to monitor Intensive farming (including poultry) within the Borough via Environment Agency permitted links and the planning process. A review in the 2015 Updating and Screening Assessment demonstrated that there were no poultry farms meeting the specified criteria for detailed Assessment in Relation to $PM_{10.}$ (Similar source to $PM_{2.5}$)
- Allerdale Borough Council continues to regulate and enforce Smoke Control Areas under the Clean Air Act see Annex D for defined mapped areas.
- Allerdale Borough Council will continue to regulate and monitor combustion plant emission sources such Combined Heat Power plant, Biomass Boilers and Diesel STOR generator plants via the planning process.

- $PM_{2.5}$ sources are to be investigated further for 2018. Information is planned to be distributed via online social media and leaflet drop campaigns. The goal being changing behaviours and choice of fuel used by those reliant on solid fuels. Particular focus will be paid to off grid gas, town and village locations.

Central Heating Fund

Although not set out as an initial air pollution intervention, in light of recent information given regards the burning of solid fuel in domestic properties as a significant producer of $PM_{2.5}$.The following information has been included in this report as positive and relevant.

The Department of Energy and Climate Change (DECC), now known as the Department for Business, Energy and Industrial Strategy (BEIS), invited Local Authorities (LAs), working with their local partners, to apply for funding to be used to improve the housing of those in fuel poverty living in their area. LAs were asked to come forward with developed proposals that meet the primary aim of the Central Heating Fund (CHF), to incentivise the installation of first time central heating systems in fuel poor households who do not use mains gas as their primary heating fuel

Allerdale led a successful bid to DECC for £1.14m to help local people heat their homes.

The Central Heating Fund was delivered in partnership with three other Districts, npower, Northern Gas Networks and National Grid Gas.

504 application packs were sent out across the District partners and 232 were eligible for the scheme. 81% of eligible applicants went on to receive a central heating system this equates to 188 central heating systems installed in total (79 Allerdale)

	ABC	CCC	EDC	SLC	Total
Oil	45	19	28	17	109
Gas	34	11	9	25	79
Total	79	30	37	42	188

The above intervention likely demonstrates the improvement of 79 properties whose primary heat source would likely consist of solid fuel use such as wood or coal. The

improvement to modern technology gas and oil central heating systems should gain substantial improvement in $PM_{2.5}$ emissions.

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

3.1 Summary of Monitoring Undertaken

This section sets out what monitoring has taken place and how it compares with objectives.

Allerdale Borough Council undertook non- automatic (passive) monitoring of NO2 at ten sites during 2017. All monitoring locations use duplicate tubes allowing precision of the tubes to be calculated from the duplicate exposure.

Allerdale Borough Council demonstrated no exceedances from monitoring undertaken in years previous including 2016.

The 2017 annual monitoring results are well within the annual objectives for Nitrogen Dioxide (NO2). To date, there is no evidence that supports declaration of an Air Quality Management Area.

The 2017 Annual Screening Report carried out a further review of existing sampling locations. This was carried out in order to ensure that monitoring is carried out in areas where concentrations are expected to be highest and where the public (receptors) may be exposed over the averaging period of the objectives.

Prior to 2015 sampling points had previously remained relatively unchanged for a period of 5 years despite no objectives ever being exceeded. Some sampling points had poor data capture due to interference with sampling apparatus. This led to a change in location and addition of four extra sampling points for 2016.

Further changes for this reporting year (2017 monitoring) included decommissioning of previous sites:

- Flimby Junior School, Flimby
- Vulcans Lane, Workington
- Aspatria Sure Start, Aspatria

Which were changed for new sites being:

- Murray Road, Workington (Main Bus Station)
- Ramsey Brow, Workington
- Winscales Avenue, Distington

The sites for 2017 were as follows maps available in Appendix D

DTS 1 Harrington Road, Workington This is a worst case roadside site previously instated in 2016. It is positioned on traffic signage situated on the B5296 traffic light controlled cross roads with Annie Pit Lane and Honister Drive. Although no data or

traffic counts have been received for this location. It is known for stop start traffic due to the traffic light control. There are many residential receptors in close proximity to the Junction.

DTS2 Murray Road, Workington This location was implemented for 2017 and is situated outside the Workington Bus station which is the largest bus station in the Allerdale Borough. The monitoring point is located on the facade of the building and facing Murray Road. Murray Road is a town centre single one way carriageway with parking, loading and taxi ranks in relatively close proximity.

DTS3 Main Street, Cockermouth This is a location based on worst case scenario, located in the centre of Cockermouth as a Kerbside receptor next to the B 5292 which is known to experience congestion and queueing of traffic at peak times as an access route for the town centre and Secondary School. This monitoring point was instated in January 2016.

DTS4 Main Street, Keswick This is a roadside location on the A5271 in very close proximity to a Guest House (permanent residential receptor also). Keswick is a very busy tourist town with larger volumes of traffic in holiday periods. Traffic has been noted to queue at the B5289 - A5272 intersection (mini roundabout) as the only exit entry to Borrowdale Valley and Derwent Water lake shore. Cumbria County Council provided information indicates an average of 7317 vehicle movements per day in 2017.

DTS5 Curzon Street, Maryport This is a Kerbside location on the A596 adjacent to a busy four way traffic light controlled box junction which demonstrates worst case. The façade of the nearest residential exposure is situated 5m back from the site. This monitoring site location was instated in 2016. Cumbria County Council provided information indicates 11017 vehicle movements per day in 2017.

DTS6 Ramsay Brow, Workington This site is located on the A66 in close proximity to the traffic light controlled A596 junction. Traffic is often set to queue, there is a possible canyon effect due to the narrowing of the carriage way and properties in close proximity to the road on each side. There is also particularly steep ascent from the A596 along the A66 Ramsay Brow.

In 2016 NuGen with consultation from Allerdale had carried out back ground monitoring of Nitrogen Dioxide at expected Road Improvement sites in Workington at

kerb side locations on the A66 at Ramsay Brow and also Hall Brow. The Ramsay Brow site initially indicated higher levels of NO_2 than expected. Due to these higher levels being recorded by NuGen it was felt that Allerdale should also carry out monitoring in this area independent of the Moorside Project. Diffusion tubes have been situated at the worst case closest receptor on Ramsay Brow being a residential property throughout 2017.

DTS7 King Street, Wigton The monitoring point on Wigton King Street had previously been damaged in 2015 and removed by persons unknown on a number of occasions which negatively affected the data capture. It had therefore been moved in 2016 a very short distance 3m from the façade of the building to a nearby lamp post (Kerbside). This point remained unchanged for 2017 and is the longest standing monitoring location with 5 years of data.

DTS8 Church Road, Workington (Harrington) this is a Kerbside location identified as a site for monitoring in the 2015 USA. Main Road, Harrington A597 has residential properties on both sides of the street and within 2m of the kerb. This section of road includes a pedestrian crossing causing vehicles to stop/start. This monitoring point has been in situ since 2016. Cumbria County Council provided information indicates 10233 vehicle movements per day in 2017.

DTS9 Winscales Avenue, Distington Further road links with increased usage predicted with the Moorside development included the A595 Lilyhall Industrial Estate. A monitoring site has been positioned at a nearby receptor to the carriage way being a residential property on Winscales Avenue. This monitoring location also served a further purpose. It was felt beneficial to gather back ground NO_2 levels in this area as it is in close proximity to the derelict Alcan industrial site. It is thought this area may have potential to be redeveloped for industry in the future.

DTS10 Grasslot School, Maryport This is a Kerbside location on the A596 in very close proximity to Grasslot Primary School (10m from façade). This point was instated in 2016.

<u>Planned changes for 2018</u>

Decommissioned sites

DTS1 Harrington Road, Workington was removed as a monitoring location. Two years of monitoring in a worst case position had demonstrated clear compliance with annual levels consistently below 20 µg/m^3 with a small reduction for this year.

DTS9 Winscales Avenue, Distington has been removed. Monitoring at this receptor point showed the lowest NO2 levels of all monitoring positions with a bias adjusted annual mean of just 11.6 µg/m^3 . The information gained will be useful as a background to assess impacts of increased traffic or industrial development in the locality.

DTS10 Grasslot School, Maryport has been removed from the Allerdale NO_2 monitoring position. Two years of monitoring have again demonstrated clear compliance with annual bias adjusted levels consistently below 20 µg/m^3. There had been a negligible increase in 2017.

Relocated

DTS8 Church Road, Workington (Harrington) Two years of monitoring have demonstrated clear compliance with annual levels consistently below 20 µg/m^3 and a small reduction gained from last year. The monitoring site has been relocated a short distance along the same road (Main Road, Harrington A597) The new monitoring point is positioned on a receptor property which was chosen due to the narrowing of the carriage way and relatively steep ascent of the road. This was felt to be a point of interest when assessed in line with TG16 guidance.

New Monitoring Locations

Hall Park View, Workington this site was selected for monitoring to gain background data. The monitoring point is situated at a possible Moorside road improvement sites being Ramsay Brow to Hall Brow. Diffusion Tubes are situated at the worst case closest receptor on Hall Park View.

Railway Villa, Wigton monitoring point is situated on the facade of a residential receptor property that may be affected from any potential increased rail traffic from key infrastructure projects. The close proximity in this area of the busy A596 link to Carlisle is also likely to be a contribution to NO_2 levels.

Lawson Street, Aspatria had been chosen partly due to concern expressed by residents in Aspatria in that it was thought the traffic flow of HGV's had increased in the town. The monitoring site is positioned on a receptor facade on the main

thoroughfare being A596 which passes right through the centre of the town. The A596 connects the industrial west coat of Allerdale with Carlisle and the M6 motorway. Lawson Street was chosen as a worst case monitoring point as there are residential terrace properties on each side of the road in close proximity to the kerb. It is thought a canyon effect preventing dispersal of exhaust gasses is possible.

3.1.1 Non-Automatic Monitoring Sites

This section sets out what monitoring has taken place and how it compares with objectives.

Allerdale Borough Council undertook non- automatic (passive) monitoring of NO_2 at ten sites during 2017. Table A.1 in Appendix A shows the details of the sites.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied are included in Appendix C.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, “annualisation” and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.2 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

For diffusion tubes, the full 2017 dataset of monthly mean values is provided in Appendix B.

It can be seen from Table A.3 there is no exceedance of the lower annual 40µg/m3 objective at any of the ten monitoring sites.

As sites are situated for worst case scenario in close proximity to the pollutant source (road traffic), it is assumed that pollutant concentrations at the closest receptor would be lower. On discussion with Local Air Quality Management helpdesk it has been advised that there is no need to demonstrate modelling of pollutant dispersal and distance correction to the nearest receptor. This is due to the results

being well below the national objectives and outside of the threshold recommendations outlined by TG16 (annual mean above 36 µg/m^3).

There are no annual means greater than 60µg/m^3 (highest recorded 30 µg/m^3), demonstrating in line with TG16 that exceedance of the 1-hour mean 200 µg/m^3 objective is very unlikely likely at any of the monitoring sites.

Individual Site Data

DTS 1 Harrington Road, Workington This is a worst case roadside site previously instated in 2016. It is positioned on traffic signage situated on the B5296 traffic light controlled cross roads with Annie Pit Lane and Honister Drive. Eleven months of good precision duplicate diffusion tube data were gained for this site and demonstrated an annual Bias adjusted mean of 18.5µg/m^3 this was a very slight reduction on the 2016 result of 19µg/m^3

DTS2 Murray Road, Workington This Urban Centre / Roadside location was implemented for 2017 and is situated outside the Workington Bus station which is the largest bus station in the Allerdale Borough. The monitoring point is located on the facade of the building and facing Murray Road. Murray Road is a town centre single one way carriageway with parking, loading and taxi ranks in relatively close proximity. Ten months of diffusion tube data including eight months duplicate tube data were gained for this site and demonstrated an annual Bias adjusted mean of 18.5µg/m^3. All duplicate data indicated as good precision

DTS3 Main Street, Cockermouth This is a location based on worst case scenario, located in the centre of Cockermouth as a Kerbside receptor next to the B 5292. Twelve months of diffusion tube data were gained for this site including ten months of duplicate data indicating good precision. The full data demonstrated an annual Bias adjusted mean of 21.6µg/m^3 this was a negligible increase on the 2016 result of 21.2µg/m^3.

DTS4 Main Street, Keswick This is a roadside location on the A5271 in very close proximity to a Guest House (permanent residential receptor also) Traffic has been noted to queue at the B5289 - A5272 intersection (mini roundabout) as the only exit entry to Borrowdale Valley and Derwent Water lake shore. Cumbria County Council provided information indicates an average of 7317 vehicle movements per day in 2017. Twelve months of diffusion tube data were gained for this site including eleven

months of duplicate data indicating good precision. The full data demonstrated an annual Bias adjusted mean of 29.3µg/m^3 this was a negligible increase on the 2016 results of 29µg/m^3.

DTS5 Curzon Street, Maryport This is a Kerbside location on the A596 adjacent to a busy four way traffic light controlled box junction which demonstrates worst case. The façade of the nearest residential exposure is situated 5m back from the site Cumbria County Council provided information indicating 11017 vehicle movements per day in 2017. Twelve months of diffusion tube data were gained for this site including eleven months of duplicate data indicating good precision. The full data demonstrated an annual Bias adjusted mean of 26.2µg/m^3 this was a negligible increase on the 2016 results of 26µg/m^3.

DTS6 Ramsay Brow, Workington This Kerbside site is located on the A66 in close proximity to the traffic light controlled A596 junction. Eleven months of diffusion tube data were gained for this site including 8 months of duplicate data indicating good precision. The full data demonstrated an annual Bias adjusted mean of 30µg/m^3.

DTS7 King Street, Wigton This kerbside monitoring point at King Street Wigton had remained unchanged for 2017 and is the longest standing monitoring location with five years of data (minor relocation prior to 2015).Eleven months of duplicate diffusion data indicating good precision were gained. The full data demonstrated an annual Bias adjusted mean of 23.1µg/m^3 this was a small decrease on the 2016 result of 25.2µg/m^3.

DTS8 Church Road, Workington (Harrington) this is a Kerbside location. Cumbria County Council provided information indicates 10233 vehicle movements per day in 2017. Twelve months of diffusion tube data were gained for this site including eleven months of duplicate data indicating good precision. The full data demonstrated an annual Bias adjusted mean of 16.2µg/m^3 this was a small decrease on the 2016 result of 18.9µg/m^3.

DTS9 Winscales Avenue, Distington this is a roadside / industrial location. Eleven months of diffusion tube data were gained for this site including eleven months of duplicate data indicating good precision. The full data demonstrated an annual Bias adjusted mean of 11.6µg/m^3.

DTS10 Grasslot School, Maryport This is a Kerbside location on the A596 in very close proximity to Grasslot Primary School (10m from façade).Nine months of diffusion tube data were gained for this site including six months of duplicate data indicating good precision. The full data demonstrated an annual Bias adjusted mean of 19.3µg/m^3 this was a negligible increase on the 2016 result of 19µg/m^3.

Comments

Figure 1.1 demonstrates annual mean concentrations across all ten sites. It can be clearly seen that all sites are well below the annual 40 µg/m3 objective level with the highest concentration being 30µg/m^3.

Trends

Figure 1.1 shows the pollution trend for Nitrogen Dioxide annual levels over the last two years. The trend is very consistent with last years (2016) results with no notable changes for the majority of the sites.

Sites **DTS3, DTS4, DTS5** and **DTS10** have all shown a very slight (negligible) increase in Nitrogen Dioxide levels.

Sites **DTS1** shows a very slight (negligible) reduction in Nitrogen Dioxide levels.

Sites **DTS7** and **DTS8** have shown the biggest change in Nitrogen Dioxide levels with a small drop of 2.1µg/m^3 and 2.7µg/m^3.

Due to the ongoing changes in line with our monitoring methods the only site with 5 years of data is **DTS7.** As stated above the levels at this site have reduced once more in line with previous year's reduction from a peak at 2014. The steady reduction year on year is demonstrated in figure 1.2.

Appendix A: Monitoring Results

Table A.1 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
DTS1	Harrington Road Workington	Roadside	299633	527882	NO2	NO	16	2	NO	2.5
DTS2	Murray Road Workington	Urban Centre	301194	528711	NO2	NO	N/A	1	NO	2.5
DTS3	Main Street Cockermouth	Kerbside	311874	530674	NO2	NO	24	1	NO	2.5
DTS4	Main Street Keswick	Roadside	326419	523602	NO2	NO	4	1.5	NO	2.5
DTS5	Curzon Street Maryport	Kerbside	303778	536534	NO2	NO	5	1	NO	2.5
DTS6	Ramsay Brow Workington	Kerbside	300588	528682	NO2	NO	0	1	NO	2.5
DTS7	King Street Wigton	Kerbside	325508	548419	NO2	NO	2	1	NO	2.5
DTS8	Church Road / Harrington	Kerbside	299256	525634	NO2	NO	3	1	NO	2.5
DTS9	Winscales Avenue Distington	Industrial	301194	524284	NO2	NO	0	25	NO	2.5
DTS10	Grasslot Maryport	Kerbside	303418	535825	NO2	NO	10	1	NO	2.5

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).
(2) N/A if not applicable.

Table A.2 – Annual Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2017 (%) (2)	NO_2 Annual Mean Concentration (µg/m^3) (3)				
					2013	2014	2015	2016	2017
DTS1	Roadside	Duplicate Diffusion Tubes	92	92	-			**19**	**18.5**
DTS2	Urban Centre	Duplicate Diffusion Tubes	83	83	-				**28.5**
DTS3	Kerbside	Duplicate Diffusion Tubes	100	100	-			**21.2**	**21.6**
DTS4	Roadside	Duplicate Diffusion Tubes	100	100	-			**29**	**29.3**
DTS5	Kerbside	Duplicate Diffusion Tubes	92	92	-			**26**	**26.2**
DTS6	Kerbside	Duplicate Diffusion Tubes	92	92	-				**30**
DTS7	Kerbside	Duplicate Diffusion Tubes	92	92	**21.9**	**28.2**	**26**	**25.2**	**23.1**
DTS8	Kerbside	Duplicate Diffusion Tubes	100	100	-			**18.9**	**16.2**
DTS9	Industrial	Duplicate Diffusion Tubes	92	92	-				**11.6**
DTS10	Kerbside	Duplicate Diffusion Tubes	75	75	-			**19**	**19.3**

☒ **Diffusion tube data has been bias corrected**

☐ **Annualisation has been conducted where data capture is <75% N/A**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Figures A.1 – Trends in Annual Mean NO_2 Concentrations

Figure 1.1 2017 Annual Mean NO_2 Concentrations µg/m^3 all sites

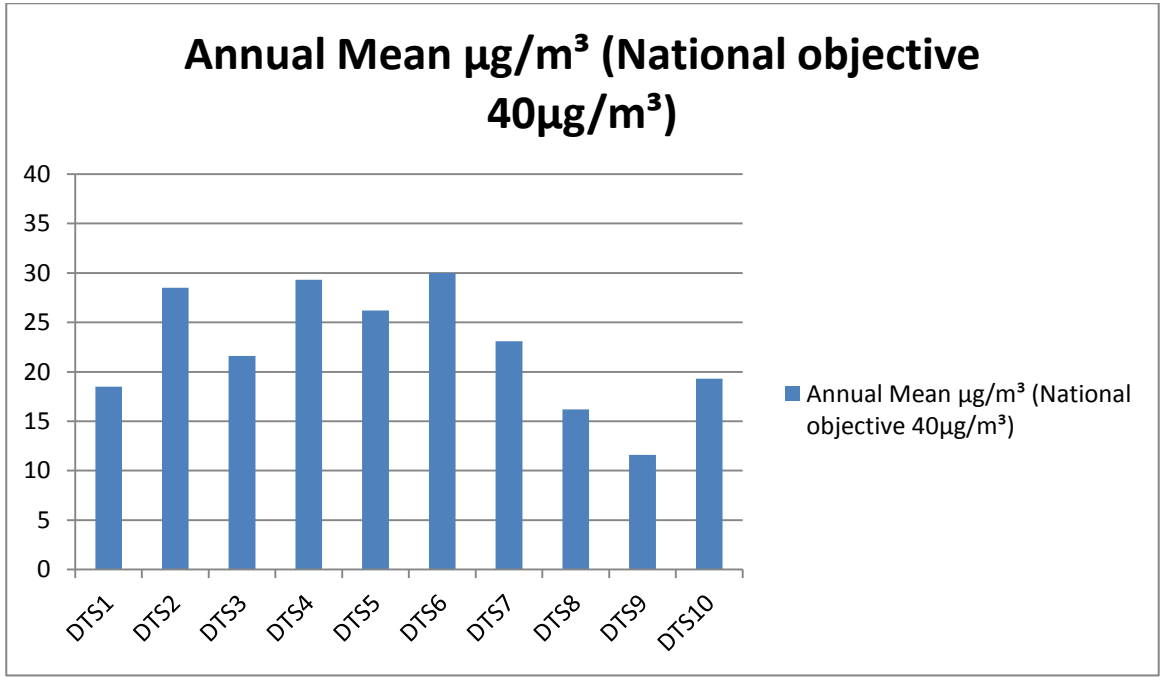


Figure 1.2 Trends 2016 -2017 Annual Mean NO_2 Concentrations µg/m^3 continued sites

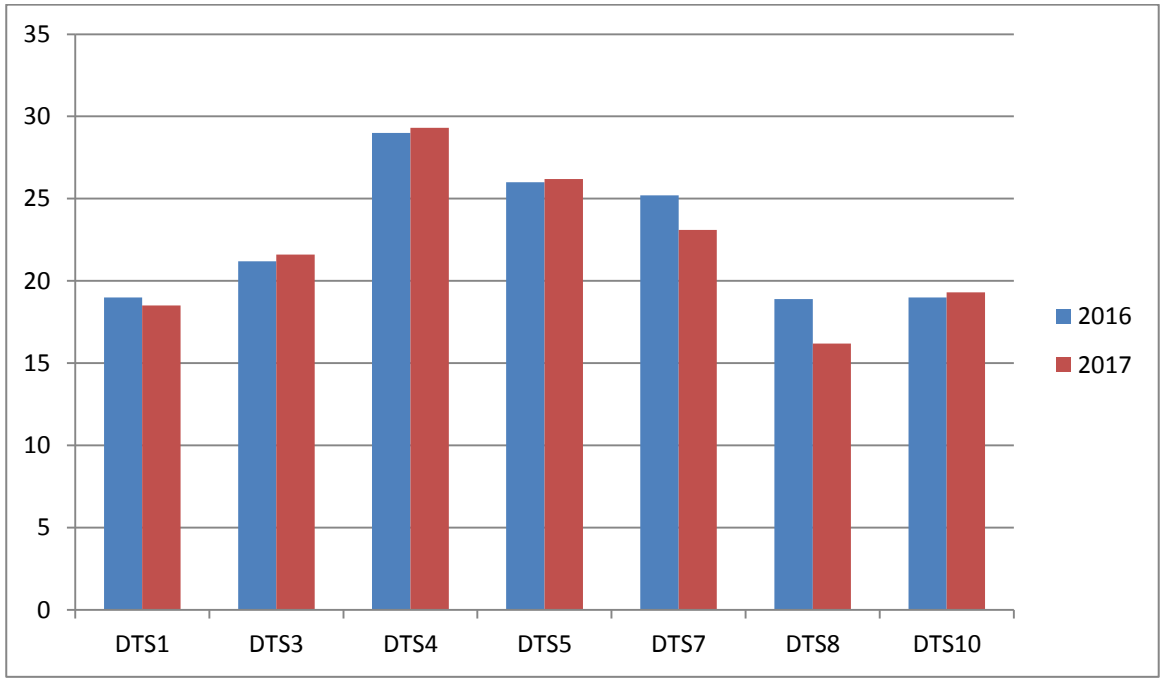
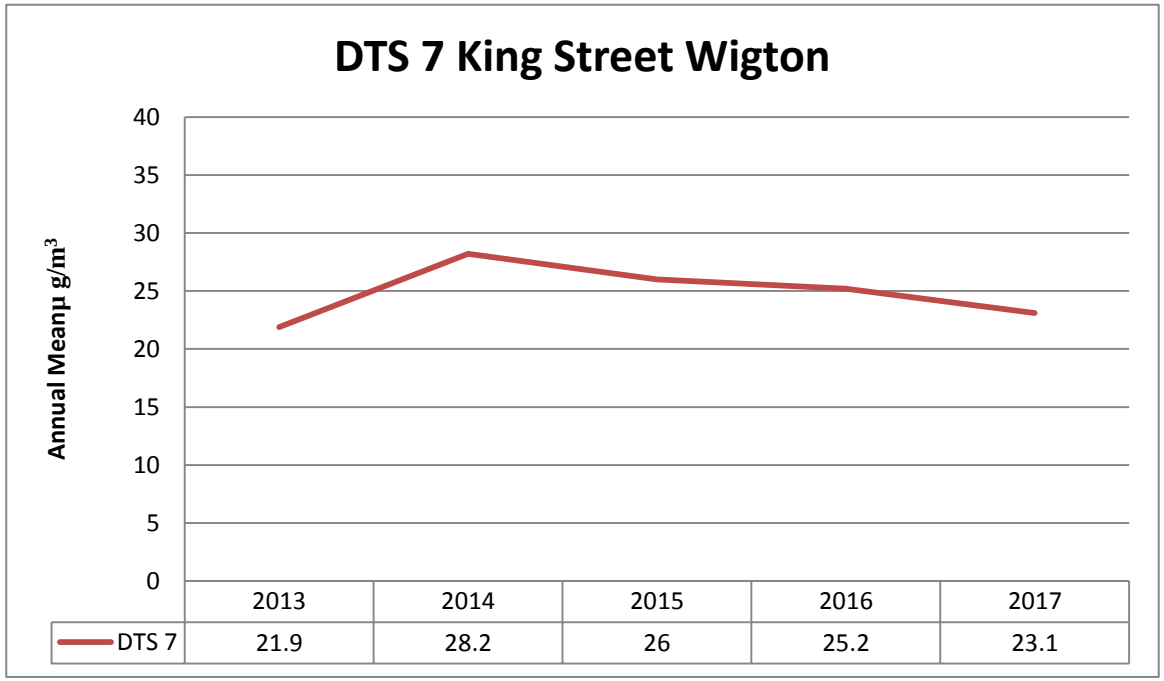


Figure 1.3 Trends 2013 – 2017 Continued monitoring site DTS7



Appendix B: Full Monthly Diffusion Tube Results for 2017

Table B.1 – NO_2 Monthly Diffusion Tube Results - 2017

Site ID	NO_2 Mean Concentrations (µg/m^3)														
													Annual Mean		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.77) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
DTS1	33.2	30.8	24.5	25.0	23.0	17.7	16.9	18.7	20.5		23.2	26.1	24.0	18.5	n/a
DTS2			42.6	43.5	33.0	33.9	31.7	30.2	35.9	38.7	47.0	36.6	37.0	28.5	n/a
DTS3	38.4	32.1	30.4	25.5	24.4	24.1	20.3	21.3	28.3	24	37	24.8	28.0	21.6	n/a
DTS4	43	33	40	51	29	33.5	32	36	41	36	46	41	38.0	29.3	n/a
DTS5	40	41	41	32	32	30	27.9	29	31	35	36	34	34.0	26.2	n/a
DTS6		46.9	42.5	41.9	41.9	36.3	31.6	33.9	40	37.5	41.3	40.4	39.0	30.0	n/a
DTS7	36	29.5	33	34.3	25.1	26.6	22.8	22.4		26.9	41.3	36.1	30.0	23.1	n/a
DTS8	34.8	25.5	26.1	22.1	22	14	14.9	12.4	20	18.5	25.9	21.1	21.0	16.2	n/a
DTS9		18.7	16.2	18.9	10.7	10.1	11.1	10.8	14.8	13.3	20.1	16.5	15.0	11.6	n/a
DTS10	39.4	33.3	31.2	19.4		21.4		17	17.9	20.7	23.1		25.0	19.3	n/a

☒ **National bias adjustment factor used**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure.

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

Diffusion Tube Bias Adjustment Factors

Diffusion tubes may systematically under or over-read nitrogen dioxide concentrations when compared to a chemiluminescence analyser. This is known as 'bias' and can be corrected for to improve the accuracy of the diffusion tube results, using a suitable bias-adjustment factor. This factor can be determined from a local study that has co-located diffusion tubes with a chemiluminescence analyser. The Defra Local Air Quality Management Helpdesk has collated a database of bias adjustment factors determined from Local Authority co-location studies throughout the UK. Using orthogonal recession combined bias adjustment factors have been calculated for each laboratory, year and preparation method combination for which data is available. Table C.1 shows the bias adjustment factors used in the assessment, taken from the March (Version 3/18) of the Diffusion Tube Bias Adjustment Spreadsheet.

Table C.1 Bias Adjustment Factors

Year	Bias Adjustment Factor
2017	0.77

Discussion of Choice of Factor to Use

As there is no co-location study the national nitrogen dioxide bias adjustment factor was used, as described above.

QA/QC of Diffusion Tube Monitoring

The laboratory supplying and analysing the diffusion tubes is Environmental Scientifics Group (ESG). ESG currently holds the highest rank of a "Satisfactory" laboratory.

The nitrogen dioxide tubes are prepared by spiking acetone: triethanolamine (50:50) onto the grids prior to the tubes being assembled. They are desorbed with distilled water and the extract analysed using a segmented flow auto analyser with ultraviolet detection. The results are initially calculated assuming an ambient temperature of

11°C and are adjusted to 20°C to allow for direct comparison with the air quality objectives.

Precision and Accuracy

Allerdale Borough Council monitoring site use two tubes referred to as duplicates. Tube precision is separated into two categories good or poor. Tubes are considered to have good precision where the coefficient of variation (CV) is less than 20% and the average CV of all monitoring periods is less than 10%. Tubes are considered to have poor precision where the CV of four or more periods is greater than 20% and/or the average CV is greater than 10%. All of the 10 Diffusion tube study periods had a CV of below 20% (good precision).

Data Capture

Data capture at all sites was at or above 75% and therefore in line with TG16 guidance no annualisation was required. Single tubes were on occasion missing from the duplicate monitoring sites. Please below table for further detail.

Table C2 data capture record and precision

Site	Months of data	Months of duplicate data	Precision poor/good
DTS1	11	11	good
DTS2	10	8	good
DTS3	12	10	good
DTS4	12	11	good
DTS5	12	11	good
DTS6	11	8	good
DTS7	11	11	good
DTS8	12	11	good
DTS9	11	10	good
DTS10	9	6	good

Diffusion Tube Exposure Method

Diffusion tubes are installed and changed on a monthly basis in line with the DEFRA exposure calendar. Allerdale store and handle the tubes in accordance with RIAMS produced document “Nitrogen Dioxide Diffusion Tube Monitoring” and TG16 Guidance.

Appendix D: Maps of Monitoring Locations and Smoke Control Areas.

Figure 1 – Harrington Road, Workington (DTS1)

Figure 2 – Murray Road, Workington (DTS2)

Figure 3 – Main Street Cockermouth (DTS3)

Figure 4 – Main Street, Keswick (DTS4)

Figure 5 – Curzon Street, Maryport (DTS5)

Figure 6 – Ramsay Brow, Workington (DTS6)

Figure 7 – King Street, Wigton (DTS7)

Figure 8 – Church road, Harrington (DTS8)

Figure 9 – Winscales Avenue, Distington (DTS9)

Figure 10 – Grasslot, Maryport (DTS10)

Figure 11- Smoke Control Areas (Red boundaries)

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[2]	
	Concentration	Measured as
Nitrogen Dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m^3	Annual mean
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

[2] The units are in micrograms of pollutant per cubic metre of air (µg/m^3).

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide
…	…

References

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