



# 2015 Air Quality Updating and Screening Assessment for

## *Northumberland County Council*

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

May 2015

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## Executive Summary

This is the local air quality Updating and Screening Assessment for 2014 for Northumberland County Council. The report fulfils this part of the Council's commitment to the continuing Local Air Quality Management (LAQM) process. This report provides an annual update for recent air quality issues in Northumberland, including an update on recent air quality in the area, obtained from its monitoring results.

The main findings for 2014 are:

- The Council has continued to monitor air quality at two monitoring stations in Blyth with three real-time continuous analysers.
- The Council maintains a network of nitrogen dioxide diffusion tubes across the county which have indicated none of the monitored locations requires more detailed monitoring or investigation.
- The national air quality objectives have been met for annual means and hourly exceedance for particulates (PM<sub>10</sub>) and nitrogen dioxide (NO<sub>2</sub>).
- Due to down time, instrument failures and equipment away for calibration/service, data capture from two of the continuous analysers fell below the 90 per cent data capture limit in 2014. The data from these have been "annualised" to present the annual mean objectives and per centiles calculated for the hourly objectives.
- Redevelopment of the Blyth library necessitated the removal of the enclosure which has monitored nitrogen dioxide (NO<sub>2</sub>) and particulates (as PM<sub>10</sub>) since 2006. This has been replaced by a post-mounted Turnkey Osiris particulate monitor which has been operational since August 2013.
- There has been investment in new equipment to measure particulates (two Turnkey Osiris particulate analysers).
- No further detailed assessment is required for any of the monitored pollutants within Northumberland.
- Northumberland County Council will progress to a LAQM Progress Report in 2016.

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# **1 Introduction**

## **1.1 Description of Local Authority Area**

Northumberland County Council was vested as a unitary authority on the 1 April 2009 through the amalgamation of the exiting county council and five district & borough councils; Berwick-upon-Tweed Borough Council, Alnwick District Council, Castle Morpeth Borough Council, Wansbeck District Council, Blyth Valley Borough Council and Tynedale District Council.

Northumberland covers an area of England from the Tyne Valley and Tyneside to the Scottish borders in the North and North-West and to Cumbria in the West. It is the largest county in England by size at 5025 square kilometres and yet is one of the smallest by population (316,000 persons in the 2011 Census).

The county border with Scotland dissects the Cheviot Hills to the west at a maximum height of 815 metres, several rivers drain these hills and the moors of the Tyne Valley and enter the North Sea at the coast. The main rivers from Berwick to the south are; the Tweed, Aln, Coquet, Wansbeck and Blyth.

Forty-six per cent of the population live in the former districts of Blyth Valley and Wansbeck and together these cover only three per cent of the area of Northumberland. These form the urban/commercial built-up area in the south east area of the County.

The principal towns of Northumberland are; Berwick (popn 13400), Alnwick (popn 8100), Morpeth (popn 14000), Ashington (popn 27800), Bedlington (popn 17500), Blyth (popn 37300), Cramlington (popn 29400), Ponteland (11900), Prudhoe (popn 10900) and Hexham (popn 13100). Population data comes from the 2011 Census.

Each town has commercial / industrial areas which contribute to localised air quality generating emissions from processes, combustion & transport.

The Cramlington and Blyth areas contain relatively larger industrial / commercial areas which include a number of permitted processes including two of the district's four, Part A2 LA-IPPC permitted installations. Blyth has an active, deep water port which is a hub for mineral shipping. Hexham, in the rural west, has the only other active A2 LA-IPPC process, which lies to the north of the town on the banks of the

River Tyne. Morpeth and Alnwick, have smaller industrial/ commercial estates and Berwick / Tweedmouth has a few commercial businesses and a small port.

The only crematoria in Northumberland is at Blyth is currently installing mercury abatement in 2014 / 2015 at a cost of £1.5 million.

At present, Northumberland has one co-fuelled coal / biomass power station on the coast at Lynemouth. However, there are plans for this to become 100% biomass during 2015.

There are a number of surface coal mines within the county, mostly situated in the south east of the County. Currently, the active sites are: Shotton, Delhi/Brenkley, Potland Burn, Butterwell and Well Hill.

Figure 1.1 shows the Northumberland county area and the location of continuous and non-continuous monitoring sites within the county which are mentioned in the report.



**Figure 1.1 Map of Northumberland County Showing Principal Air Quality Monitoring Locations**



## 1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

## 1.3 Air Quality Objectives

The air quality objectives applicable to LAQM **in England** are set out in the Air Quality (England) Regulations 2000 (SI 928), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre  $\mu\text{g}/\text{m}^3$  (milligrammes per cubic metre ( $\text{mg}/\text{m}^3$ ) for carbon monoxide) with the number of exceedances permitted in each year, where applicable.

**Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in England**

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	5.00 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10 $\text{mg}/\text{m}^3$	Running 8-hour mean	31.12.2003
Lead	0.50 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005
Particulate Matter (PM <sub>10</sub> ) (gravimetric)	50 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

## **1.4 Summary of Previous Review and Assessments**

This is the second Updating and Screening Assessment produced by the unitary Northumberland County Council (formed in April 2009). The previous Updating and Screening Assessment was produced in 2012 (see Table 1.2). Since 2009 Northumberland County Council has submitted four Progress Reports in 2010, 2011, 2013 and 2014 and a Detailed Assessment in 2011. The latter was produced because the 2010 Progress Report identified an exceedance of the annual mean objective for NO<sub>2</sub> at the Cowpen Road station. The Detailed Assessment concluded that this was anomalous and was not substantiated by previous data at the site or the co-located diffusion tubes. As such, no further action was planned although the site would continue to be monitored. The Detailed Assessment also identified that the AQMA declared by the former Blyth Valley Borough Council should be revoked because of a lack of substantive data, this was done after consultation with DEFRA in 2012.

With the exception of 2010, there has been no exceedance of any objective for any of the monitored pollutants since local government reorganisation in 2009 and the formation of the unitary Northumberland County Council.

The 2014 Progress Report identified two sources of fugitive or uncontrolled sources which would need to be addressed, namely the Well Hill Surface Mine and Domestic/Commercial Biomass. These have been addressed in the relevant sections of this report.

**Table 1.2 Previous Air Quality Reports for Northumberland**

<b>Progress Report 2014</b>	<b>Date Produced</b>	<b>Outcomes</b>
Northumberland County Council	April 2014	National Air Quality Objectives continue to be met and are likely to be met in the future
<b>Progress Report 2013</b>	<b>Date Produced</b>	<b>Outcomes</b>
Northumberland County Council	April 2013	National Air Quality Objectives continue to be met and are likely to be met in the future
<b>USA 2012</b>	<b>Date Produced</b>	<b>Outcomes</b>
Northumberland County Council	April 2012	National Air Quality Objectives continue to be met and are likely to be met in the future. AQMA revoked.
<b>Progress Report 2011</b>	<b>Date Produced</b>	<b>Outcomes</b>
Northumberland County Council	April 2011	National Air Quality Objectives continue to be met and are likely to be met in the future. Blyth AQMA should be revoked after consultation.
<b>Detailed Assessment 2011</b>	<b>Date Produced</b>	<b>Outcomes</b>
Northumberland County Council	April 2011	Previous NO <sub>2</sub> annual mean exceedance at Cowpen appears to be anomalous and that no further action is needed at this site.
<b>Progress Report 2010</b>	<b>Date Produced</b>	<b>Outcomes</b>
Northumberland County Council	April 2010	Exceedance of the annual mean objective at the Cowpen NO <sub>2</sub> station. No other exceedance or issues with either passive or active monitoring. Detailed assessment required for Blyth AQMA to review status and exceedance in Cowpen Road area
<b>USA 2009</b>	<b>Date Produced</b>	<b>Outcomes</b>
Alnwick DC	21 August 2009	National Air Quality Objectives continue to be met in and are likely to be met in the future
Berwick DC	2 October 2009	National Air Quality Objectives continue to be met in and are likely to be met in the future
Blyth Valley BC	September 2009	National Air Quality Objectives continue to be met. Review of AQMA
Castle Morpeth BC	June 2009	Report does not show any exceedance of National Air Quality Objectives
Tynedale DC	July 2009	Results do not show exceedance of National Air Quality Objectives
Wansbeck DC	July 2009	National Air Quality Objectives continue to be met in and are likely to be met in the future

## **2 New Monitoring Data**

### **2.1 Summary of Monitoring Undertaken**

#### **2.1.1 Automatic Monitoring Sites**

The two Turnkey Osiris monitors purchased in 2013 have now been operational for a full year at the Blyth Library and the Cowpen Road sites. The Osiris monitor at the Blyth Library site replaced a station which had to be removed for the redevelopment of the library access in 2013. The Osiris unit at Cowpen Road has been installed on the existing groundhog station. The Met One BAMs at the Cowpen Road and Blyth Library sites have been removed and the Teledyne/API NO<sub>2</sub> analyser at the Cowpen site has been retained but there are no plans to regularly service or maintain this unit in the future, the unit was serviced in November 2014.

The inlets of the present and previous particulate analysers (Osiris and BAM) at the Cowpen Road site are within 30 centimetres of each other, whereas at the Blyth site, the inlet for the Osiris is now some 9 metres laterally and 2 metres vertically from where the Met-One BAM inlet was located.

The Cowpen Road air quality station is located where air quality represents a “worst case scenario” being nearer to the pollution sources than receptors. Relevant public exposure for permanent residential occupants is approximately 17 metres from the kerbside of Cowpen Road and 15 metres from the inlets of the air quality analysers. There are around 150 residential dwellings with a façade within 17 metres of the kerbside along the main part of Cowpen Road. There are around 130 residential dwellings within 15 metres of the kerbside, 70 within 10 metres and 20 within 5 metres of the kerbside along a 1.5 kilometres length. There are also a number of well used bus stops located along this length of the road.

Relevant public exposure at the Blyth Library site includes a residential care home 22 metres from the site and 32 metres from the kerbside of Bridge Street, several 1<sup>st</sup> and 2<sup>nd</sup> floor flats are located approximately 45 metres to the north east of the site as well as a high pedestrian traffic associated with a bank, the library, shops, a bus stand and a taxi rank all within 30 metres of the site.

Northumberland County Council no longer monitors sulphur dioxide for emissions from the coal-fired power station at Lynemouth.

**Figure 2.1a Blyth and Cowpen Automatic Monitoring Site Locations**

Location maps of the automatic monitoring locations are shown in Appendix B.



**Table 2.1 Details of Automatic Monitoring Sites**

Site Name	Site Type	OS Grid Ref		Pollutant s Monitored	Monitoring Technique	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
Blyth Town Centre	Urban Centre / Roadside	X431536	Y581531	PM <sub>10</sub>	NEP	N	Y(3m)	3m	Y
Cowpen Road	Roadside	X428817	Y581815	NO <sub>2</sub> , PM <sub>10</sub>	CL, NEP	N	Y(3m)	3m	Y

CL = chemiluminescent

NEP = nephelometer

Osiris units maintained by Turnkey Instruments Ltd with an annual service and calibration, inlet filters are changed quarterly and sample flow adjusted by the LSO. The remaining API/Teledyne NO<sub>2</sub> analyser is not on a service contract and was serviced independently in November 2014. Data download/capture is done remotely using a mix of Windows HyperTerminal, Teledyne's APIComm and the AirQWeb website (<https://www.airqweb.co.uk/>) for the Turnkey instruments. Data processing and ratification for this period was carried out internally.



### 2.1.2 Non-Automatic Monitoring Sites

The Council had 17 NO<sub>2</sub> diffusion tubes deployed at locations across the county at the beginning of 2014. Both the Berwick tubes were decommissioned in April 2014 and an additional tube was installed in Ashington. These changes were proposed in the 2014 Progress Report.

None of the diffusion tubes measuring NO<sub>2</sub> have shown any monthly exceedance (after bias adjustment) or an annual mean above the annual objective (see Table 2.5).

All diffusion tubes are prepared and analysed by Environmental Scientifics Group (ESG Didcot). The details of the laboratory, preparation methods, procedures followed, bias factors, laboratory precision, quality assurance and quality control information (including AIR/WASP ratings of the laboratories used) etc. are specified in Appendix A.

A further review of NO<sub>2</sub> diffusion tubes will be carried out in 2015/16.

The following location maps of the non-automatic monitoring locations are shown in Appendix B :

**Figure 2.2a Alnwick NO<sub>2</sub> Diffusion Tube Monitoring Locations**

**Figure 2.2b Blyth NO<sub>2</sub> Diffusion Tube Monitoring Locations**

**Figure 2.2c Morpeth NO<sub>2</sub> Diffusion Tube Monitoring Locations**

**Figure 2.2d Cramlington NO<sub>2</sub> Diffusion Tube Monitoring Locations**

**Figure 2.2e Ashington NO<sub>2</sub> Diffusion Tube Monitoring Locations**

**Figure 2.2f Bedlington NO<sub>2</sub> Diffusion Tube Monitoring Locations**

**Table 2.2 Details of Non-Automatic Monitoring Sites**

Site Name	Site Type	OS Grid Ref		Pollutants Monitored	In AQMA?	Relevant	Distance to kerb of nearest road	Worst-case Location?
						Exposure?	(N/A if not applicable)	
						(Y/N with distance (m) to relevant exposure)		
8N – Bondgate Without, Alnwick	Roadside	X 419025	Y 613074	NO <sub>2</sub>	N	N – (20m)	1m	Y
Ber5 - Main Street, Tweedmouth ( <b>DISCONTINUED</b> )	Roadside	X 399437	Y 652022	NO <sub>2</sub>	N	Y – (1m)	4m	Y
Ber7 - Castlegate, Berwick ( <b>DISCONTINUED</b> )	Roadside	X 399595	Y 653170	NO <sub>2</sub>	N	Y – (1m)	2m	Y
B1 - Waterloo Road, Blyth	Urban Centre	X431537	Y581537	NO <sub>2</sub>	N	Y – (5m)	1m	Y
B3 - Cowpen Rd. West, Blyth	Roadside(1m)	X428815	Y581813	NO <sub>2</sub>	N	Y – (6m)	1m	Y
B5 - Cowpen Rd. East, Blyth	Roadside(1m)	X429850	Y581947	NO <sub>2</sub>	N	Y – (25m)	1m	Y
B11 - Blyth YMCA, Blyth	Urban Centre	X431160	Y581415	NO <sub>2</sub>	N	Y - (2m)	1m	Y
B12 - Bridge St, Blyth	Urban Centre	X431612	Y581586	NO <sub>2</sub>	N	Y - (1m)	1m	Y
B15 - South Newsham Road	Roadside(1m)	X430552	Y578950	NO <sub>2</sub>	N	Y (6m)	2m	N
C1 - High Pit Road, Cramlington	Roadside(1m)	X427593	Y576555	NO <sub>2</sub>	N	Y – (1m)	1m	Y
C9 - Trebor, Cramlington	Roadside(1m)	X424456	Y577173	NO <sub>2</sub>	N	Y - (30m)	3m	Y
C10 – Bay Horse (B1505)	Roadside	X427527	Y576145	NO <sub>2</sub>	N	Y – (13m)	1m	N
C11 – Storey Street (B1505)	Roadside	X427214	Y575361	NO <sub>2</sub>	N	Y – (10m)	1m	N
CM2 - Newgate St, Morpeth	Roadside	X 419525	Y 586380	NO <sub>2</sub>	N	Y – (2m)	2m	Y
CM4 - Bridge St, Morpeth	Roadside	X 419947	Y 585937	NO <sub>2</sub>	N	Y – (2m)	2m	Y
W17 - Front Street East, Bedlington	Urban Centre	X581879	Y426014	NO <sub>2</sub>	N	N – (25m)	1m	Y
W21 – Newbiggin Road, Ashington ( <b>NEW SITE</b> )	Roadside	X 427939	Y 586210	NO <sub>2</sub>	N	Y – (4.5m)	1m	Y
SD1 - Salvation Army, Seaton Delaval	Roadside(1m)	X430387	Y575433	NO <sub>2</sub>	N	Y – (1m)	1m	Y

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

<sup>c</sup> Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year. Measured means shown in parentheses.

<sup>d</sup> Annual mean concentrations for previous years are optional.

In bold, exceedance of the NO<sub>2</sub> annual mean AQS objective of 40µg/m<sup>3</sup>

Underlined, annual mean > 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> hourly mean AQS objective

<sup>a</sup> Means should be "annualised" as in Box 3.2 of TG(09) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38>), if full calendar year data capture is less than 75%

<sup>b</sup> If an exceedance is measured at a monitoring site not representative of public exposure, NO<sub>2</sub> concentration at the nearest relevant exposure should be estimated based on the "NO<sub>2</sub> fall-off with distance" calculator (<http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>), and results should be discussed in a specific section. The procedure is also explained in Box 2.3 of Technical Guidance LAQM.TG(09) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=30>).

## 2.2 Comparison of Monitoring Results with Air Quality Objectives

### 2.2.1 Nitrogen Dioxide

#### Automatic Monitoring Data

The remaining Teledyne/API analyser at the Cowpen Road site did not indicate any breach of the national air quality objectives for NO<sub>2</sub>. The measured annual mean and the annualised mean were well within this objective and no measured or per centile exceedance were indicated.

Data capture for this analyser at the Cowpen Road site fell below 90 per cent data capture threshold in 2014. Therefore, an annualised mean and 99.8<sup>th</sup> per centile have been calculated for this analyser. However, using the nearest AURN network analysers to perform this resulted in only a 2 µg/m<sup>3</sup> drop in the annualised over the measured NO<sub>2</sub> annual mean (see Table 2.3). The 99.8<sup>th</sup> per centile for this analyser was also well within the 200 µg/m<sup>3</sup> hourly mean objective (see Table 2.4).

**Table 2.3 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with Annual Mean Objective**

Site ID	Location	Within AQMA?	Data Capture for monitoring period <sup>a</sup> %	Data Capture for full calendar year 2014 <sup>b</sup> %	Annual mean concentrations (µg/m <sup>3</sup> )		
					2012 <sup>c, d</sup>	2013 <sup>c</sup>	2014 <sup>c</sup>
	Cowpen Road Site	No	N/A	54.3	28	27 (28 <sup>c</sup> )	24 (22)

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

<sup>c</sup> Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year. Displayed in parentheses.

<sup>d</sup> Annual mean concentrations for previous years are optional.

**Table 2.4 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour Mean Objective**

Site ID	Location	Within AQMA?	Data Capture for monitoring period <sup>a</sup> %	Data Capture for full calendar year 2014 <sup>b</sup> %	Number of Exceedance of hourly mean (200 $\mu\text{g}/\text{m}^3$ ) If the period of valid data is less than 90% of a full year, include the 99.8 <sup>th</sup> per centile of hourly means in brackets.		
					2012 <sup>c</sup>	2013 <sup>c</sup>	2014
	Cowpen Road Site	No	N/A	54.3	3	0 (113*)	0 (107*)

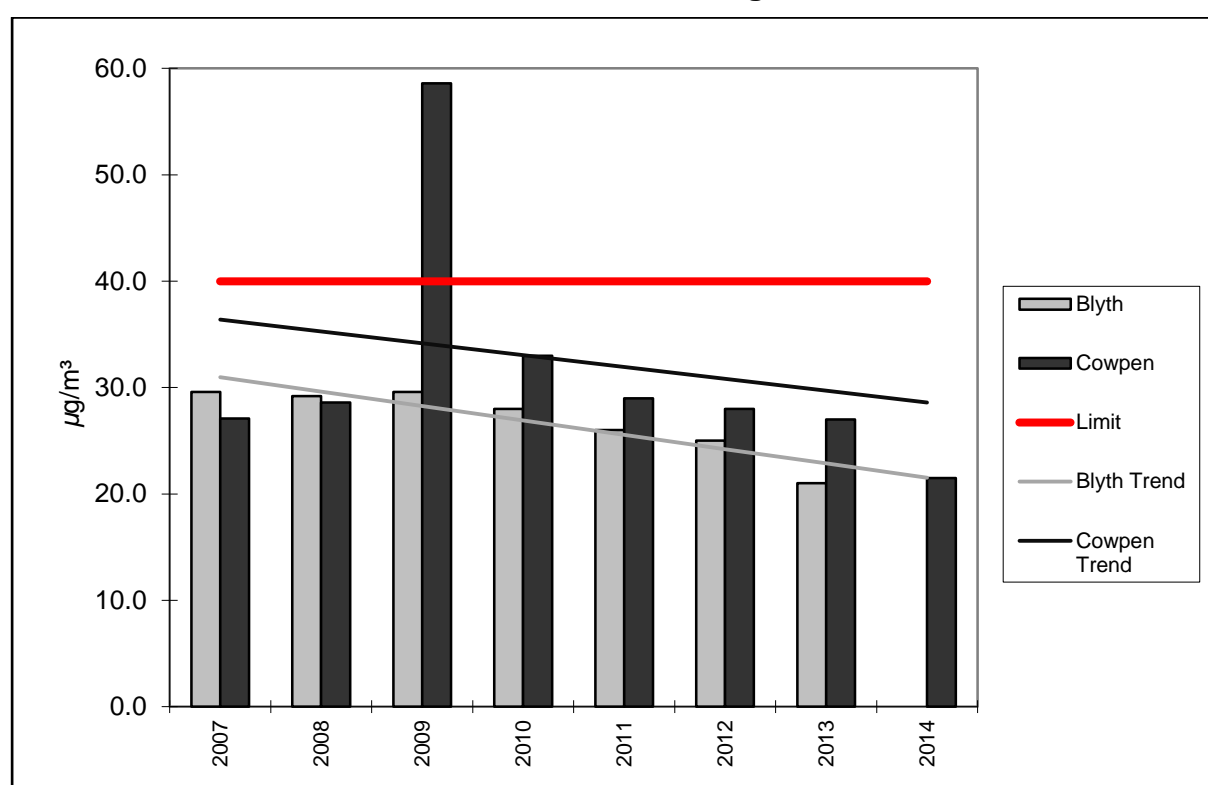
<sup>a</sup> Below the 90% data capture therefore 99.8<sup>th</sup> Per centile = 90  $\mu\text{g}/\text{m}^3$  (below the 200  $\mu\text{g}/\text{m}^3$  guideline value) Percentile displayed in parentheses.

<sup>b</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>c</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

\* Numbers of exceedances for previous years are optional.

**Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Automatic Monitoring Sites 2007 to 2014**



NO<sub>2</sub> levels continue to be met at the Cowpen Road site and seem to indicate a continuing decline in levels at both sites in the last five year. Figure 2.3 also shows a projected trend for NO<sub>2</sub> levels at Blyth (light grey line) and Cowpen (dark grey line) using a linear regression. The trend for Cowpen may be somewhat influenced by the particularly high annual mean in 2009 at this site.

### Diffusion Tube Monitoring Data

Results for all 18 nitrogen dioxide diffusion tubes show the annual mean objective for NO<sub>2</sub> being met in 2014. Also, only eight of all the monthly measured values exceeded the annual average objective for NO<sub>2</sub> (after bias adjustment).

**Table 2.5 Results of NO<sub>2</sub> Diffusion Tubes 2014**

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.81) 2014 ( $\mu\text{g}/\text{m}^3$ )
8N	Bondgate Without, Alnwick	Road/Urban	N	N/A	91.7	N	N	30
Ber5	Main Street, Tweedmouth ( <b>DISCONTINUED</b> )	Road/Urban	N	N/A	100	N	N	26
Ber7	Castlegate, Berwick ( <b>DISCONTINUED</b> )	Road/Urban	N	N/A	100	N	N	27
B1	Waterloo Road, opp bus station LP	Road/Urban	N	N/A	100	N	N	27
B3	Cowpen Road, west end monitoring site LP	Road/Urban	N	N/A	100	N	N	32
B5	Cowpen Road, east end nr Lord Tool Hire LP	Road/Urban	N	N/A	91.7	N	N	24
B11	Blyth YMCA LP	Road/Urban	N	N/A	100	N	N	26
B12	Bridge Street, opp Job Centre LP	Road/Urban	N	N/A	91.7	N	N	24
B15	South Newsham Road	Road/Arterial	N	N/A	100	N	N	20
C1	High Pit Road, Burton House car park LP	Road/Urban	N	N/A	91.7	N	N	25
C9	Trebor, A1172 Station Road, Cramlington	Road/Arterial	N	N/A	100	N	N	22
C10	Bay Horse, Cramlington	Road/Urban	N	N/A	100	N	N	27
C11	Storey Street, Cramlington	Road/Urban	N	N/A	83.3	N	N	22
CM2	Newgate Street/Bullers Green, Morpeth	Road/Urban	N	N/A	100	N	N	23
CM4	Northern Rock, Bridge Street, Morpeth	Road/Urban	N	N/A	100	N	N	26
W17	Front Street East, Bedlington	Road/Urban	N	N/A	100	N	N	28
W21	Newbiggin Road, Ashington ( <b>NEW SITE</b> )	Road/Urban	N	N/A	66.7	N	N	21 (19)
SD1	Seaton Delaval, Salvation Army LP	Road/Urban	N	N/A	100	N	N	25

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

<sup>c</sup> Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year. Measured means shown in parentheses.

\*Annual mean concentrations for previous years are optional.

In bold, exceedance of the NO<sub>2</sub> annual mean AQS objective of 40  $\mu\text{g}/\text{m}^3$

Underlined, annual mean > 60  $\mu\text{g}/\text{m}^3$ , indicating a potential exceedance of the NO<sub>2</sub> hourly mean AQS objective

<sup>a</sup> Means should be "annualised" as in Box 3.2 of TG(09) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38>), if full calendar year data capture is less than 75%

<sup>b</sup> If an exceedance is measured at a monitoring site not representative of public exposure, NO<sub>2</sub> concentration at the nearest relevant exposure should be estimated based on the "NO<sub>2</sub> fall-off with distance" calculator (<http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>), and results should be discussed in a specific section. The procedure is also explained in Box 2.3 of Technical Guidance LAQM.TG(09) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=30>).

**Table 2.6 Results of NO<sub>2</sub> Diffusion Tubes (2011 to 2014)**

Site ID	Location	Type	Within AQMA?	Data Capture for monitoring period <sup>a</sup> %	Data Capture for full calendar year 2014 <sup>b</sup> %	Annual mean concentrations (µg/m <sup>3</sup> )			
						2011 (bias adjustment factor = 0.84)	2012 (bias adjustment factor = 0.79)	2013 (bias adjustment factor = 0.80)	2014 (bias adjustment factor = 0.81)
8N	Bondgate Without, Alnwick	Road/Urban	N		83.3	33	30	28	30
Ber5	Main Street, Tweedmouth ( <b>DISCONTINUED</b> )	Road/Urban	N	100	33.3	27	24	25	26
Ber7	Castlegate, Berwick ( <b>DISCONTINUED</b> )	Road/Urban	N	100	25.0	26	25	26	27
B1	Waterloo Road, opp bus station LP	Road/Urban	N		91.7	30	31	29	27
B3	Cowpen Road, west end monitoring site LP	Road/Urban	N		100	28	28	33	32
B5	Cowpen Road, east end nr Lord Tool Hire LP	Road/Urban	N		100	21	20	24	24
B11	Blyth YMCA LP	Road/Urban	N		100	26	27	25	26
B12	Bridge Street, opp Job Centre LP	Road/Urban	N		91.7	26	27	25	24
B15	South Newsham Road	Road/Arterial	N		100.0	19	20	21	20
C1	High Pit Road, Burton House car park LP	Road/Urban	N		100.0	25	25	24	25
C9	Trebor, A1172 Station Road, Cramlington	Road/Arterial	N		100.0	27	21	21	22
C10	Bay Horse, Cramlington	Road/Urban	N		100.0	N/A	20 (23)	28	27
C11	Storey Street, Cramlington	Road/Urban	N		100.0	N/A	18 (21)	19	22
CM2	Newgate Street/Bullers Green, Morpeth	Road/Urban	N		100.0	19	22	22	23
CM4	Northern Rock, Bridge Street, Morpeth	Road/Urban	N		100.0	25	28	28	26
W17	Front Street East, Bedlington	Road/Urban	N		100.0	27	24	27	28
W21	Newbiggin Road, Ashington ( <b>NEW SITE</b> )	Road/Urban	N	100	66.7	N/A	N/A	N/A	21 (19)
SD1	Seaton Delaval, Salvation Army LP	Road/Urban	N		100.0	33	34	26	25

‡ Diffusion tubes were being analysed by two different companies (Lambeth Scientific Services Ltd = 1.03 and Harwell Scientifics = 0.81)

<sup>c</sup> Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year. Measured means shown in parentheses.

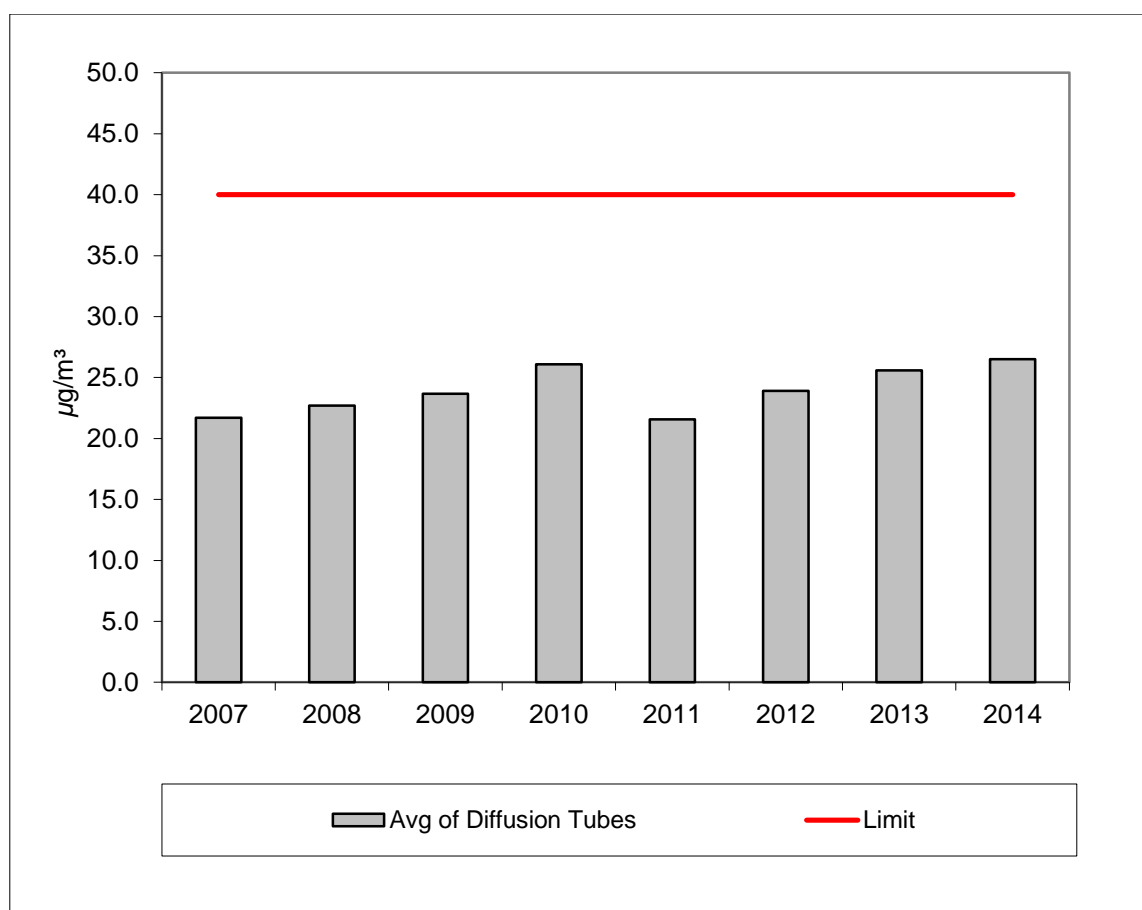
In bold, exceedance of the NO<sub>2</sub> annual mean AQS objective of 40 µg/m<sup>3</sup>

Underlined, annual mean > 60 µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> hourly mean AQS objective

<sup>a</sup> Means should be "annualised" as in Box 3.2 of TG(09) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38>), if full calendar year data capture is less than 75%

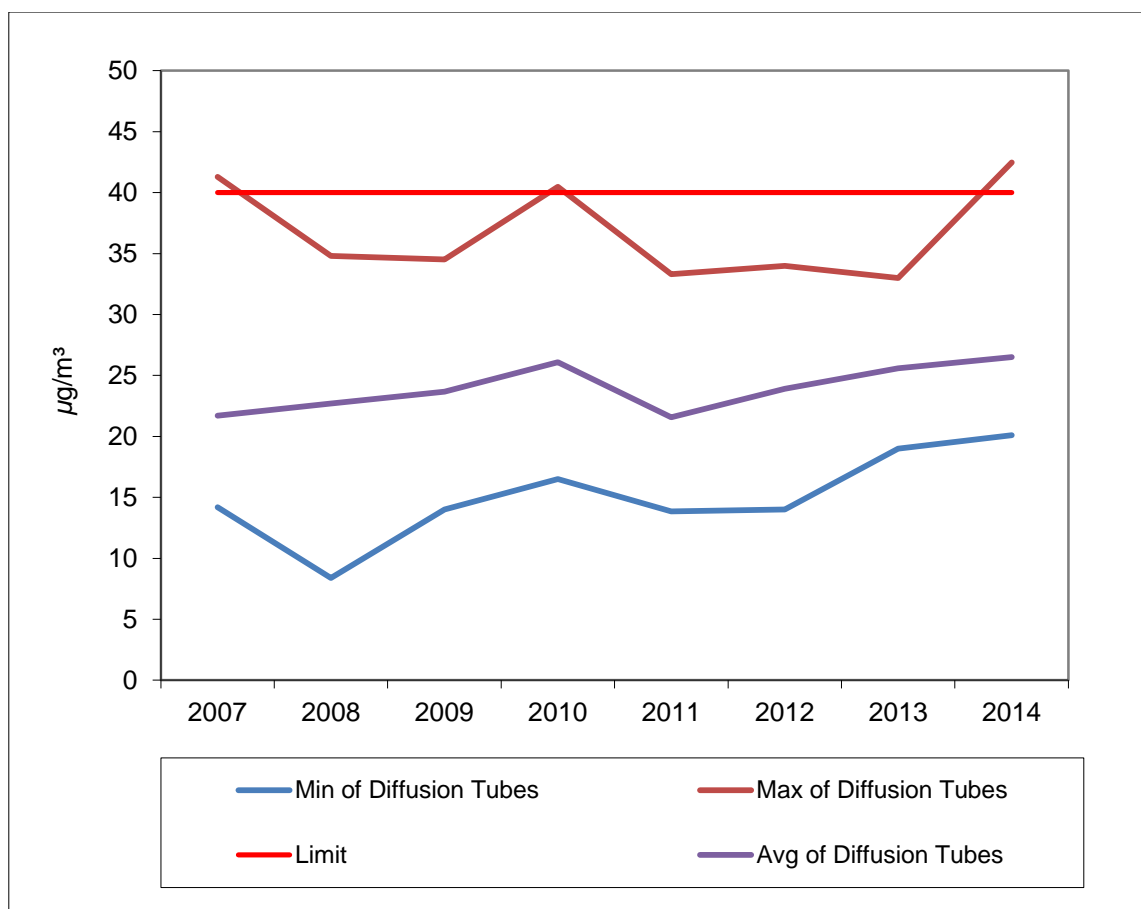
Where tubes which have been removed from the programme, they have tended to be from areas of lesser concern of breaching the national air quality objectives. The combined results still show little inter-annual variation and are well within the objective for NO<sub>2</sub>.

**Figure 2.4a Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites 2007 - 2014**



The impact of removing tubes which have shown lower NO<sub>2</sub> levels may have the psuedo-effect of suggesting that average concentrations are increasing (see Figure 2.4b). The trend of this seems to be upwards, however it is actually showing the impact of removing lower minimums, lower averages and lower maxima from the dataset over time.

**Figure 2.4b Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites 2007 – 2014 showing minimum, maximum and average results.**



### 2.2.1 Particulate Matter (PM<sub>10</sub>)

Neither of the Turnkey Osiris automatic analysers indicated any breach of the national air quality objectives for PM<sub>10</sub>. The measured annual mean and the annualised mean for Cowpen Road were well within this objective. Both analysers have shown a few measured exceedances of the daily mean objective of 50 µg/m³, however, both are well within the limit of 35 exceeds in a year.

Data capture for the analyser at the Cowpen Road site fell below 90 per cent data capture threshold in 2014. Therefore annualised averages and the 90<sup>th</sup> per centiles have been calculated for this analyser. However, using the nearest AURN network analysers (and a local TEOM operated by Banks Mining) to perform this resulted in no change from the measured annual mean for PM<sub>10</sub> at the Cowpen Road site (see Table 2.7). The calculated 90<sup>th</sup> per centile for this analyser was also well within the 50 µg/m³ daily objective (see Table 2.8).



**Table 2.7 Results of Automatic Monitoring of PM<sub>10</sub>: Comparison with Annual Mean Objective**

Site ID	Location	Within AQMA?	Data Capture for monitoring period <sup>a</sup> %	Data Capture for full calendar year 2014 <sup>b</sup> %	Annual mean concentrations ( $\mu\text{g}/\text{m}^3$ )		
					2011 <sup>2c</sup>	2013	2014
	Blyth Library Site	No	N/A	92.3	30	36 (35 <sup>*</sup> )	15
	Cowpen Road Site	No	N/A	55.3	16	25 (24 <sup>*</sup> )	14 (14 <sup>c</sup> )

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

<sup>c</sup> Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year. Displayed in parentheses.

<sup>\*</sup> Optional

In bold, exceedance of the PM<sub>10</sub> annual mean AQS objective of 40 $\mu\text{g}/\text{m}^3$

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

<sup>c</sup> Means should be "annualised" as in Box 3.2 of TG(09) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38>), if valid data capture is less than 75%

<sup>\*</sup> Annual mean concentrations for previous years are optional

**Table 2.8 Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with 24-hour mean Objective**

Site ID	Location	Within AQMA?	Data Capture for monitoring period <sup>a</sup> %	Data Capture 2014 <sup>b</sup> %	Number of Exceedance of daily mean objective (50 $\mu\text{g}/\text{m}^3$ ) If data capture < 90%, include the 90 <sup>th</sup> per centile of daily means in brackets.		
					2012 <sup>c</sup>	2013 <sup>c</sup>	2014
	Blyth Library Site	No	N/A	92.3	22	11 (42 <sup>c</sup> )	6
	Cowpen Road Site	No	N/A	55.3	0	9 (36 <sup>c</sup> )	2 (22 <sup>c</sup> )

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

<sup>c</sup> if data capture is less than 90%, include the 90<sup>th</sup> per centile of 24-hour means in brackets

<sup>\*</sup> Optional

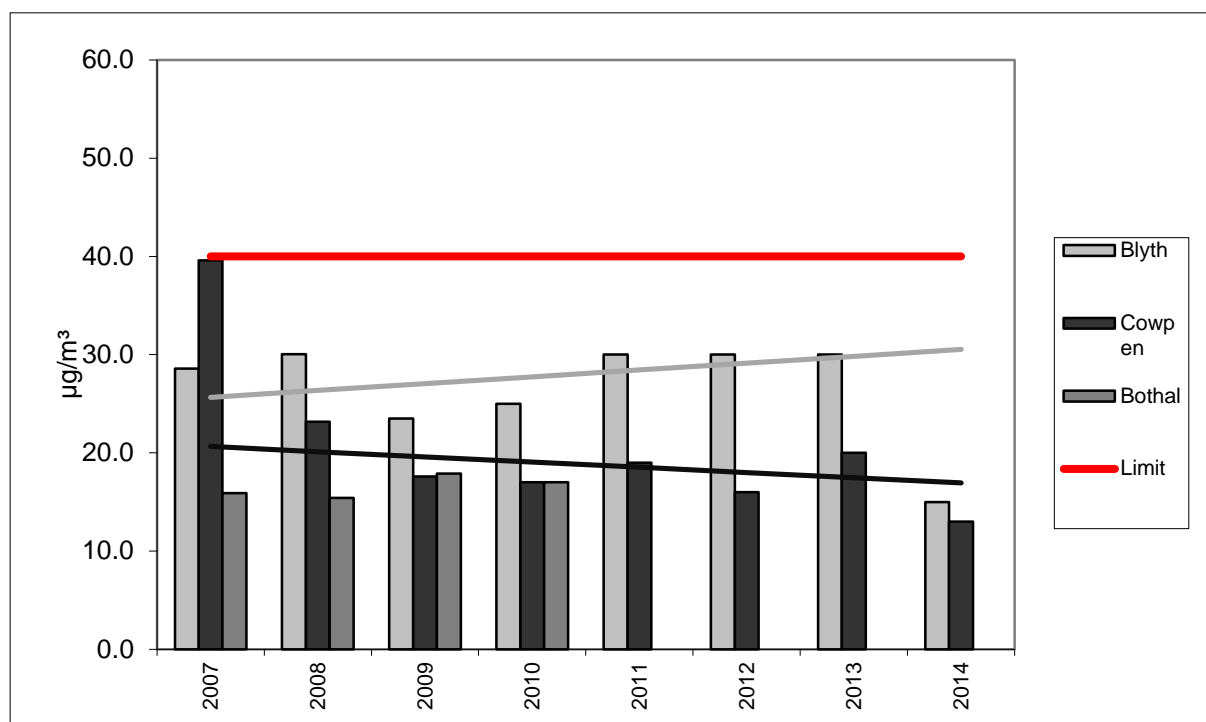
In bold, exceedance of the PM<sub>10</sub> daily mean AQS objective (50 $\mu\text{g}/\text{m}^3$  – not to be exceeded more than 35 times per year)

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

<sup>c</sup> if data capture for full calendar year is less than 90%, include the 90.4<sup>th</sup> percentile of 24-hour means in brackets

<sup>\*</sup> Number of exceedances for previous years is optional

**Figure 2.5 Trends in Annual Mean PM<sub>10</sub> Concentrations 2007 - 2014**

PM<sub>10</sub> levels continue to be met by the two continuous analysers and have remained relatively constant for previous three years at Blyth Library site. Levels at Cowpen Road have fluctuated a little annually, but still remain relatively stable.

Figure 2.5 also shows a projected trend for PM<sub>10</sub> levels at Blyth (light grey line) and Cowpen (dark grey line) using a linear regression. The trend for Cowpen may be somewhat influenced by the particularly high annual mean in 2007 at this site.

### **2.2.2 Sulphur Dioxide**

Northumberland County Council no longer routinely monitors sulphur dioxide. Several years of monitoring in relation to Lynemouth coal-fired power station indicated no exceedance of objectives for this pollutant at several sites in towns and villages surrounding the station.

### **2.2.1 Benzene**

Benzene is no longer monitored by this authority after several year of monitoring which indicated no air quality issue with this pollutant at the monitoring sites.

### **2.2.2 Other Pollutants Monitored**

This authority does not routinely monitor any other pollutants.

### **2.2.3 Summary of Compliance with AQS Objectives**

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

### 3 Road Traffic Sources

#### 3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Northumberland County Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

There are no new/newly identified congested streets within the Local Authority Area which meet the criteria **therefore there is no need to proceed to a Detailed Assessment.**

#### 3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

Northumberland County Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

There are no new/newly identified busy streets within the Local Authority Area which meet the criteria **therefore there is no need to proceed to a Detailed Assessment.**

#### 3.3 Roads with a High Flow of Buses and/or HGVs.

Cowpen Road (A193) at Blyth was assessed for traffic and air quality in the 2011 Detailed Assessment. This road has one of the highest traffic loads in Northumberland with relevant receptors present. Modelled road traffic numbers on Cowpen Road for 2014 over those for 2009 shows around a 6.5 per cent increase in all road traffic and around a 2.6 per cent increase in HGVs. However, both NO<sub>2</sub> and PM<sub>10</sub> levels at the Cowpen Road air quality station have shown an annual decrease in these pollutants (continuous analyser results). This modelled increase in traffic cannot be validated and any change in pollutant levels could be as a result of “cleaner” engines.

Northumberland County Council confirms that there are no new/newly identified

roads with high flows of buses/HDVs.

There are no new/newly identified roads within the Local Authority Area which meets the criteria **therefore there is no need to proceed to a Detailed Assessment.**

### 3.4 Junctions

Northumberland County Council confirms that there are no new/newly identified busy junctions/busy roads.

There are no new/newly identified busy junctions/busy roads within the Local Authority Area which meets the criteria **therefore there is no need to proceed to a Detailed Assessment.**

### 3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

Construction of the Morpeth Northern Bypass was given approval by the Secretary of State for Communities and Local Government in January 2015. This major road development will be considered in future LAQM reports. However, air quality has been assessed as part of the application process and there is predicted to be a net benefit to receptors from diverting traffic from Morpeth town centre to a rural area to the north of the town. Detailed documentation on the scheme is available at:

<http://www.northumberland.gov.uk/default.aspx?page=4558>

The specific chapter relating to air quality in the draft Environmental Statement can be found at:

<http://www.northumberland.gov.uk/idoc.ashx?docid=7816f0ca-c754-4355-b794-0c50ca49ea1f&version=-1>

It is proposed to assess any air quality changes through the deployment of two diffusion tubes in Morpeth and the settlement of Clifton (to the south of Morpeth) before and at one year and five years after the completion of the project. The results of these will be addressed in future reports.

Northumberland County Council confirms that there are no new/proposed roads.

No new/proposed roads have been identified within the Local Authority Area which meet the criteria **therefore there is no need to proceed to a Detailed Assessment.**

### 3.6 Roads with Significantly Changed Traffic Flows

Northumberland County Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

There are no new/newly identified roads with significantly changed traffic flows within the Local Authority Area which meet the criteria **therefore there is no need to proceed to a Detailed Assessment.**

### 3.7 Bus and Coach Stations

Northumberland County Council confirms that there are no relevant bus stations in the Local Authority area.

There are no relevant bus stations in the Local Authority area which meet the criteria **therefore there is no need to proceed to a Detailed Assessment.**

## 4 Other Transport Sources

### 4.1 Airports

Newcastle Internal Airport (NIA) has future expansion plans and are predicting an increase in passenger numbers above 5 million sometime before 2021. This will be monitored when the threshold screening criteria is reached. The masterplan can be viewed at:

<http://www.newcastleairport.com/masterplan>

The airport is not situated within Northumberland, but comes within 500 metres of its boundary. However, approaching and departing flight paths are substantially within Northumberland airspace.

Northumberland County Council confirms that there are no airports in the Local Authority area.

There are no airports within the Local Authority area which meet the criteria **therefore there is no need to proceed to a Detailed Assessment.**

### 4.2 Railways (Diesel and Steam Trains)

#### 4.2.1 Stationary Trains

Northumberland County 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.

There are no stationary diesel or steam trains within the Local Authority area which meet the criteria **therefore there is no need to proceed to a Detailed Assessment.**

#### 4.2.2 Moving Trains

Northumberland County Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.



There are no locations with moving diesel trains within the Local Authority area which meet the criteria **therefore there is no need to proceed to a Detailed Assessment.**

### **4.3 Ports (Shipping)**

Northumberland County Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

There are no ports or shipping within the Local Authority area which meet the criteria **therefore there is no need to proceed to a Detailed Assessment.**

## **5 Industrial Sources**

### **5.1 Industrial Installations**

As of the end of 2014, Northumberland County Council permitted 127 industrial processes under The Environmental Permitting (England and Wales) Regulations 2010 (as amended) (see Appendix E). All of these processes have permit conditions which impose controls on the relevant emissions from that process. These installations are regularly inspected under a program related to the risk rating of that process and operator.

#### **5.1.1 New or Proposed Installations for which an Air Quality Assessment has been Carried Out**

Akzo Nobel paint manufacturing plant at Oakwood Way, Ashwood Business Park, Ashington (Planning Ref: 11/03008/FULES) is in the final stages of construction. It is expected that this installation will begin operation in 2015. The installation will manufacture solvent and water-based paints and is planning to use around 25,000 tonnes of organic solvent in the first year of operation. The installation is permitted under The Environmental Permitting (England and Wales) Regulations 2010 (as amended) as a Part B solvent process (Permit Ref EPSE15/144). This is a new plant and could be seen as employing leading technology and best available techniques in its operation and emission controls. Also see 6.1 as the plant has a biomass boiler.

There are a number of proposed surface coal mines for Northumberland:

- Halton Lea Gate near Haltwhistle – HM Projects Development had permission for this site granted by the Planning Inspectorate on appeal. The proposal is to extract 140,000 tonnes of coal and a quantity of fireclay. The applicant is presently discharging some pre-commencement conditions and are expected to begin operations in 2015.
- Ferneybeds near Widdrington village – Banks Mining had permission granted by the Local Planning Authority in January 2014. The project is expected to win around 750,000 tonnes of coal. As yet, works have not begun onsite and this may be tied to the following site which is nearby and the completion of works at Shotton surface mine with the relocation of plant & workers from this site.
- Highthorn near Widdrington village – Banks Mining have recently applied to the Local Planning Authority for a scoping opinion on the requirement for an Environmental Impact Assessment. At present Banks have not applied to the Local Planning Authority for planning permission but has held a number of public events to inform the local residents of the proposals. The project is estimated to run for 8-10 year and extract up to 5 million tonne of coal. Such a site will be subject to a

All three of these surface mines will be operated under environmental permits issued through The Environmental Permitting (England and Wales) Regulations 2010 (as amended) which will place controls on emissions. All three have (or will) submit baseline air quality assessments and will be subject to continuous & non-continuous monitoring for particulates throughout their operation. It is expected that emissions to air from these operations will be adequately controlled through their environmental permits and mineral planning.

Northumberland County Council has assessed new/proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

### **5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced**

Northumberland County Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

There are no existing installations within the Local Authority area where emissions have increased substantially or where new relevant exposure has been introduced **therefore there is no need to proceed to a Detailed Assessment.**

### **5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment**

Northumberland County Council has assessed new/proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

There are no new or significantly changed installations within the Local Authority area with no previous air quality assessment **therefore there is no need to proceed to a Detailed Assessment.**

## **5.2 Major Fuel (Petrol) Storage Depots**

A major tank farm has been built under a local development order (LDO) at Blyth to store up to 2000 cubic metres of marine gas. This is a much heavier fuel than petrol and will be subject to Environment Agency regulation.

There are no major fuel (petrol) storage depots within the Local Authority area.

There are no major fuel (petrol) storage depots within the Local Authority area which meet the criteria **therefore there is no need to proceed to a Detailed Assessment.**

### 5.3 Petrol Stations

Northumberland County Council confirms that there are no petrol stations meeting the specified criteria.

There are no petrol stations within the Local Authority area which meet the criteria **therefore there is no need to proceed to a Detailed Assessment.**

### 5.4 Poultry Farms

Northumberland County Council confirms that there are no poultry farms meeting the specified criteria.

There are no poultry farms within the Local Authority area which meet the criteria **therefore there is no need to proceed to a Detailed Assessment.**

## **6 Commercial and Domestic Sources**

### **6.1 Biomass Combustion – Individual Installations**

Akzo Nobel paint manufacturing plant at Oakwood Way, Ashwood Business Park, Ashington (within a Smoke Control Area); Planning Ref: 11/03008/FULES is in the process of being commissioned. The applicant has carried out an assessment of air quality as part of the application submission for a 500kW biomass plant. This is judged against the national air quality objectives within the context of the national air quality strategy. The area has not been declared as an Air Quality Management Area (AQMA), and the application has been evaluated to ensure that this situation is not altered.

The Specialist Emergency Care Hospital (SECH) at "Land East Of A189 And South Of Lanercost Park", Planning Ref: 11/00129/CCMEIA is now near to completion. The applicant has done an assessment of air quality as part of the application submission for a 450kW biomass plant. This is judged against the national air quality objectives within the context of the national air quality strategy.

The 100 megawatt (MW) biomass power station which had been proposed by Renewable Energy Systems (RES) at North Blyth was approved by the Secretary of State in July 2013. As mentioned in the 2014 Progress Report, a major partner in the project withdrew and this project now appears to be abandoned.

There will be one >50MWth biomass installations in Northumberland; Lynemouth Power Station is expected to move to entire from coal to biomass by the end of 2015. A 27MWe biomass combined heat and power (CHP) plant at Cramlington is expected to be completed in 2015. Lynemouth Power Station is already regulated by the Environment Agency as will the CHP at Cramlington as it is already part of an Agency permitted site.

A number of large domestic/small combined biomass installations have come into the Council as planning applications in 2014. Where possible, the applicant has been informed of the requirement for the boiler to be exempt within smoke control areas and to apply for chimney height approval where the appliance has been over 50 kilowatts rated output.

Northumberland County Council has assessed the biomass combustion plant, and

concluded that it will not be necessary to proceed to a Detailed Assessment.

## **6.2 Biomass Combustion – Combined Impacts**

There would appear to be no cumulative effects of biomass combustion within Northumberland as the appliances are widespread.

Northumberland County Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

## **6.3 Domestic Solid-Fuel Burning**

Northumberland has a number of smoke control areas including the whole of the former Wansbeck and Blyth Valley council areas (the urbanised south east part of Northumberland), Morpeth, Pegswood, Hadston and Widdrington and other parts. These areas mostly represent the former coal mining areas where open coal fires were prevalent.

Northumberland County Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

## **7 Fugitive or Uncontrolled Sources**

The 2014 Progress Report identified two sources of fugitive or uncontrolled emissions; namely the Well Hill Surface Mine and Domestic/Commercial Biomass.

The Well Hill Surface Mine was permitted under The Environmental Permitting (England and Wales) Regulations 2010 (as amended) and is expected to cease coaling in the first half of 2015. This was a shallow surface mine (around 30 metres depth) which sought to win coal from a limited number of shallow seams and also fireclay.

Background PM<sub>10</sub> levels for this area are in the region of 10-11 ug/m<sup>3</sup>. As the workings are around 30 metres depth with a 10 metres overburden mound, emissions outside of the site were always extremely unlikely even with receptors as close as 100 metres to the void. The coal processing area which is at surface is more than 200 metres from any relevant receptors.

An air quality assessment was carried out as part of the planning and permit application. Dust deposition monitoring has been carried out by the operator for the duration of the site operations and the impact of this site in terms of air quality has been minimal. It was always held that the risks from air quality impacts upon relevant receptors was low and suitably controlled through mineral planning and the operator's environmental permit.

Northumberland County Council continues to monitor applications for domestic and commercial biomass appliances and maintain a database of appliances installed. Emissions from these appliances are minimised through a number of regulatory controls including; BS EN 303 Part 5:1999, Building Regulations (for solid fuel appliances up to 50kW rated output) The Clean Air Act, 1993 (exempt appliances and approved fuels in smoke control areas and chimney height approval), the Renewable Heat Incentive emission certification, The Environmental Permitting (England and Wales) Regulations (as amended) (for boilers over 20MWth for natural fuel sources).

It is possible that the Council is unaware of a number of biomass appliances if they have not required planning permission or permission was not sought, also wood burning stoves may be installed without the knowledge of the Council.



## Northumberland County Council

Additionally, the geographical spread of commercial (and possibly) biomass appliances is arbitrary even within the south east area of Northumberland. At present, this spread does not suggest a cumulative impact at any location from the operation of these appliances.

Northumberland County Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

## **8 Conclusions and Proposed Actions**

### **8.1 Conclusions from New Monitoring Data**

New monitoring data for 2014 have shown that there are no areas which are monitored that have exceeded the national air quality objectives in Northumberland.

Monitoring from the two air quality monitoring sites continue to show measured levels below the national air quality objectives. Two new Turnkey Osiris particulate analysers have been installed replacing Met-One Beta Attenuation Monitors at the Blyth Library and Cowpen Road sites. Nitrogen dioxide is no longer monitored continuously at the Blyth Library site but the site does have a diffusion tube to provide indicative levels at this location. Nitrogen dioxide will continue to be monitored continuously at the Cowpen Road site in the short term.

Results from the diffusion tube monitoring for NO<sub>2</sub> at roadside sites across the county are all well within the annual objective for this pollutant.

Sulphur dioxide is no longer monitored within Northumberland, due to the changes of the fuelling of the Lynemouth power station and a demonstrated, long-term compliance with air quality objectives.

There is no need to proceed to a Detailed Assessment.

### **8.2 Conclusions from Assessment of Sources**

There are no significant changes to the road network infrastructure, road transport, other transport, industrial installations, fuel storage, commercial/domestic biomass, domestic solid fuel or fugitive emissions within or close to Northumberland. All potential sources have been assessed against guidance and do not warrant more detailed investigation.

Although, modelled road traffic flows at certain locations were predicted to increase over the last five years, no comparable increase in NO<sub>2</sub> or PM<sub>10</sub> has been measured at these sites. In fact, data from continuous analysers has indicated either a static or decreasing level of these pollutants at these sites in the last five years.

For many of the industrial installations, controls of emissions will be through the requirement to have an environmental permit under The Environmental Permitting

(England and Wales) Regulations 2010 (as amended), incorporating the likes of the Solvent Emissions Directive and the Industrial Emissions Directive.

There are no new or significantly changed sources identified which are expected to give rise to emissions which will exceed the national air quality objectives.

**There is no need to proceed to a Detailed Assessment.**

### **8.3 Proposed Actions**

The Updating and Screening Assessment has not identified any need to proceed to a Detailed Assessment for any pollutant.

The Updating and Screening Assessment has not identified any need for changes or additional monitoring.

Replacement particulate analysers have been located at or near existing/previous monitoring locations.

There has been the removal of two NO<sub>2</sub> diffusion tubes from the monitoring programme and a new tube located at a new, previously unmonitored location.

Northumberland County Council will continue to monitor air quality at two sites in Blyth using continuous analysers and 16 diffusion tube sites located around the county.

Northumberland County Council will submit a Progress Report in 2016.

## 9 References

- AEA Energy & Environment Document “Diffusion Tubes for Ambient NO<sub>2</sub> Monitoring: Practical Guidance for Laboratories and Users.” Ref: ED48673043, Issue 1a, February 2008. Available at [http://laqm.defra.gov.uk/documents/0802141004\\_NO2\\_WG\\_PracticalGuidance\\_Issue1a.pdf](http://laqm.defra.gov.uk/documents/0802141004_NO2_WG_PracticalGuidance_Issue1a.pdf)
- “Local Air Quality Management”, Technical Guidance LAQM.TG(09), DEFRA, February 2009. Available at <http://www.defra.gov.uk/publications/files/pb13081-tech-guidance-laqm-tg-09-090218.pdf>
- The Diffusion Tube Bias Adjustment Factors Spreadsheet (v.03/13). Available at [http://laqm.defra.gov.uk/documents/Database\\_Diffusion\\_Tube\\_Bias\\_Factors-v03\\_14-Final-v2.xls](http://laqm.defra.gov.uk/documents/Database_Diffusion_Tube_Bias_Factors-v03_14-Final-v2.xls) (accessed 22/04/2015)
- Summary of Laboratory Performance in AIR/WASP NO<sub>2</sub> Proficiency Testing Scheme 121-124 (April 2013 – Feb 2015). Available at <http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html> (accessed 27/04/2015)
- Automatic Urban and Rural Network (AURN) Data Archive Data Selector, DEFRA. Available at [http://uk-air.defra.gov.uk/data/data\\_selector](http://uk-air.defra.gov.uk/data/data_selector) (accessed 13/05/2015)

## Appendices

- Appendix A: QA/QC Data
- Appendix B: Location Maps of Air Quality Monitoring Sites
- Appendix C: Diffusion Tube Data
- Appendix D: Data Summaries and Time Series Plots
- Appendix E: Industrial Sources (LAPC) - Permitted Processes in Northumberland

## **Appendix A: QA/QC Data**

### **Factor from Local Co-location Studies (if available)**

Northumberland did not carry out any co-location studies in 2014.

### **Diffusion Tube Bias Adjustment Factors**

The tubes are prepared and analysed by Environmental Scientifics Group Didcot. The method used involves the reaction of gaseous nitrogen dioxide with 50% triethanolamine (TEA) contained on grids within the diffusion tubes. This is then reacted with reagents to produce a stable coloured complex, which can then be compared to standards prepared from sodium nitrite and analysed using visible spectroscopy.

The ESG laboratory follows the procedures set out in the Harmonisation Practical Guidance.

Northumberland County Council has not compared the diffusion tubes with the reference method in a co-location study.

The bias factor is calculated by the using data from the DEFRA Website:

<http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>

National Diffusion Tube Bias Adjustment Spreadsheet Version Number: 03/15. The bias factor was calculated to be 0.81 for ESG.

The Results of laboratory precision and WASP/AIR scheme are included below; the Environmental Scientifics Group showing a 100 per cent performance for 2014 but have dropped in the first few months of 2015 to 87.5 per cent..

**Figure A.1 National Diffusion Tube Bias Adjustment Spreadsheet ver 03/15**  
**showing results for ESG (Didcot) using 50% TEA in acetone.**

National Diffusion Tube Bias Adjustment Factor Spreadsheet										Spreadsheet Version Number: 03/15	
Follow the steps below <u>in the correct order</u> to show the results of <u>relevant</u> co-location studies										This spreadsheet will be updated at the end of June 2015	
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods										LAQM Helpdesk Website	
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet											
This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.											
The LAQM Helpdesk <sup>1</sup> is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.										Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.	
Step 1:		Step 2:	Step 3:	Step 4:							
Select the Laboratory that Analyses Your Tubes from the Drop-Down List		Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor <sup>3</sup> shown in blue at the foot of the final column.							
If a laboratory is not shown, we have no data for this laboratory.		If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data for this year.								
Analysed By <sup>1</sup>	Method	Year <sup>2</sup>	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m <sup>3</sup> )	Automatic Monitor Mean Conc. (Cm) (µg/m <sup>3</sup> )	Bias (B)	Tube Precision <sup>6</sup>	Bias Adjustment Factor (A) (Cm/Dm)		
ESG Didcot	50% TEA in acetone	2014	Cambridge City Council	12	47	37	25.5%	G	0.80		
ESG Didcot	50% TEA in acetone	2014	Dumfries and Galloway Council	12	35	30	16.5%	G	0.86		
ESG Didcot	50% TEA in acetone	2014	Falkirk	12	23	20	19.3%	G	0.84		
ESG Didcot	50% TEA in acetone	2014	Gravesham Borough Council	12	27	25	11.6%	P	0.90		
ESG Didcot	50% TEA in acetone	2014	Gravesham Borough Council	12	40	31	29.6%	G	0.77		
ESG Didcot	50% TEA in acetone	2014	Kingston upon Hull City Council	12	32	26	22.6%	G	0.82		
ESG Didcot	50% TEA in acetone	2014	Marylebone Road Intercomparison	10	109	80	35.2%	P	0.74		
ESG Didcot	50% TEA in acetone	2014	North East Lincolnshire Council	11	59	49	19.5%	G	0.84		
ESG Didcot	50% TEA in acetone	2014	North East Lincolnshire Council	11	34	30	12.3%	G	0.89		
ESG Didcot	50% TEA in acetone	2014	Pembrokeshire Council	11	7	3	110.8%	P	0.47		
ESG Didcot	50% TEA in acetone	2014	South Northamptonshire Council	11	43	31	36.5%	G	0.73		
ESG Didcot	50% TEA in acetone	2014	Stockton on Tees	11	25	22	17.7%	P	0.85		
ESG Didcot	50% TEA in acetone	2014	Stockton on Tees	12	21	16	35.2%	G	0.74		
ESG Didcot	50% TEA in acetone	2014	Swale Borough Council	9	42	33	28.4%	P	0.78		
ESG Didcot	50% TEA in acetone	2014	Swale Borough Council	12	50	38	31.7%	P	0.76		
ESG Didcot	50% TEA in acetone	2014	Thanet District Council	12	19	17	9.0%	P	0.92		
ESG Didcot	50% TEA in acetone	2014	Thanet District Council	12	28	27	6.0%	P	0.94		
ESG Didcot	50% TEA in acetone	2014	Wrexham County Borough Council	10	23	22	5.6%	G	0.95		
ESG Didcot	50% TEA in acetone	2014	City of York Council	11	24	19	28.4%	P	0.78		
ESG Didcot	50% TEA in acetone	2014	City of York Council	10	37	27	36.7%	G	0.73		
ESG Didcot	50% TEA in acetone	2014	City of York Council	11	32	28	12.4%	G	0.89		
ESG Didcot	50% TEA in acetone	2014	City of York Council	11	40	36	12.7%	G	0.89		
ESG Didcot	50% TEA in acetone	2014	Overall Factor <sup>3</sup> (22 studies)						Use	0.81	

## Discussion of Choice of Factor to Use

Northumberland County Council no longer maintains co-located diffusion tubes which number more than one at co-location sites, therefore national factors were used. Local factors produced in previous report rounds were marginally different to national factors and for data presented as integers had no impact at all upon the reported values.

## PM Monitoring Adjustment

Turnkey Instruments have indicated that the Osiris particulate monitors require no adjustment to report the measured particulate values.

## Short-term to Long-term Data Adjustment

Two diffusion tubes were discontinued in April 2014 as they continued to show compliant values, the data from these have not been annualised. A tube was located in Ashington in May 2014 and since the data capture for this tube has only been 66.7 per cent, this has been annualised. However, the result of this was only to increase the annualised mean by  $1.9 \mu\text{g}/\text{m}^3$ .

Estimation of annual mean concentrations for short-term monitoring data was calculated following the methodology in Box 3.2 of LAQM.TG(09), the following sites with short-term monitoring data had their annual mean estimated using data from the three nearest monitoring sites in the AURN network (Newcastle City, Newcastle Cradlewell, Sunderland Silksworth) and a TEOM particulate monitor operated locally by Banks Mining.

The impact of the “annualising” the data from the continuous analysers has been insignificant with a  $1 \mu\text{g}/\text{m}^3$  drop in the measured to annualised value for particulates (as  $\text{PM}_{10}$ ) and a  $2 \mu\text{g}/\text{m}^3$  drop in nitrogen dioxide ( $\text{NO}_2$ ) at the Cowpen Road site.

**Table A1. Particulate ( $\text{PM}_{10}$ ) Annualising Results**

	<i>Data Capture (%)</i>	<i>Annual Mean 2014 (AM)</i>	<i>Period Mean 2014 (PM)</i>	<i>Annualised Value</i>
Cowpen Osiris ( $\text{PM}_{10}$ )	55.2	13.7	13.7	<b>13.7</b>
Long Term Site		<i>Annual Mean 2014 (AM)</i>	<i>Period Mean 2014 (PM)</i>	<i>Ratio (AM/PM)</i>
Banks Mining TEOM	99.9	12.8	12.4	1.0
Newcastle City Centre	83.2	12.3	13.4	0.9
			<b>Average (Ra)</b>	<b>1.0</b>



**Table A2 Nitrogen Dioxide (NO<sub>2</sub>) Annualising Results**

	<i>Data Capture (%)</i>	<i>Annual Mean 2014 (AM)</i>	<i>Period Mean 2014 (PM)</i>	<i>Annualised Value</i>
Cowpen API (NO <sub>2</sub> )	54.3	24.0	24.0	<b>22.1</b>
Long Term Site		<i>Annual Mean 2014 (AM)</i>	<i>Period Mean 2014 (PM)</i>	<i>Ratio (AM/PM)</i>
Newcastle City Centre	81.1	31.8	34.0	0.9
Newcastle Cradlewell	94.7	41.6	44.9	0.9
Sunderland Silksworth	87.9	16.3	18.0	0.9
			<b>Average (Ra)</b>	<b>0.9</b>

**Table A.3 Diffusion Tube Nitrogen Dioxide (NO<sub>2</sub>) Annualising Results**

	<i>Data Capture (%)</i>	<i>Annual Mean 2014 (AM)</i>	<i>Period Mean 2014 (PM)</i>	<i>Annualised Value</i>
Newbiggin Road, Ashington	66.7	23.5	23.5	<b>25.4</b>
Long Term Site		<i>Annual Mean 2014 (AM)</i>	<i>Period Mean 2014 (PM)</i>	<i>Ratio (AM/PM)</i>
Newcastle City Centre	91.7	31.3	29.5	1.1
Newcastle Cradlewell	100.0	41.8	37.7	1.1
Sunderland Silksworth	100.0	15.2	14.2	1.1
			<b>Average (Ra)</b>	<b>1.1</b>

### QA/QC of Automatic Monitoring

It is recognised that any monitoring survey must be subject to quality assurance and quality control (QA/QC) to ensure the integrity of the data and to guarantee that the measurements fully comply with the requirements of the air quality review and assessment and are, therefore, fit for purpose. Therefore:

- data should be representative of ambient concentrations existing in the area under investigation.
- measurements need to be sufficiently accurate and precise to meet the defined monitoring requirements. Data must be inter-comparable and reproducible. Results from multi-site networks need to be internally consistent and comparable with national, international or other acceptable standards.
- measurements should be consistent over time, particularly if long-term trend analysis is to be undertaken.

QA/QC procedures were applied to both passive samplers and automatic monitoring data throughout the monitoring period. QA/QC procedures are involved in all aspects of the monitoring exercise from purchase of equipment to the data presentation. The following information summarizes the QA/QC practice applied for the purpose of this report.

## **Routine Site Visits**

Regular site visits are carried out to:

- carry out site checks on equipment, sampling systems, safety and security.
- perform manual calibrations.

The following operations are carried out on site to maximise data integrity and capture rate:

- ensuring the proper running of equipment.
- performing instrument calibrations and diagnostic checks.
- minimising instruments down-time as much as possible, by anticipating problems prior to them becoming serious or fatal.
- carrying out essential routine functions such as particle filter changes and BAM tape replacement
- performing checks of the automatic calibration systems
- ensuring that initial siting criteria are still fulfilled i.e. that the surrounding environment has not changed in any way that prejudices the monitoring objectives.

## **Calibration Procedure**

Proper calibration of automatic monitoring equipment is essential for obtaining accurate and reproducible air quality data. Electrical response signals are generated by the M200E analyser that corresponds to the concentrations of NO<sub>x</sub> and NO in the air. In order to correctly scale the analyser response, it is necessary to calibrate it using a gas mixture of known concentration from a gas cylinder.

Calibrations are conducted at a number of levels

- daily automatic calibration by the analyser
- frequent (fortnightly) manual calibration (performed by qualified Northumberland County Council staff)
- periodic reference calibrations – none planned after November 2014

The fortnightly calibrations are carried out according to procedures contained in the Site Manual and blank forms are provided to assist in performing and documenting

the calibrations. Copies of the completed forms during the monitoring period are available on request.

### **Equipment Service Maintenance**

An on-going service and maintenance contract is in place with Turnkey for the Osiris particulate analysers. The contract provides the following cover:

- routine annual service/calibration in accordance with the manufacturer's and warranty conditions
- guaranteed breakdown RTB
- written reports showing work carried out and status of instrumentation
- all work and documentation carried out in accordance with BS ISO 9001 accredited system
- dedicated telephone support (Technical Support Engineer) in normal working hours

### **Data Capture**

The following methods are employed to maximise data capture rates.

- automatic daily data collection using dedicated software (for Turnkey Osiris)
- manual data collection fortnightly using dedicated software (for Teledyne/API M200E)
- M200E and Osiris in-built data storage capability
- regular and frequent site visits
- comprehensive and documented site operational protocols
- experienced site operator

### **Data Processing**

The data stored on each of the analyser's in-built loggers is then downloaded via broadband to a computer at the Council Offices or by direct download from data loggers.

The raw values are then converted using calibration factors obtained from manual calibrations performed every fortnight. There is always a gradual decline in the sensitivity of the analyser between each full 6-monthly service. It is this decline in

sensitivity that the manual calibration conversion factors are intended to scale against.

The conversion is achieved using zero and span “calibration factors” achieved from the fortnightly calibrations. The two-point calibration will quantify the analysers “zero” and “span” response.

The zero response,  $V_z$ , is the response in measurements units of the analyser when the pollutant species being measured is not present in the sample air stream.

The span response,  $V_s$ , is the response of the analyser to an accurate known concentration,  $c$ , of the pollutant species. Instrument zero and span factors are then calculated using these data as follows:

$$\text{Instrument zero} = V_z$$

$$\text{Instrument span, } F = c/(V_s - V_z)$$

Ambient pollution data are then calculated by applying these factors to logged output signals as follows:

$$\text{Pollutant concentration (ppb)} = F(V_s - V_z)$$

Where  $V_a$  is the recorded signal from the analyser sampling ambient air.

### Data Validation and Ratification

All data collected was thoroughly scrutinised by visual examination to ensure that there was no spurious and unusual measurements. The dedicated software used for handling the data allows data to be edited but ensures that a raw data set is always maintained.

Through ratification of the data was carried out at the end, and during, the monitoring period. Steps in the ratification process included:

- examination of the calibration records to ensure correct application of calibration factors
- examination of simultaneously monitored pollutants PM10 and NO<sub>2</sub> data monitored at the MAQU is scrutinised to ensure that there are no anomalies in either of the measured concentrations.

Turnkey Osiris data require no additional processing upon collection.

## QA/QC of Diffusion Tube Monitoring

### Precision and accuracy

The spreadsheet of diffusion tube co-location results, made available by the Local Air Quality Management Helpdesk to allow annual mean diffusion tube results to be bias adjusted, also contains information on the precision of the diffusion tubes, in those cases where duplicate or triplicate tubes were exposed. At the request of a number of Local Authorities, the precision data for each laboratory have been brought together in a summary form.

This page contains the following sections. Use the links below to jump to a specific section.

- [Precision vs Accuracy \(Bias\)](#)
- [Good vs Bad Precision](#)
- [What to do with Poor Precision](#)
- **[Precision vs Accuracy \(Bias\)](#)**

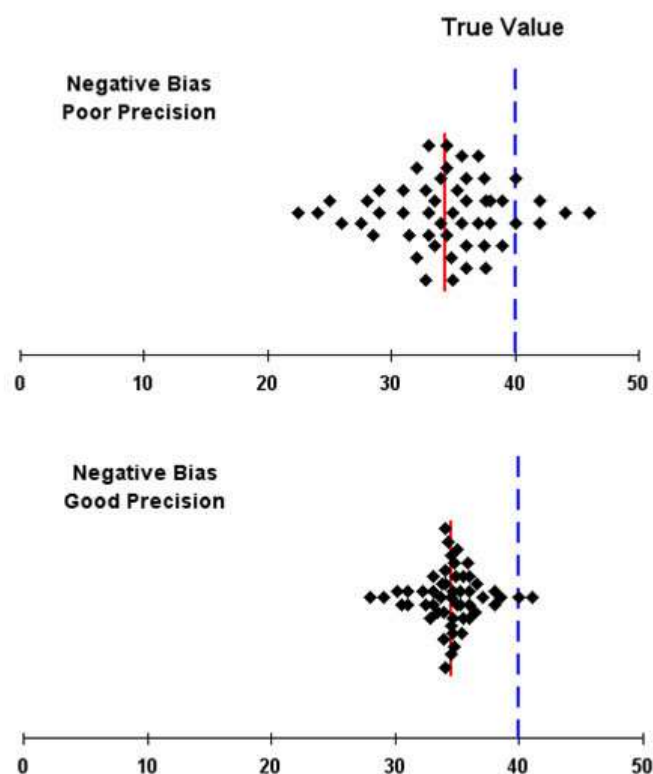
Precision should not be confused with accuracy. Diffusion tube precision can be described as the ability of a measurement to be consistently reproduced, i.e. how similar the results of duplicate or triplicate tubes are to each other. Accuracy represents the ability of the measurement to represent the 'true' value, which, in this case, is defined as the result from the automatic analyser. When averaged over a number of sets of results bias can be evident. This represents the overall tendency of the diffusion tubes to depart from the 'true' value, i.e. to systematically over-or under-read when compared against the reference method.

Once identified, bias can be adjusted for to improve the accuracy of diffusion tube results. This is done using [bias adjustment factors](#), which have been found to be specific to a laboratory and tube preparation method.

A spreadsheet database of bias adjustment factors obtained from Local Authority co-location studies has been compiled by the Local Air Quality Management Helpdesk [and can be downloaded here](#).

Unlike bias, poor precision cannot be adjusted for. It can only be improved by careful handling of the tubes in both the laboratory and the field. The two Figures below illustrate the difference between bias and precision. Both sets of results have the

same calculated negative bias, shown by the vertical red line, compared with the true value. However, those in the top part of the Figure have poor precision, whereas those in the lower part have good precision (the vertical spread is just a way of displaying the large number of individual results).



**Figure A.2 Good vs Poor Precision**

For the purposes of Local Air Quality Management, tube precision is separated into two categories, "Good" or "Poor", as follows: tubes are considered to have "good" precision where the coefficient of variation of duplicate or triplicate diffusion tubes for eight or more periods during the year 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%.

A spreadsheet tool has been developed to calculate the overall precision of a particular co-location study or any sets of duplicate or triplicate results. The tool can be downloaded on the [Local Bias Adjustment Factors page](#).

The distinction between "good" and "poor" precision is an indicator of how well the same measurement can be reproduced. This precision will reflect the laboratory's

performance/consistency in preparing and analysing the tubes, as well as the subsequent handling of the tubes in the field. Any laboratory can show "poor" precision for a particular period/co-location study, if this is due to poor handling of the tubes in the field.

A summary of precision results for the individual laboratories can be downloaded here as a PDF:

[Download Summary of Diffusion Tube Precision 2008-2012](#) (PDF 15KB)

**[Updated Version March 2013]**

Please note that the performance of a laboratory may change from one year to another. Therefore, when assessing the performance of a laboratory using the findings in the above Summary, account should be taken of the proportion of "poor" precision co-location results, not just the presence or absence of poor precision co-location results. Given this, particular care should be exercised when interpreting the results for a laboratory with only a few precision results. Some laboratories in the co-location spreadsheet are not represented in the Summary, because there were no duplicate or triplicate co-location results for that laboratory (some co-location studies are carried out using tubes exposed singly).

- **What to do with poor precision results**

Where results show "poor" precision, then they should be treated with caution, and may not be suitable for their intended purpose. If a particular authority has "Poor" precision from most or all of its duplicate or triplicate data sets then it should look at its own tube handling procedures.

If these are judged to be good then it will be appropriate to look at the precision results for its laboratory to see if this may be the explanation. The aim should be to use results from tubes that are giving "good" precision, as this will improve the overall reliability of the annual mean concentrations derived from diffusion tubes.

## Summary of Laboratory Performance in AIR/WASP NO<sub>2</sub> Proficiency Testing Scheme – 121-124 (April 2013 – February 2015)..

Feb 2015

### LAQM Helpdesk – March 2015

#### Summary of Laboratory Performance in AIR/WASP NO<sub>2</sub> Proficiency Testing Scheme (April 2013 – February 2015).

*Reports are prepared by HSL for BV/NPL on behalf of Defra and the Devolved Administrations.*

#### Background

AIR is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). AIR PT is a new scheme, started in April 2014, which combines two long running PT schemes: LGC Standards STACKS PT scheme and HSL WASP PT scheme.

AIR offers a number of test samples designed to test the proficiency of laboratories undertaking analysis of chemical pollutants in ambient indoor, stack and workplace air. One such sample is the AIR NO<sub>2</sub> test sample type that is distributed to participants in a quarterly basis.

AIR NO<sub>2</sub> PT forms an integral part of the UK NO<sub>2</sub> Network's QA/QC, and is a useful tool in assessing the analytical performance of those laboratories supplying diffusion tubes to Local Authorities for use in the context of Local Air Quality Management (LAQM). With consent from the participating laboratories, LGC Standards provides summary proficiency testing data to the LAQM Helpdesk for hosting on the web-pages at <http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html>. This information will be updated on a quarterly basis following completion of each AIR PT round.

Defra and the Devolved Administrations advise that diffusion tubes used for Local Air Quality Management should be obtained from laboratories that have demonstrated satisfactory performance in the AIR PT scheme. Laboratory performance in AIR PT is also assessed, by the National Physical Laboratory (NPL), alongside laboratory data from the monthly NPL Field Intercomparison Exercise carried out at Marylebone Road, central London.

The information is used to help the laboratories to identify if they have problems and may assist devising measures to improve their performance and forms part of work for Defra and the Devolved Administrations under the Local Air Quality Management Services Contract.

#### AIR NO<sub>2</sub> PT Scheme overview

##### Purpose of scheme

The AIR PT scheme uses laboratory spiked Palmes type diffusion tubes to test each participating laboratory's analytical performance on a quarterly basis and continues the format used in the preceding WASP PT scheme. Such tubes are not designed to test other parts of the measurement system e.g. sampling. Every quarter, roughly January, April, July and October each year, each laboratory receives four diffusion tubes doped with an amount of nitrite, known to LGC Standards, but not the participants. At least two of the tubes are usually duplicates, which enables precision, as well as accuracy, to be assessed. The masses of nitrite on the spiked tubes are different each quarter, and reflect the typical analytical range encountered in actual NO<sub>2</sub> ambient monitoring in the UK.

NO<sub>2</sub> PT Summary – WASP PT R121-124 and AIR PT Rounds AR001,3, 4 and 6



## LAQM Helpdesk – March 2015

### Preparation of test samples

Diffusion tubes are spiked using a working nitrite solution prepared from a stock solution. The concentration of this stock solution is initially assayed using a titrimetric procedure. All steps in the subsequent test sample production process, involving gravimetric and volumetric considerations, are undertaken using calibrated instruments employing traceable standards. As an additional cross check, 12 spiked Palmes tubes are picked at random from each spike loading level and submitted to a third party laboratory which is accredited to ISO 17025 to undertake this analysis using an ion chromatographic procedure.

In summary, the tube spiking precision is calculated to be better than 0.5 %, expressed as a standard deviation, and this is derived from repeat gravimetric checking of the pipette device used to spike the test samples. The calculated spike values, derived from titrimetric, gravimetric and volumetric considerations, are found to be typically within  $\pm 3$  % of results obtained by the third party laboratory using an ion chromatographic analytical procedure.

### Scheme operation

The participants analyse the test samples and report the results to LGC Standards via their on-line PORTAL data management system. LGC Standards assign a performance score to each laboratory's result, based on how far their results deviate from the assigned values for each test samples. The assigned values are best estimates of the levels of nitrite doped onto the test sample tubes and are calculated from the median of participant results, after the removal of test results that are inappropriate for statistical evaluation, e.g. miscalculations, transpositions and other gross errors. At the completion of the round, laboratories receive a report detailing how they have performed and how their results relate to those of their peers.

### Performance scoring

The z-score system is used by LGC to assess the performance of laboratories participating in the AIR PT NO<sub>2</sub> scheme.

The  $Z_{score}$  may be defined as:

$$Z_{score} = \frac{(x_{lab} - \bar{x}_{assigned})}{\sigma_{SDPA}}$$

Where:

$x_{lab}$  = participant result from a laboratory

$\bar{x}_{ref}$  = assigned value

$\sigma_{SDPA}$  = standard deviation for performance assessment (currently set at 7.5 % of  $\bar{x}_{assigned}$ )

NO<sub>2</sub> PT Summary – WASP PT R121-124 and AIR PT Rounds AR001,3, 4 and 6

## LAQM Helpdesk – March 2015

### Performance score interpretation

A  $Z_{score}$  is interpreted as described below:

$|Z_{score}| \leq 2$  indicates satisfactory laboratory performance

$2.0 < |Z_{score}| < 3$  indicates questionable (warning) laboratory performance

$|Z_{score}| \geq 3$  indicates unsatisfactory (action) laboratory performance

As a general rule of thumb, provided that a laboratory does not have systematic sources of bias in their laboratory measurement system, then on average, 19 out of every 20 z-scores should be  $\leq \pm 2$ . In this scheme each laboratory receives 4 test samples per round and therefore submits 4 z-scores per round. Hence over 5 rounds laboratories would receive 20 test samples and report 20 z-scores.

### Assessing the performance of a laboratory

End users that avail of analytical services from laboratories should satisfy themselves that such laboratories meet their requirements. A number of factors ideally need to be considered including

- Expertise and skills of staff within the laboratory?
- Does the laboratory follow accepted measurement standards, guidance?
- Does the laboratory operate a robust internal quality control system?
- Is the laboratory third party accredited to relevant standards such as ISO 17025?
- Does the laboratory successfully participate in relevant external proficiency testing schemes?
- How good is their customer care (communication, turnaround times, pricing etc)?

Participation therefore, in an external proficiency-testing scheme such as AIR PT, represents but one factor in such considerations.

Participation in a single round of an external proficiency-testing scheme represents a "snap-shot" in time of a laboratory's analytical quality. It is more informative therefore to consider performance over a number of rounds.

Following on from above, therefore over a rolling five round AIR PT window, one would expect that 95 % of laboratory results should be  $\leq \pm 2$ . If this percentage is substantially lower than 95 % for a particular laboratory, within this five round window, then one can conclude that the laboratory in question may have significant systematic sources of bias in their assay.

A summary of the performance, for each laboratory participating in the AIR PT scheme, is provided in Table 1. This table shows the percentage of results where the absolute z-score, for each laboratory, was less than or equal to 2, i.e. those results which have been assessed as satisfactory.

NO2 PT Summary – WASP PT R121-124 and AIR PT Rounds AR001,3, 4 and 6

## LAQM Helpdesk – March 2015

### Contacts

Further **specific** information on the LGC AIR NO<sub>2</sub> PT scheme is available from LGC proficiency testing on 0161 7622500 or by email at [customerservices@lqcpt.com](mailto:customerservices@lqcpt.com).

For **general** questions about the scheme within the context of wider LAQM activities please contact Nick Martin at NPL on 0208 943 7088 or [nick.martin@npl.co.uk](mailto:nick.martin@npl.co.uk).

**Table 1: Laboratory summary performance for WASP NO2 PT Rounds 121-124 and AIR NO<sub>2</sub> PT rounds AR001, 3, 4 and 6**

The following table lists those UK laboratories undertaking LAQM activities that have participated in recent WASP/AIR NO<sub>2</sub> PT rounds and the percentage (%) of results submitted which were subsequently determined to be **satisfactory** based upon a z-score of  $\leq \pm 2$  as defined above.

WASP Round	WASP R121	WASP R122	WASP R123	WASP R124	AIR PT AR001	AIR PT AR003	AIR PT AR004	AIR PT AR006
<b>Round conducted in the period</b>	<b>April – June 2013</b>	<b>July – September 2013</b>	<b>October – December 2013</b>	<b>January – March 2014</b>	<b>April – May 2014</b>	<b>July – August 2014</b>	<b>October – November 2014</b>	<b>January – February 2015</b>
Aberdeen Scientific Services	100 %	100 %	NR [2]	75 %	100 %	100 %	100 %	100 %
Cardiff Scientific Services	100 %	100 %	100 %	100 %	NR [3]	NR [3]	NR [3]	NR [3]
Edinburgh Scientific Services	100 %	75 %	100 %	100 %	100 %	100 %	100 %	75 %
Environmental Services Group, Didcot [1]	100 %	100 %	100 %	100 %	100 %	100 %	100 %	87.5 %
Exova (formerly Clyde Analytical)	NR [2]	NR [2]	NR [2]	50 %	NR [3]	NR [3]	NR [3]	NR [3]
Glasgow Scientific Services	25 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Gracko International [1]	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Kent Scientific Services	75 %	100 %	100 %	100 %	NR [3]	NR [3]	NR [3]	NR [3]
Kirklees MBC	100 %	100 %	100 %	100 %	100 %	100 %	100 %	75 %
Lambeth Scientific Services	0 %	50 %	75 %	25 %	50 %	100 %	100 %	25 %
Milton Keynes Council	100 %	75 %	75 %	75 %	100 %	100 %	75 %	100 %
Northampton Borough Council	100 %	100 %	100 %	100 %	100 %	0 %	0 %	100 %
Somerset Scientific Services	100 %	75 %	100 %	100 %	100 %	100 %	100 %	100 %
South Yorkshire Air Quality Samplers	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Staffordshire County Council	100 %	100 %	100 %	100 %	100 %	25 %	100 %	100 %
Tayside Scientific Services (formerly Dundee CC)	100 %	100 %	100 %	100 %	NR [2]	100 %	100 %	100 %
West Yorkshire Analytical Services	100 %	50 %	100 %	75 %	75 %	100 %	75 %	100 %

[1] Participant subscribed to two sets of test samples (2 x 4 test samples) in each WASP/AIR PT round.

[2] NR No results reported

[3] Kent Scientific Services, Cardiff Scientific Services and Exova (formerly Clyde Analytical) no longer carry out NO<sub>2</sub> diffusion tube monitoring and therefore did not submit results.

NO<sub>2</sub> PT Summary – WASP PT R121-124 and AIR PT Rounds AR001, 3, 4 and 6



## Appendix B: Location Maps of Air Quality Monitoring Sites

Figure 2.1a Blyth and Cowpen Automatic Monitoring Station Locations

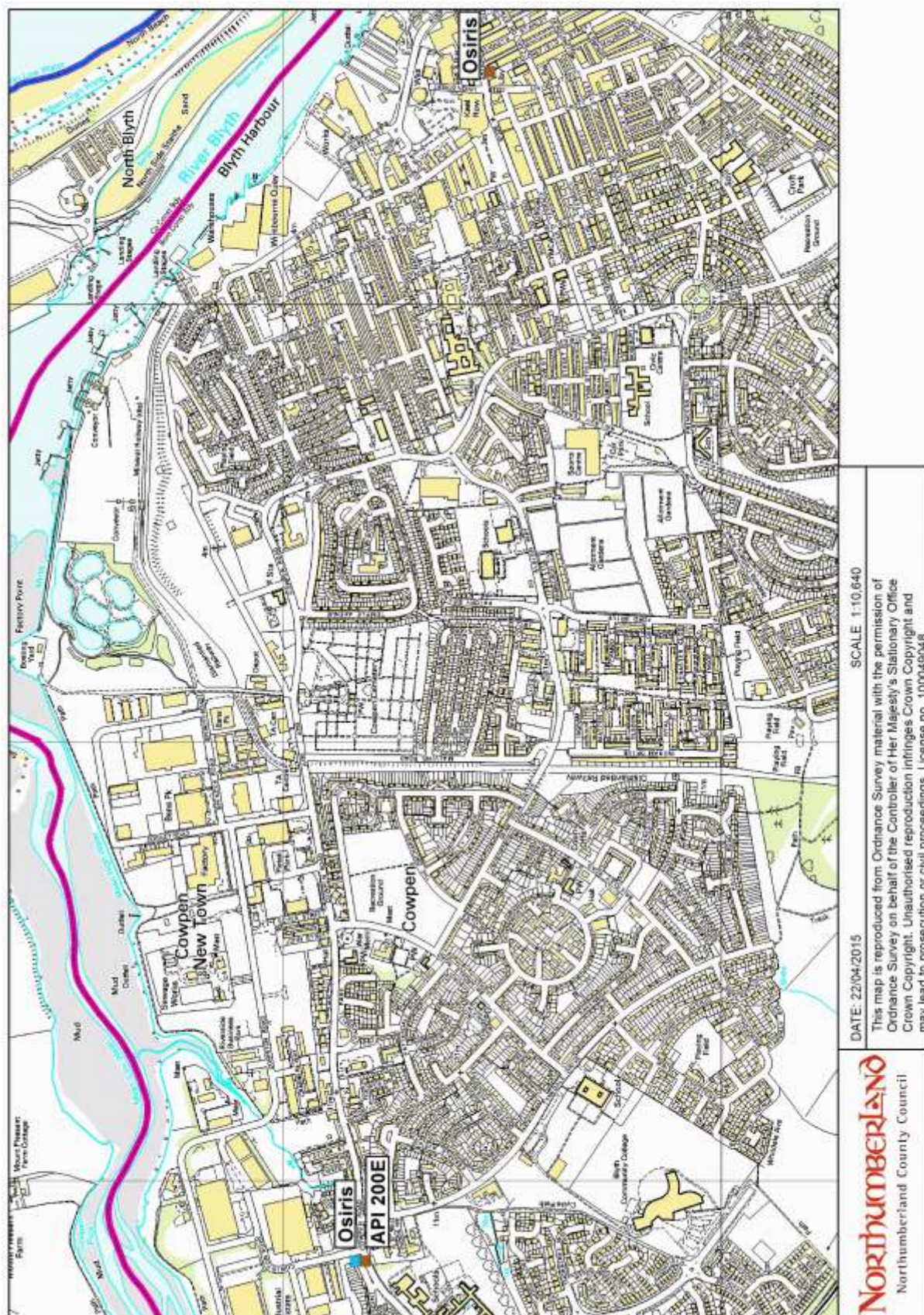








Figure 2.2b Blyth NO<sub>2</sub> Diffusion Tube Monitoring Locations

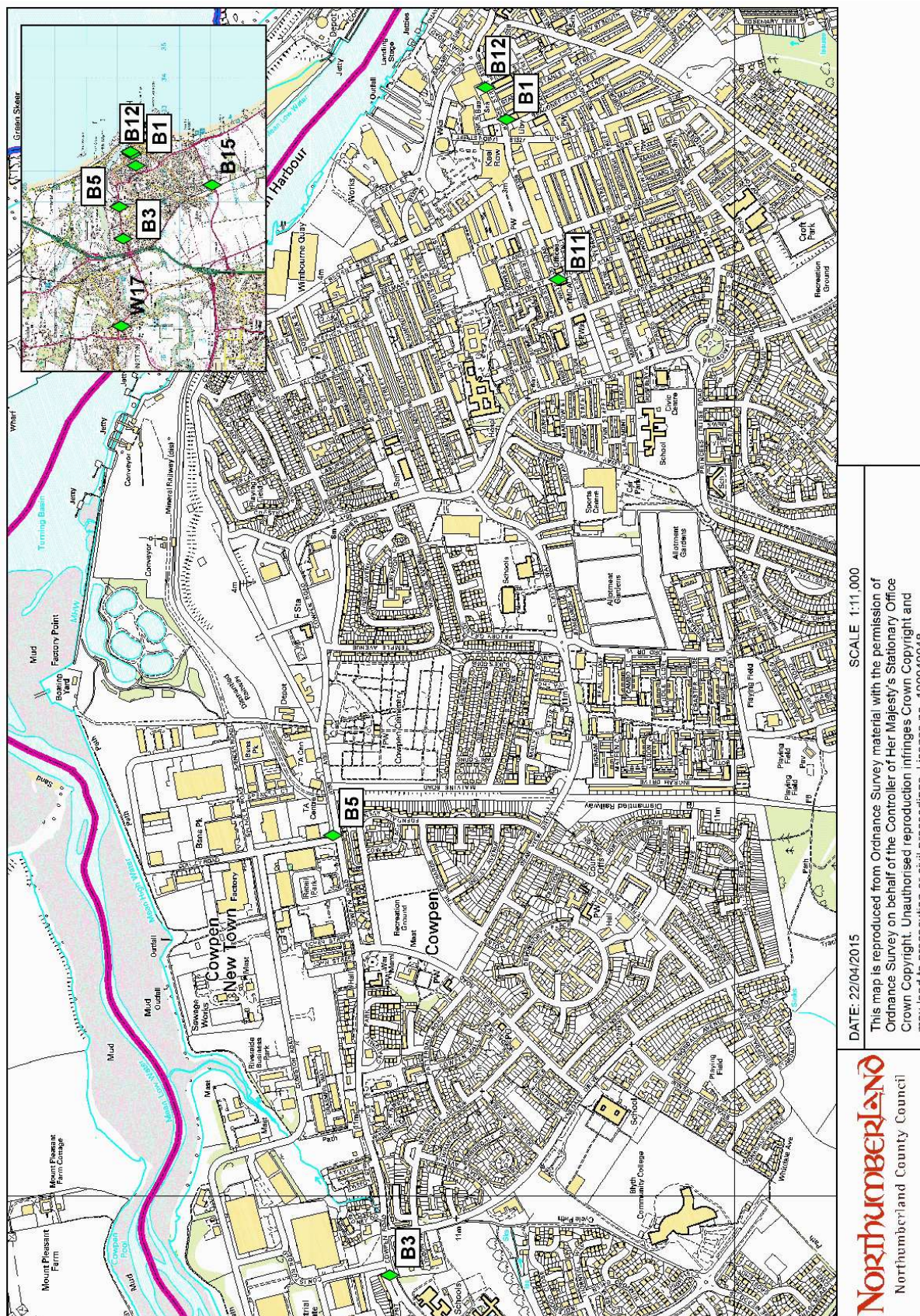




Figure 2.2c Morpeth NO<sub>2</sub> Diffusion Tube Monitoring Locations

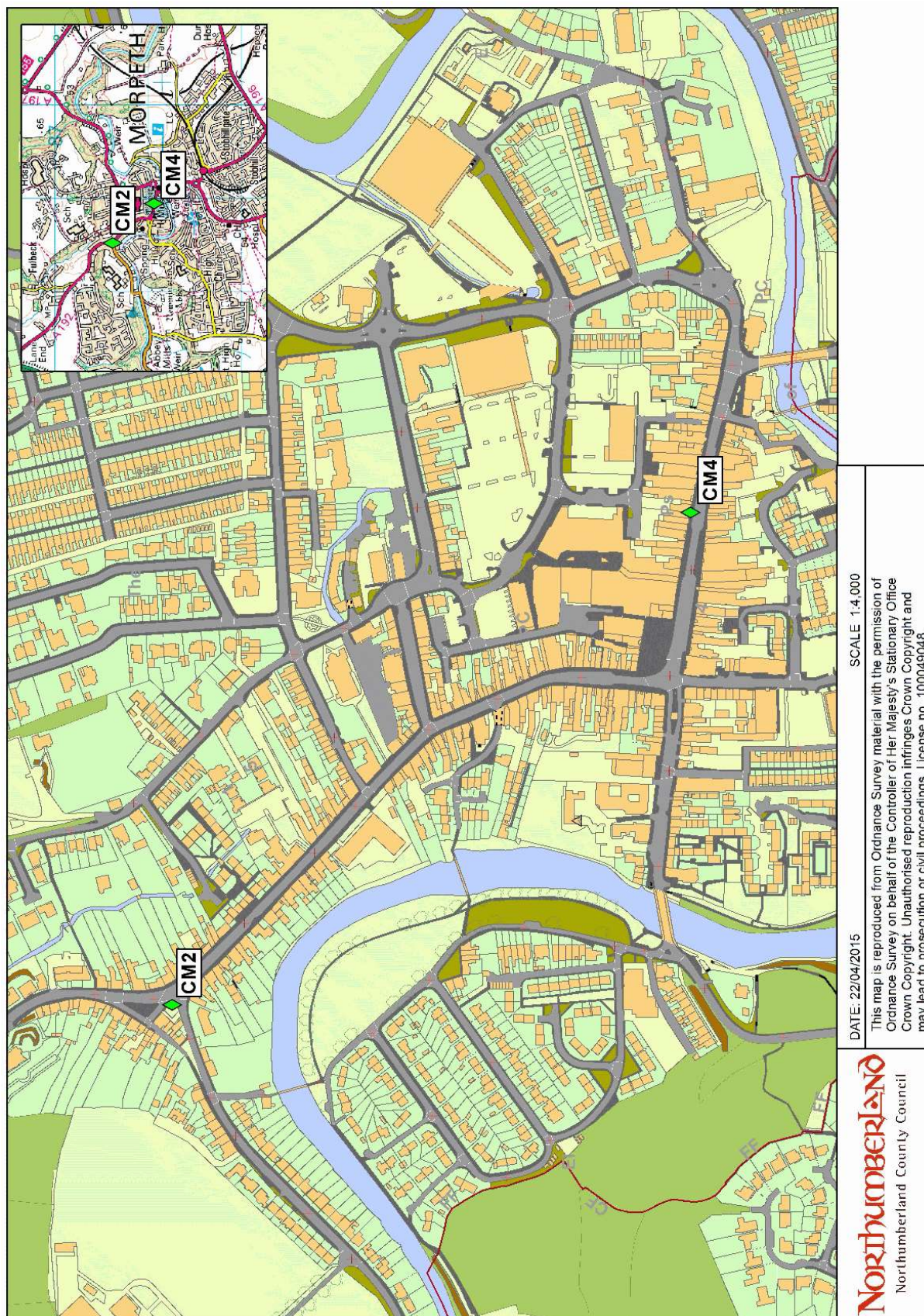




Figure 2.2d Cramlington NO<sub>2</sub> Diffusion Tube Monitoring Locations

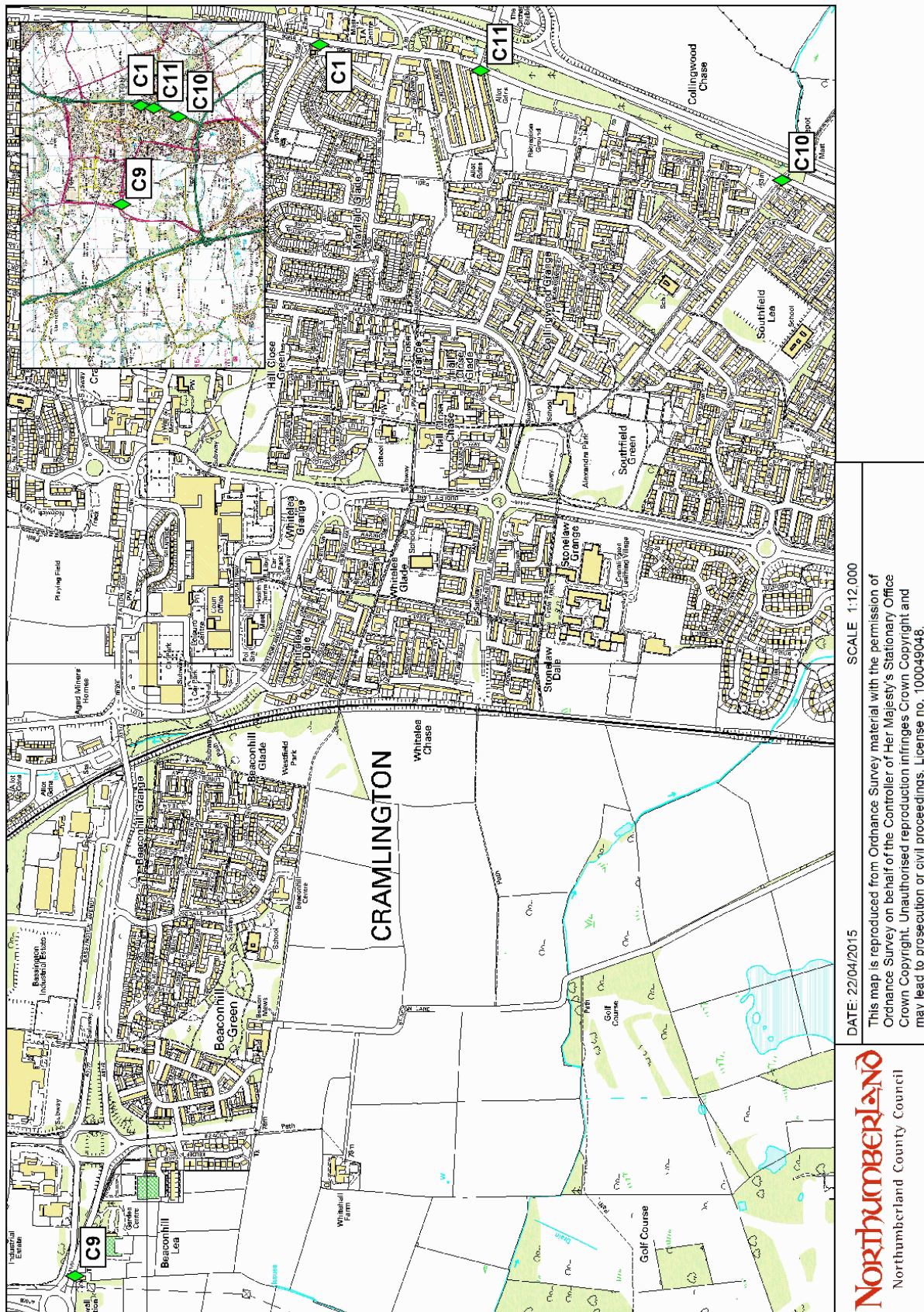


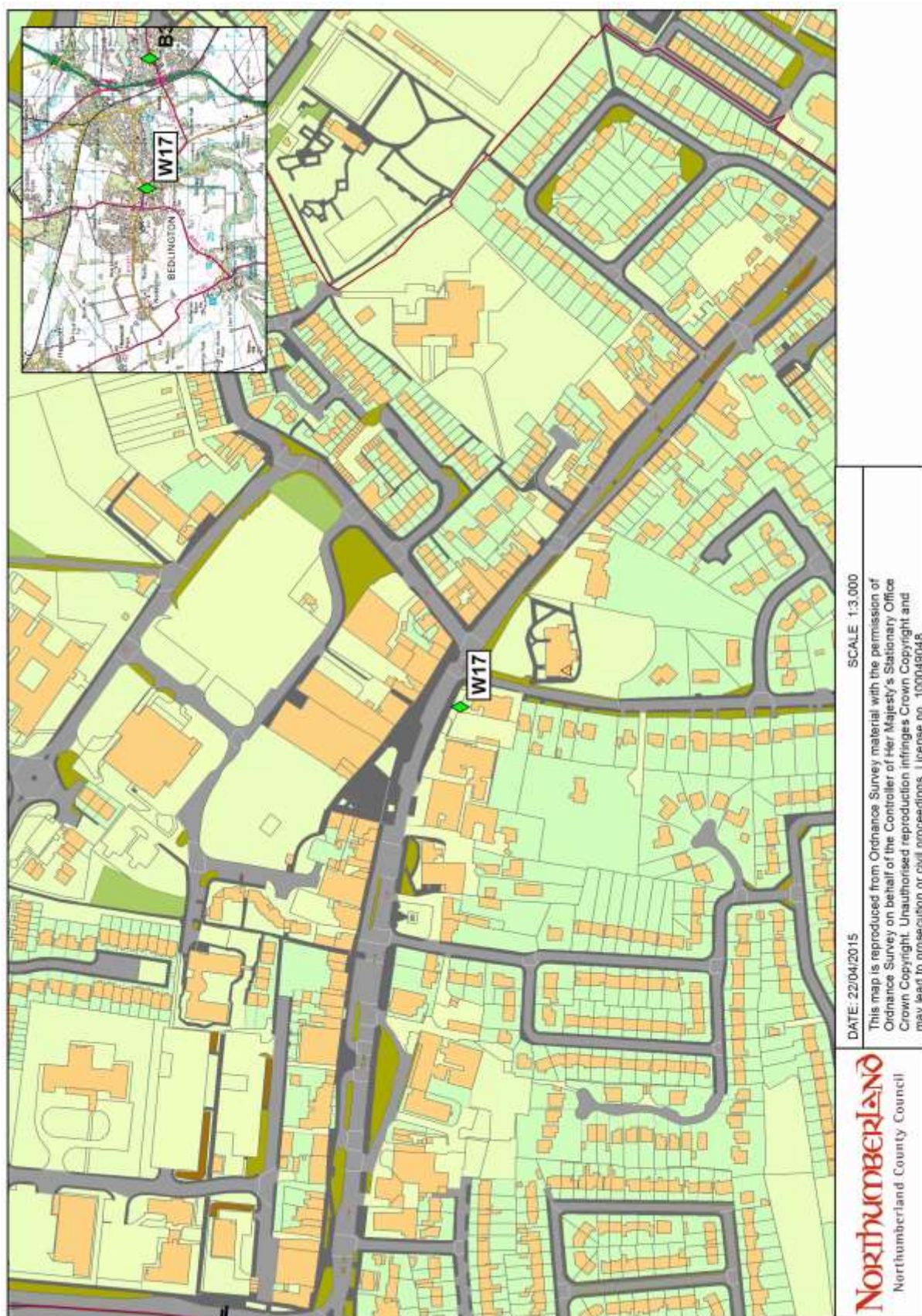


Figure 2.2e Ashington NO<sub>2</sub> Diffusion Tube Monitoring Locations





Figure 2.2f Bedlington NO<sub>2</sub> Diffusion Tube Monitoring Locations



## Appendix C: Diffusion Tube Data

**Table C.1 Full Monthly NO<sub>2</sub> Diffusion Tube Dataset 2014**

Site ID	Location	Type	x	y	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average	Bias Factor	Bias Adjusted Average	Data Capture
8N	Bondgate Without, Alnwick	Roadside	419025	613070	41.1	41.8	36.1	34.3	38.0	27.9	32.4	37.7	-	39.6	42.3	-	37	0.81	30	83.3
Ber5	Main Street, Tweedmouth (DISCONTINUED)	Roadside	399437	652022	35.5	38.7	29.7	22.7	-	-	-	-	-	-	-	-	32	0.81	26	33.3
Ber7	Castlegate, Berwick (DISCONTINUED)	Roadside	399595	653170	35.9	33.6	30.9	-	-	-	-	-	-	-	-	-	33	0.81	27	25.0
B1	Waterloo Road, opp bus station LP, Blyth	Roadside	431537	581537	-	43.0	31.2	26.6	21.3	21.7	23.4	29.1	32.8	35.5	50.0	51.3	33	0.81	27	91.7
B3	Cowpen Road, west ent monitoring station LP, Blyth	Roadside	428815	581813	51.6	52.5	36.7	33.8	36.2	24.0	30.2	33.1	41.9	39.5	51.6	36.4	39	0.81	32	100.0
B5	Cowpen Road, east ent nr Lord Tool Hire LP, Blyth	Roadside	429850	581947	37.5	35.9	33.1	22.6	25.9	21.4	25.1	23.6	31.6	27.6	33.3	34.4	29	0.81	24	100.0
B11	Blyth YMCA LP	Roadside	431160	581415	35.0	37.8	35.7	22.5	25.9	18.0	31.3	29.7	33.6	33.2	36.7	41.6	32	0.81	26	100.0
B12	Bridge Street, opp Job Centre LP, Blyth	Roadside	431612	581586	35.5	36.8	29.7	27.8	27.5	22.0	26.6	21.5	33.3	29.7	-	33.2	29	0.81	24	91.7
B15	South Newsham Road, Blyth	Roadside	430552	578950	30.8	29.0	29.1	19.4	22.4	12.3	19.9	20.6	28.4	19.4	38.3	28.2	25	0.81	20	100.0
C1	High Pit Road, Burton House car park LP (X2)	Roadside	427593	576555	29.4	37.3	33.8	32.7	28.0	18.1	27.9	23.3	36.1	29.3	50.8	26.0	31	0.81	25	100.0
C9	Trebor, Cramlington	Roadside	424456	577173	26.4	29.3	28.2	28.1	21.1	21.7	22.1	27.1	30.1	29.2	43.9	24.4	28	0.81	22	100.0
C10	Bay Horse, Cramlington	Roadside	427243	575362	48.3	43.3	35.3	28.2	30.7	25.3	22.8	23.2	36.3	26.8	57.2	25.8	34	0.81	27	100.0
C11	Storey Street, Cramlington	Roadside	427523	576136	31.7	28.8	28.0	24.8	25.7	21.8	25.3	20.1	29.9	20.2	48.7	18.5	27	0.81	22	100.0
CM2	Newgate Street/Bullers Green, Mopeth	Roadside	419525	586380	44.6	27.8	31.0	23.9	25.7	21.8	22.8	18.6	29.1	24.4	58.5	19.8	29	0.81	23	100.0
CM4	Northern Rock, Bridge Street, Morpeth	Roadside	419947	585937	33.2	25.4	33.8	33.6	32.1	30.3	35.0	27.0	39.0	28.1	44.1	26.4	32	0.81	26	100.0
W17	Front Street East, Bedlington	Roadside	426014	581879	48.0	41.6	37.8	33.4	25.7	23.9	30.9	27.9	28.7	36.5	47.0	34.8	35	0.81	28	100.0
W21	Newbiggin Road, Ashington (NEW SITE)	Roadside	427939	586210	-	-	-	-	21.9	13.8	14.6	17.5	23.8	27.3	39.1	29.7	23	0.81	21 (19 <sup>c</sup> )	66.7
SD1	Salvation Army Hall LP, Seaton Delaval	Roadside	430387	575433	35.6	39.5	30.0	22.9	28.6	19.0	24.6	24.9	31.3	32.3	43.6	38.3	31	0.81	25	100.0

<sup>c</sup> Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year. Displayed in parentheses.

## Appendix D: Data Summaries and Time Series Plots

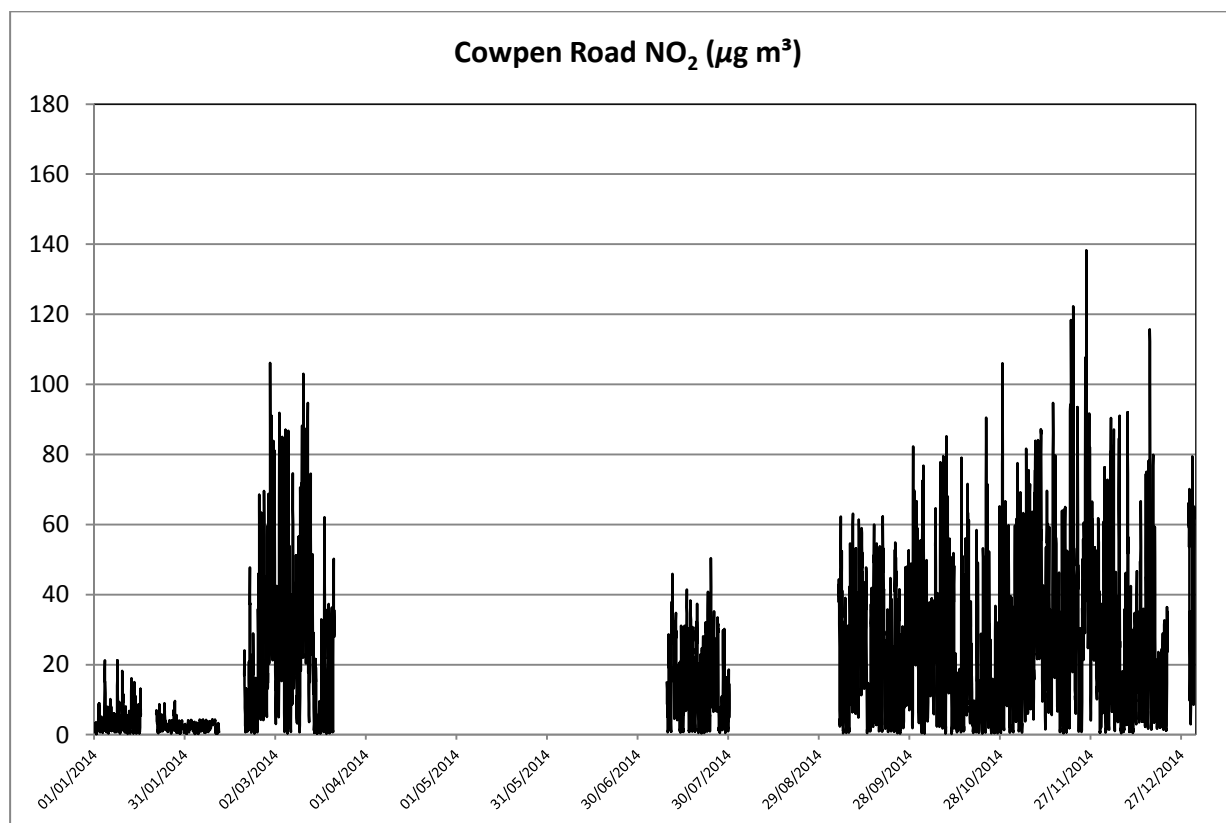
**Table D.1 Cowpen Road AQ Monitoring Station - Air Quality Data Summary**

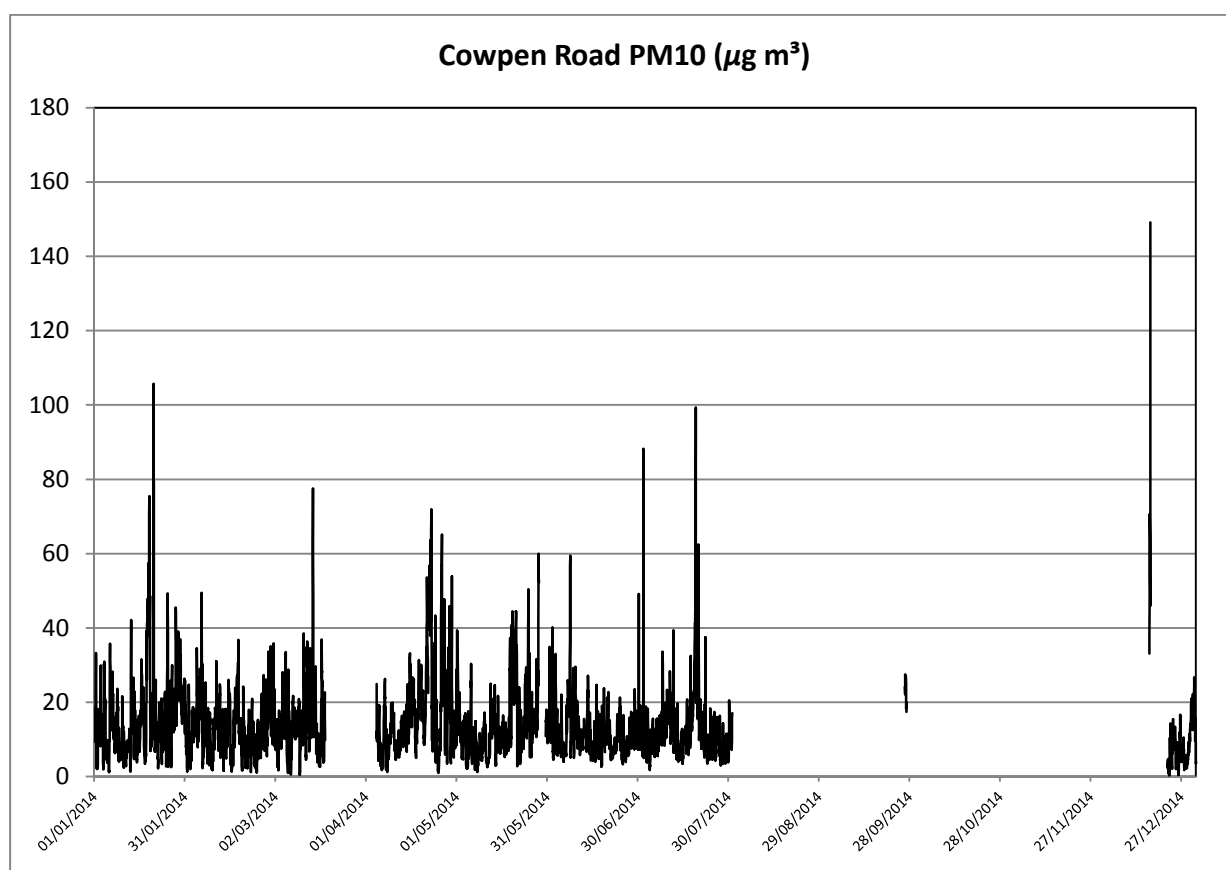
	PM2.5	PM10	NO	NO2	NOx
Number Very High	0	1	1	0	7
Number High	0	0	12	0	26
Number Moderate	0	1	123	0	233
Number Low	209	208	4038	4753	4484
Maximum 15-minute Mean	61.6 $\mu\text{g m}^{-3}$	337.5 $\mu\text{g m}^{-3}$	869.8 $\mu\text{g m}^{-3}$	167.1 $\mu\text{g m}^{-3}$	1010.8 $\mu\text{g m}^{-3}$
Maximum Hourly Mean	45.1 $\mu\text{g m}^{-3}$	149.1 $\mu\text{g m}^{-3}$	708.0 $\mu\text{g m}^{-3}$	137.3 $\mu\text{g m}^{-3}$	846.3 $\mu\text{g m}^{-3}$
Maximum running 8-hour Mean	26.9 $\mu\text{g m}^{-3}$	74.1 $\mu\text{g m}^{-3}$	367.5 $\mu\text{g m}^{-3}$	94.0 $\mu\text{g m}^{-3}$	461.5 $\mu\text{g m}^{-3}$
Maximum running 24-hour Mean	22.3 $\mu\text{g m}^{-3}$	62.9 $\mu\text{g m}^{-3}$	253.2 $\mu\text{g m}^{-3}$	71.6 $\mu\text{g m}^{-3}$	324.7 $\mu\text{g m}^{-3}$
Maximum Daily Mean	53.2 $\mu\text{g m}^{-3}$	155.5 $\mu\text{g m}^{-3}$	258.5 $\mu\text{g m}^{-3}$	73.0 $\mu\text{g m}^{-3}$	331.4 $\mu\text{g m}^{-3}$
99.8th Percentile	-	-	-	106.9 $\mu\text{g m}^{-3}$	-
90th Percentile (24 Hour)	-	22.2 $\mu\text{g m}^{-3}$	-	-	-
98.08 Percentile of Daily Means	-	-	-	-	-
Average	6.5 $\mu\text{g m}^{-3}$	13.7 (13.4 <sup>c</sup> ) $\mu\text{g m}^{-3}$	38.9 $\mu\text{g m}^{-3}$	20 (21.5 <sup>c</sup> ) $\mu\text{g m}^{-3}$	59.7 $\mu\text{g m}^{-3}$
Data Capture	55.2 %	55.2 %	54.3 %	54.3 %	54.3 %

<sup>c</sup> Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year. Displayed in parentheses.

### Hourly Time Series Plots

**Figure D.1 Cowpen Road Nitrogen Dioxide (NO<sub>2</sub>) Time Series Plot**



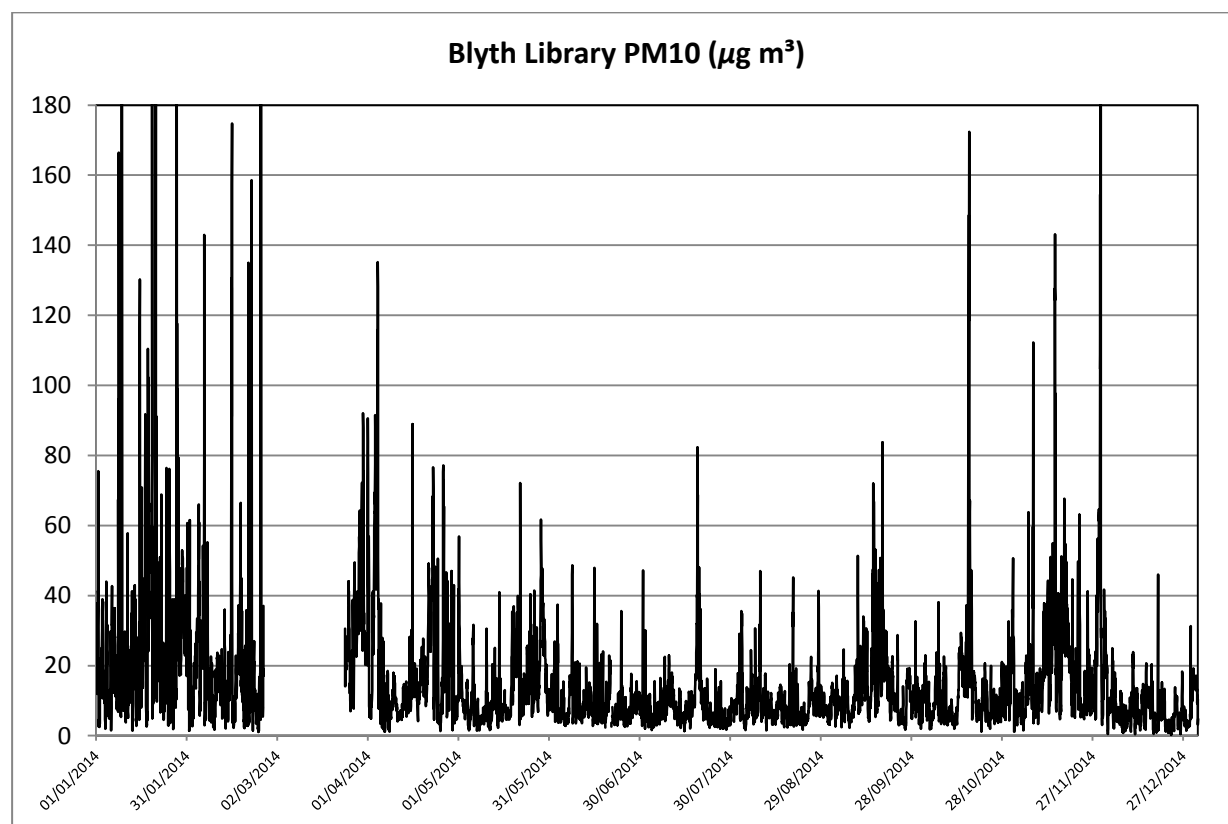
**Figure D.2 Cowpen Road Particulates (PM<sub>10</sub>) Time Series Plot**

**Table D.2 Blyth Library / Town Centre AQ Monitoring Station - Air Quality Data Summary**

	PM2.5	PM10
Number Very High	0	1
Number High	0	0
Number Moderate	1	5
Number Low	338	333
Maximum 15-minute Mean	111.6 $\mu\text{g m}^3$	1582.5 $\mu\text{g m}^3$
Maximum Hourly Mean	70.0 $\mu\text{g m}^3$	695.1 $\mu\text{g m}^3$
Maximum running 8-hour Mean	52.0 $\mu\text{g m}^3$	283.6 $\mu\text{g m}^3$
Maximum running 24-hour Mean	42.7 $\mu\text{g m}^3$	107.5 $\mu\text{g m}^3$
Maximum Daily Mean	43.2 $\mu\text{g m}^3$	111.6 $\mu\text{g m}^3$
99.8th Percentile	-	-
90th Percentile (24 Hour)	-	29.9 $\mu\text{g m}^3$
98.08 Percentile of Daily Means	-	-
Average	6.5 $\mu\text{g m}^3$	14.9 $\mu\text{g m}^3$
Data Capture	92.3%	92.3%

### Hourly Time Series Plots

**Figure D.3 Blyth Library Particulates (PM<sub>10</sub>) Time Series Plot**



**Table D.3 Diffusion Tube - Air Quality Data Summary**

	8N	Ber5	Ber7	B1	B3	B5	B11	B12	B15
Monthly Minimum	23	18	25	17	19	17	15	17	10
Monthly Maximum	34	31	29	42	43	30	34	30	31
Range	12	13	4	24	23	13	19	12	21
Monthly Values Above 40 $\mu\text{g}/\text{m}^3$				1	3				
Standard Deviation	4	6	2	9	7	5	5	4	6
Median	31	26	27	25	30	24	27	24	20
Mean	30	26	27	27	32	24	26	24	20
Data Capture	83.3	33.3	25.0	91.7	100.0	100.0	100.0	91.7	100.0
	C1	C9	C10	C11	CM2	CM4	W17	W21	SD1
Monthly Minimum	15	17	18	15	15	21	19	11	15
Monthly Maximum	41	36	46	39	47	36	39	32	35
Range	26	18	28	24	32	15	20	20	20
Monthly Values Above 40 $\mu\text{g}/\text{m}^3$	1		1		1				
Standard Deviation	7	5	9	6	9	4	6	7	6
Median	24	22	24	21	20	26	28	19	25
Mean	25	22	27	22	23	26	28	19	25
Data Capture	100.0	100.0	100.0	100.0	100.0	100.0	100.0	66.7	100.0



## Appendix E: Industrial Sources (LA-PPC & LA-IPPC) - Permitted Processes in Northumberland

Site_Name	Post_Code	Permit_Ref	Issue_Date	Ref	Permit_Type	PG_Note	PG_Description	Risk_Rating	Active	X_Coord	Y_Coord
A & J Scott	NE66 4XW	Scotts/01/08	31/03/2008	EP001	Part B - Full Fee	PG6/02	Manufacture of Timber and Wood - Based Products	Low Risk	Y	404959	619964
Addressstone Services	NE70 7JU	EP14/001	20/06/2014	EP002	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	413258	630086
Akzo-Nobel	NE63 0XD	EPSE12/144	02/12/2013	EP125	Part B - Full Fee	PG6/44	Manufacture of coating materials	Low Risk	Y	429457	585945
Allan Brothers	TD15 2XU	Allan/02/08	31/03/2008	EP004	Part B - Full Fee	PG6/02	Manufacture of Timber and Wood - Based Products	Medium Risk	Y	398780	652490
Alnwick Filling Station (108128-SPET)	NE66 2HA	EPN14/106	20/06/2014	EP115	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	419623	611924
Alnwick Petrol Filling Station	NE66 2GD	EPN14/157	20/06/2014	EP127	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	419574	611637
Amcor Packaging UK Ltd	NE23 1WD	EPSE10/006	28/08/2014	EP005	Part B - Full Fee	PG6/17	Printing of flexible packaging	Low Risk	Y	425250	578101
American Air Filters	NE23 8AF	BV2-PG6/23	01/04/2007	EP006	Part B - Full Fee	PG6/23	Coating of metal and plastic processes	Low Risk	Y	424704	577619
Armstrong And Nichol	NE46 4SA	TY/PPC/024/1	unknown	EP007	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	392560	566240
Asda Stores (Ashington)	NE63 9JZ	EPSE14/011	20/06/2014	EP009	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	427485	587962
Asda Stores (Blyth)	NE24 4LZ	EPSE14/012	20/06/2014	EP008	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	428590	581318
Asda Stores (Tweedmouth)	TD15 2AW	EPN14/075	20/06/2014	EP010	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	399459	652125
Avery Dennison Materials UK Ltd	NE23 1JR	BV102PH6/18	28/03/2007	EP011	Part A2	SG6	Surface Treatment Using Organic Solvents Sector	Medium Risk	Y	425755	578102
Bardon Concrete (Aggregate Industries Ltd)	NE227BY	EPSE14/005	14/01/2014	EP003	Part B - Simplified	PG3/01	Blending, Packing, Loading, Unloading and Use of Bulk Cement	Low Risk	Y	428337	584243
Beside Service Station	NE24 4HN	EPSE14/153	20/06/2014	EP130	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	428270	581599
Bedlington Service Station	NE22 5PP	EPSE14/088	20/06/2014	EP093	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	427324	582753
Bedmax	NE70 7PF	EPN10/132	02/07/1905	EP013	Part B - Simplified	PG6/02	Manufacture of Timber and Wood - Based Products	Low Risk	Y	407246	636049
Bellingham Garage Services Ltd	NE48 2BS	EPW12/074	06/07/2012	EP079	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	383971	583312
Berwick Harbour Commission	TD15 2AB	EPN11/108	28/03/2007	EP118	Part B - Simplified	PG3/01	Blending, Packing, Loading, Unloading and Use of Bulk Cement	Low Risk	Y	399488	652393
Bishops Garages Limited	NE45 5LB	EPW14/013	20/06/2014	EP014	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	399021	564348
Blyth Crematorium	NE24 5SZ	EPSE10/018	02/07/1905	EP015	Part B - Full Fee	PG5/02	Crematoria	Medium Risk	Y	430064	581934
Blyth Harbour Commission	NE24 3PB	EPSE12/147	unknown	EP129	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	432134	581022
Blyth Harbour Commission	NE24 9PB	EPSE14/156	16/04/2014	EP138	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	430868	582946
Blyth Service Station	NE24 5SU	EPSE14/014	20/06/2014	EP016	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	430196	582001
Branch End Service Station	NE43 7DW	EPW14/017	20/06/2014	EP018	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	406885	561388
Brenkley OCCS	NE13 6DA	EPN10/038	20/11/2007	EP019	Part B - Full Fee	PG3/05	Coal, Coke, Coal Product and Petroleum Coke	Low Risk	Y	421139	576382
Cemex Materials (UK) Ltd (Alnwick)	NE66 2PD	EPN14/021	14/01/2014	EP022	Part B - Simplified	PG3/01	Blending, Packing, Loading, Unloading and Use of Bulk Cement	Low Risk	Y	419666	612461
Cemex Materials (UK) Ltd (Barrington)	NE22 7AL	EPSE14/025	14/01/2014	EP026	Part B - Simplified	PG3/01	Blending, Packing, Loading, Unloading and Use of Bulk Cement	Low Risk	Y	427308	583326
Cemex Materials (UK) Ltd (Belford)	NE70 7EZ	Crag/6/07	03/04/2007	EP024	Part B - Full Fee	PG3/15a	Roadstone Coating Processes	Low Risk	Y	411274	634664
Cemex Materials (UK) Ltd (Divit Hill)	NE19 2BG	EPW10/023	02/07/1905	EP025	Part B - Full Fee	PG3/15a	Roadstone Coating Processes	Low Risk	Y	397971	578890
Charcon (Aggregate Industries Ltd)	NE22 7BY	EPSE14/154	14/01/2014	EP003	Part B - Simplified	PG3/01	Blending, Packing, Loading, Unloading and Use of Bulk Cement	Low Risk	Y	428538	584202
Cliffwell Service Station	NE65 0LU	EPN14/152	20/06/2014	EP119	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	426253	604267
Coal Products Ltd	NE22 7LQ	EPSE14/027	30/04/2014	EP027	Part B - Simplified	PG3/05	Coal, Coke, Coal Product and Petroleum Coke	Low Risk	Y	428021	584890
Cramlington Filling Station (109121-SPET)	NE23 7RG	EPSE14/040	20/06/2014	EP040	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	426930	574604
Dale Garage	NE46 3QQ	EPW14/028	20/06/2014	EP028	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	393431	564404
Darras Hall Service Station	NE20 9PW	EPW14/029	20/06/2014	EP029	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	415101	571453
David Elliot (Motor Engineers)	NE25 0PP	BV10-PG1/1	unknown	EP030	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	429866	576066
Davidson Tyne Metal Ltd	NE46 4JL	EPW10/030	02/07/1905	EP031	Part B - Full Fee	PG2/04	Iron, Steel and Non - Ferrous Metal Foundry Processes	Medium Risk	Y	394260	564730
Draeger Safety UK Ltd	NE24 4RG	EPSE14/155	02/10/2014	EP136	Part B - Full Fee	PG6/23	Coating of metal and plastic processes	Low Risk	Y	428327	581969
Dulais Dry Cleaning Services	NE20 9PW	EPW10/036	30/10/2007	EP032	Part B - Reduced Fee	PG6/46	Dry cleaning	Low Risk	Y	415115	571379
ED & MA Redpath & Sons	NE71 6PB	EPN12/033	05/12/2012	EP034	Part B - Simplified	PG3/16	Mobile Crushing and Screening	Low Risk	Y	398293	627826
Edens Lawn Service Station	NE49 0ND	EPW14/034	20/06/2014	EP035	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	370766	563866
Egger (UK) Limited	NE46 4JS	TYIPPC/001/1	unknown	EP036	Part A2	SG1	Particleboard, Oriented Strand Board and Dry Process Fibreboard Sector	Medium Risk	Y	394634	564707
ELCO Vehicle Repair Centre	NE24 3HT	EPSE11/133	03/07/1905	EP037	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	431588	581000
Errington Reay & Company Ltd	NE47 7HU	EPW14/037	30/04/2014	EP038	Part B - Simplified	PG3/02	Manufacture of Heavy Clay Goods and Refractory Goods	Medium Risk	Y	377898	564657
Everitt & Marshall Ltd	NE46 3PU	HXE4	unknown	EP039	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	395548	564521
F P McCann Ltd	NE66 3JX	EPN14/041	14/01/2014	EP041	Part B - Simplified	PG3/01	Blending, Packing, Loading, Unloading and Use of Bulk Cement	Low Risk	Y	423331	616945
Gilbert Birdsall Building & Civil Engineering	NE70 7DP	EPN14/042	14/01/2014	EP042	Part B - Simplified	PG3/01	Blending, Packing, Loading, Unloading and Use of Bulk Cement	Low Risk	Y	411478	633286
Guidepost Washeteria	NE62 5BY	EPSE10/124	02/07/1905	EP044	Part B - Reduced Fee	PG6/46	Dry cleaning	Low Risk	Y	425458	585056
Hammerite Products Ltd	NE42 6LP	EPW11/044	03/07/1905	EP045	Part B - Full Fee	PG6/44	Manufacture of coating materials	Low Risk	Y	408344	562984
Hanson HeidelbergCement UK Ltd (Howford)	NE46 4RY	EPW14/045	14/01/2014	EP046	Part B - Simplified	PG3/01	Blending, Packing, Loading, Unloading and Use of Bulk Cement	Low Risk	Y	391931	566315
Hansons Aggregates Ltd (Keepersfield)	NE46 4BB	EPN10/046	10/09/2010	EP047	Part B - Full Fee	PG3/15a	Roadstone Coating Processes	Low Risk	Y	389353	572732
Hargreaves Surface Mining Ltd	NE61 6AJ	EPN14/151	22/01/2014	EP131	Part B - Simplified	PG3/05	Coal, Coke, Coal Product and Petroleum Coke	Low Risk	Y	418420	581644
Haugh Head Garage	NE71 6OP	EPN14/002	20/06/2014	EP048	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	400135	626431
Heddon Service Station	NE15 0BG	EPW14/047	20/06/2014	EP049	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	413381	566982
Henshaw Garage	NE47 7EL	EPW14/048	20/06/2014	EP050	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	376789	564572
HJ Banks (Shotton) Ltd	NE23 8AU	EPSE13/050	11/02/2013	EP052	Part B - Full Fee	PG3/05	Coal, Coke, Coal Product and Petroleum Coke	Low Risk	Y	423153	577242
Hope Cement Ltd	NE22 7AL	EPSE14/051	14/01/2014	EP060	Part B - Simplified	PG3/01	Blending, Packing, Loading, Unloading and Use of Bulk Cement	Low Risk	Y	427255	583254
Howard Snaith Coaches	NE19 1HB	EPW11/141	10/11/2011	EP120	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	388392	593244
Instant Cleaners	NE61 1LX	EPN10/052	31/10/2006	EP053	Part B - Reduced Fee	PG6/46	Dry cleaning	Low Risk	Y	419757	585965
Johnson Cleaners UK Ltd (Alnwick)	NE66 1TL	EPN10/054	02/07/1905	EP054	Part B - Reduced Fee	PG6/46	Dry cleaning	Low Risk	Y	418683	613302
Johnson Cleaners UK Ltd (Hexham)	NE46 1BA	EPW10/057	12/02/2007	EP057	Part B - Reduced Fee	PG6/46	Dry cleaning	Low Risk	Y	393568	569394
King Street Garage	NE68 7XP	EPN14/134	20/06/2014	EP058	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	421933	631847
Kleaning Ark	TD15 1UN	EPN10/058	01/02/2007	EP059	Part B - Reduced Fee	PG6/46	Dry cleaning	Low Risk	Y	398969	655090
Lafarge-Tarmac (Barrasford)	NE48 4AP	EPW10/099	02/07/1905	EP102	Part B - Full Fee	PG3/15a	Roadstone Coating Processes	Low Risk	Y	391082	574295
Lafarge-Tarmac (Harden)	NE65 7DX	B-1/04	08/12/2004	EP100	Part B - Full Fee	PG3/08	Quarry Processes	Low Risk	Y	395942	608670
Lafarge-Tarmac (Howick)	NE66 3JY	EP-5/93C	17/07/2006	EP101	Part B - Full Fee	PG3/08	Quarry Processes	Low Risk	Y	423822	617181
Lilburn Estates	NE71 6QY	Midd 3/08	31/03/2008	EP062	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	399950	624304
Lilburn Estates Farming Partnership	NE71 6QY	EPN10/061	10/11/2005	EP063	Part B - Simplified	PG3/16	Mobile Crushing and Screening	Low Risk	Y	399950	624304
Lion Garage (Bedlington) Ltd	NE22 5TZ	EPSE14/062	20/06/2014	EP065	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	425703	581924
Maggie Filling Station	NE23 8BH	EPSE14/063	20/06/2014	EP066	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	424594	577238
Malthurst (UK) Ltd (Ashington)	NE63 8QG	EPSE14/066	20/06/2014	EP068	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	426106	587964

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McQuay (UK) Ltd	NE23 8AF	BV13-PG6/29	28/03/2007	EP069	Part B - Full Fee	PG6/29	Di-isocyanate Processes	Low Risk	Y	424654	577633
Mickleby Garage	NE43 7LU	EPW11/140	27/10/2011	EP121	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	407489	562038
Millar UK Ltd	NE23 8AD	EPSE13/065	27/11/2013	EP070	Part B - Full Fee	PG6/23	Coating of metal and plastic processes	Low Risk	Y	424483	577593
Mootlaw Quarry	NE20 0SG	PPC(B)004	19/07/2005	EP071	Part B - Full Fee	PG3/08	Quarry Processes	High Risk	Y	402224	574801
Multichem Ltd	NE46 1XL	EPW14/069	04/02/2014	EP073	Part B - Full Fee	PG6/44	Manufacture of coating materials	Low Risk	Y	394112	564449
Murray & Guthrie	NE66 2AH	EP1/92B	08/12/2005	EP074	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	417685	612690
NB Clark (Portafil)	NE61 6JN	EPN12/148	02/11/2012	EP122	Part B - Simplified	PG3/16	Mobile Crushing and Screening	Low Risk	Y	421346	585270
NB Clark (Powerscreen)	NE61 6JN	EPN12/071	02/11/2012	EP076	Part B - Simplified	PG3/16	Mobile Crushing and Screening	Low Risk	Y	421346	585270
NB Clark (Sandvik Crusher)	NE61 6JN	EPN12/072	02/11/2012	EP132	Part B - Simplified	PG3/16	Mobile Crushing and Screening	Low Risk	Y	421346	585270
Newtown Engineering	NE65 7RG	B-3/05	18/11/2005	EP077	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	406218	601615
Northumberland County Council	NE66 4HY	1/06	18/10/2006	EP080	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	405452	618912
Penny Petroleum (Amble Service Station)	NE65 0NB	EPN14/068	20/06/2014	EP072	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	426705	603552
Penny Petroleum (Grandstand Services)	NE61 3JN	EPN14/043	20/06/2014	EP043	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	418319	587427
Penny Petroleum (Hedgeley Services)	NE66 4HU	EPN14/078	20/06/2014	EP081	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	405993	616791
Penny Petroleum (Lindisfarne Services)	TD15 2PD	EPN14/003	20/06/2014	EP064	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	405438	641994
Port of Blyth Ship Unloading Facility	NE24 3PB	EPSE12/010	25/10/2013	EP012	Part B - Full Fee	PG3/05	Coal, Coke, Coal Product and Petroleum Coke	Medium Risk	Y	431021	582602
Precision Hydraulic Cylinders (UK) Ltd Ltd	NE23 8AE	EPSE12/079	12/09/2012	EP083	Part B - Full Fee	PG6/23	Coating of metal and plastic processes	Low Risk	Y	424709	577450
President Estate Farming Partnership	TD15 2UL	EPN11/053	03/07/1905	EP061	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	403212	635377
Prudhoe Filling Station (108127-SPET)	NE42 5DH	EPW14/103	20/06/2014	EP113	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	410007	562947
R. Thornton & Co. Ltd (Extec)	NE61 5SD	EPN12/080	24/10/2012	EP084	Part B - Simplified	PG3/16	Mobile Crushing and Screening	Low Risk	Y	426255	591446
R. Thornton & Co. Ltd (Powerscreen)	NE61 5SD	EPN12/149	24/10/2012	EP085	Part B - Simplified	PG3/17	Mobile Crushing and Screening	Low Risk	Y	426255	591446
R. Thornton & Co. Ltd (Sandvik)	NE61 5SD	EPSE14/159	21/07/2014	EP140	Part B - Simplified	PG3/17	Mobile Crushing and Screening	Low Risk	Y	426255	591446
Renolit Cramlington Ltd	NE23 8AQ	BV101PG6/18	06/06/2007	EP085	Part A2	SG6	Surface Treatment Using Organic Solvents Sector	Medium Risk	Y	424949	577373
Ritemix Ltd	NE49 9NW	EPW14/081	14/01/2014	EP086	Part B - Simplified	PG3/01	Blending, Packing, Loading, Unloading and Use of Bulk Cement	Low Risk	Y	371259	563911
Sainsbury's	NE23 6YD	EPSE10/083	02/07/1905	EP087	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	426408	576627
Seaton Burn Service Station	NE13 6BP	EPSE14/100	20/06/2014	EP107	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	423493	574731
Sew Impressed	NE61 2TW	EPN10/092	31/10/2006	EP088	Part B - Reduced Fee	PG6/46	Dry cleaning	Low Risk	Y	420362	585018
Shell Ashington (790)	NE63 0TQ	EPSE14/082	20/06/2014	EP089	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	428371	586282
Shell Berwick (187)	TD15 1QQ	EPN14/084	20/06/2014	EP090	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	399349	654248
Sherburn Stone Company Ltd	NE24 1SD	EPSE11/085	03/07/1905	EP091	Part B - Full Fee	PG3/01	Blending, Packing, Loading, Unloading and Use of Bulk Cement	Low Risk	Y	430978	582691
Spancast Concrete Floors Ltd	NE22 7DQ	EPSE14/087	14/01/2014	EP092	Part B - Simplified	PG3/01	Blending, Packing, Loading, Unloading and Use of Bulk Cement	Low Risk	Y	426586	583473
Stakeford Service Station	NE62 5QQ	EPSE14/089	20/06/2014	EP094	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	426456	585480
Stanegate Garage	NE47 5AG	NBE1	unknown	EP095	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	387663	567857
Stannington Service Station	NE61 6ED	EPSE14/093	20/06/2014	EP096	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	421020	581323
Station Garage	NE47 9QZ	EPW10/105	02/07/1905	EP097	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	394054	564162
Swarland Brick Company Ltd	NE66 4SD	A2-1/05	03/03/2006	EP099	Part A2	SG7	Ceramics/Brick Manufacture	Low Risk	N	409202	609757
Tarmac Ltd (Bebside)	NE24 4HS	EPSE12/142	14/08/2012	EP124	Part B - Simplified	PG3/01	Blending, Packing, Loading, Unloading and Use of Bulk Cement	Low Risk	Y	428142	581289
Teknic Dry Cleaners	NE24 2PG	EPSE10/109	02/07/1905	EP103	Part B - Reduced Fee	PG6/46	Dry cleaning	Low Risk	Y	430977	581006
Tesco Stores Ltd PFS	TD15 2XB	EPN14/135	20/06/2014	EP104	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	398621	652253
The Lauderette	NE63 9TR	EPSE10/060	02/07/1905	EP105	Part B - Reduced Fee	PG6/46	Dry cleaning	Low Risk	Y	429293	586714
The Laundry Gallery	NE46 3PU	EPW13/150	28/02/2013	EP130	Part B - Reduced Fee	PG6/46	Dry cleaning	Low Risk	Y	393410	564540
Thompsons of Prudhoe Ltd (Pegson XA400)	NE42 6PL	EPW12/145	24/08/2014	EP110	Part B - Simplified	PG3/16	Mobile Crushing and Screening	Low Risk	Y	409756	563838
Thornton Brothers	NE63 0YB	W15/2005	27/06/1905	EP106	Part B - Reduced Fee	PG6/34	Respraying of road vehicles	Low Risk	Y	429097	586108
TR Taylor & Son Ltd	NE66 1JT	B-4/05	18/11/2005	EP108	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	418444	613370
Travelsure	NE70 7DT	EPN14/160	12/01/2015	EP141	Part B - Reduced Fee	PG1/01	Waste Oil and Recovered Oil Burners less than 0.4MW	Low Risk	Y	412213	633687
Tyred and Exhausted	NE24 3LU	EPSE14/110	20/06/2014	EP109	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	430460	579976
UKCSMR Ltd	NE61 5SG	EPN12/020	10/12/2014	EP021	Part B - Full Fee	PG3/05	Coal, Coke, Coal Product and Petroleum Coke	Low Risk	Y	424746	590879
UKCSMR Ltd	NE61 6QY	EPSE12/122	10/12/2014	EP082	Part B - Full Fee	PG3/05	Coal, Coke, Coal Product and Petroleum Coke	Low Risk	Y	424818	588009
W & M Thompson (Earthworks) Ltd (Extec C12)	NE42 6PL	PRE9	24/06/2004	EP111	Part B - Full Fee	PG3/16	Mobile Crushing and Screening	Low Risk	Y	409756	563838
W & M Thompson (Earthworks) Ltd (Pegson XR400)	NE42 6PL	EPW10/111	01/07/2010	EP128	Part B - Simplified	PG3/16	Mobile Crushing and Screening	Low Risk	Y	409756	563838
Welwyn Components Ltd	NE22 7AA	W8/2005	27/06/1905	EP112	Part B - Full Fee	PG6/23	Coating of metal and plastic processes	Low Risk	Y	427586	583513
Western Way Garage (Parker Bros)	NE20 9TN	EPW14/104	20/06/2014	EP114	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	414369	569719
Wheatridge Filling Station	NE25 0FF	EPSE14/158	20/06/2014	EP139	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	429824	575823
Wm Morrisons Supermarkets PLC	NE61 1PA	EPSE14/077	20/06/2014	EP116	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	420125	586225
Wm Morrisons Supermarkets PLC	TD15 1UR	EPN14/107	20/06/2014	EP117	Part B - Reduced Fee	PG1/14	Unloading of petrol into storage, and motor vehicle refuelling, at service stations	Low Risk	Y	399047	654538

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