

Harborough District Council

Annual Progress Report

2008

June 2008

Introduction

There is a duty on all local authorities to carry out an assessment of the local air quality and compare it to the national objectives that have been set for various pollutants. Further information on the National Air Quality Objectives can be found in Harborough District Council's Stage 4 Review and Assessment, available on the web site www.harborough.gov.uk. Where it is anticipated that the national objectives will not be met by the prescribed target date, the local authority must declare an Air Quality Management Area and develop and implement Action Plans in an attempt to improve the situation.

The assessment of local air quality takes place over several phases. Initially a desktop exercise was undertaken to analyze the local effect of each of the pollutants described in the National Air Quality Strategy. This assessment was carried out using national background levels and where available local monitored data. Where it was anticipated that the national objectives would not be achieved by the target dates, a more detailed review was required to determine a more accurate assessment of the pollutant levels in the local area.

Within Harborough District, the First Stage Review and Assessment concluded that further investigation would be required for Carbon Monoxide, Lead, Particulates (PM₁₀) and Nitrogen Dioxide (NO₂). Subsequently the Second and Third Stage review concluded that, with the exception of Nitrogen Dioxide, it was likely that all of the National Air Quality Objectives would be met by the target date. With regards to Nitrogen Dioxide it was felt unlikely that the national objective would not be met for Lutterworth Town Centre, and Air Quality Management Area was declared in July 2001.

All the previous reports are available on www.harborough.gov.uk

Pollution Monitoring in Harborough District.

As part of the assessment of the local air quality, a number of diffusion tubes are located throughout the district. These tubes are a simple and cost effective method for screening air quality and provide a good indication of the annual average levels of Nitrogen Dioxide.

In addition to the network of diffusion tubes, there is a real time monitoring station in Lutterworth, continuously measuring levels of Nitrogen Dioxide and PM₁₀'s. The monitoring station is situated on the main road running through Lutterworth. The station is located with the existing Air Quality Management Area and is on a roadside position approximately 3

4.2 The laboratory takes part in the NO₂ network field inter-comparison, co-coordinated by the Health and Safety Laboratory (HSL). Full documentation of the quality control and calibration system can be found in Harborough District Council's Stage 4 Review and Assessment (www.harborough.gov.uk) and will not be included in this report.

4.3 As discussed earlier in this report, diffusion tubes are a simple method to obtain information on the local pollution levels. There is a recognised inherent error in using diffusion tubes in that there is a tendency for them to either over or under estimate the actual pollution levels. There are a number of ways in which this error can be adjusted. The current recommended best practice is to use established bias correction factors, which are compiled from several different co-location studies throughout the country. Details of the bias correction factors can be found on <http://www.uwe.ac.uk/aqm/review/diffusiontube300307.xls> by taking into consideration Harborough District Council's diffusion tube supplier and preparation methods, the bias correction factor for 2007 is 0.90.

Table 1 gives the bias corrected data for the 2007 diffusion tube survey in Harborough district. The corrected results have been projected forward to the objective year of 2010 using the year adjustment factors available from the website http://www.airquality.co.uk/archive/laqm/tools/Year_Adjustment_Calculator22a.xls

Table 1 – The Bias corrected results for Nitrogen Dioxide for 2007 and the predicted results for 2010.

Tube number	Location	Bias adjusted results for 2007 µg/m³	Predicted levels for 2010 µg/m³
1	Regent Ct Lutterworth	60.3	53.95
2	Lutterworth Service Shop	54.9	49.12
3	Brooklands MH	20.7	18.52
4	Bushby MH	22.5	20.13
5	Lutterworth Monitoring station	56.7	50.73
6	Theddingworth	33.3	29.79
7	Lilac Drive Lutterworth	27	24.16
8	Maxwell Drive Lutterworth	27.9	24.96
9	Central Park Lutterworth	40.5	36.24
10	Day Nursery Lutterworth	44.1	39.46

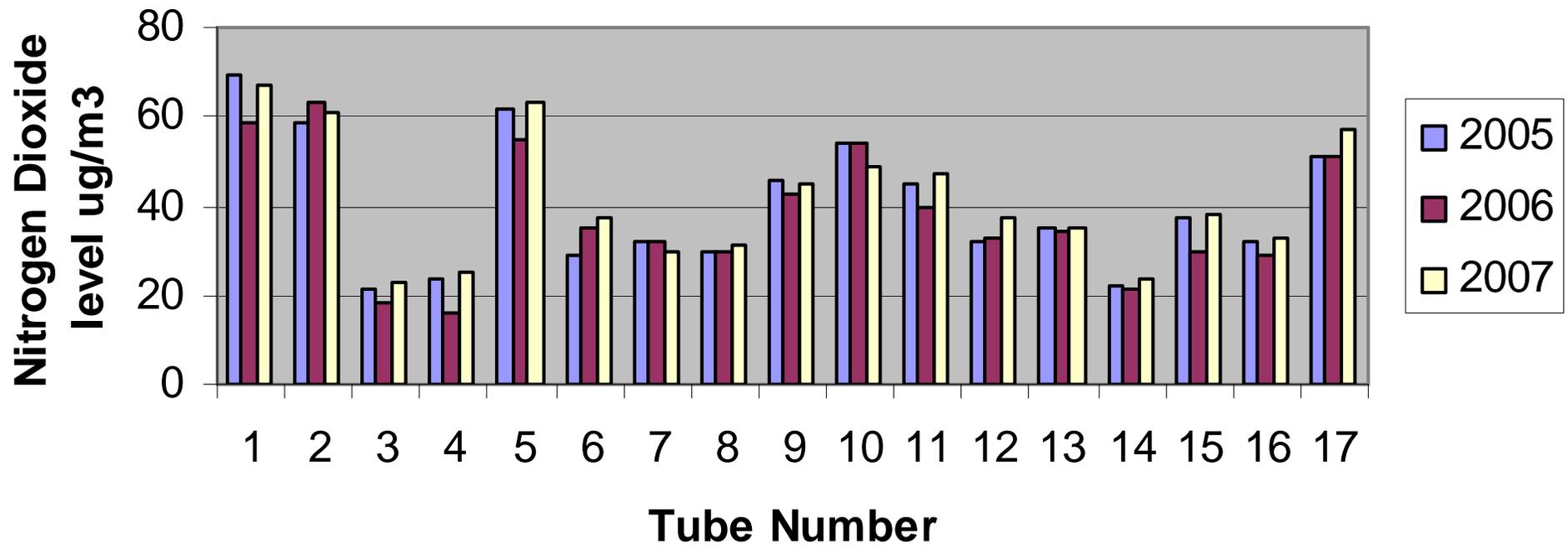
11	Kibworth	42.3	37.85
12	Rockingham Road MH	33.3	29.79
13	Harboro Rubber	31.5	28.18
14	Western Ave MH	21.6	19.33
15	The Square MH	34.2	30.6
16	Walcote	29.7	26.57
17	Jazz Hair Lutterworth	51.3	45.9

The results highlighted in red show likely exceedences of the National Air Quality Objective of $40\mu\text{g}/\text{m}^3$ for an annual average and these fall within the current Air Quality Management Area for Lutterworth.

Diffusion tube monitoring has been undertaken throughout the district for many years; however in 2005 the network of tubes was extended from 5 tubes to 17. Graph 1 shows the trend for the extended survey from 2005 to 2007. Appendix 1 gives a description of the location of each of the tubes in the survey.

Graph

Trends of uncorrected Nitrogen Dioxide Results 2005 -2007



Real Time Monitoring Station Results

There are two real time monitoring stations situated within Harborough District area. One of the monitoring stations is located within the Air Quality Management Area in Lutterworth and is maintained by Harborough District Council and Cassella Eti. The second monitoring station forms part of the National Automatic Monitoring Network and is located in a rural location to the east of the district.

Data from the real time monitor is stored on the logger as “raw” or “uncorrected” data, therefore it needs to be corrected or “validated” before it can be used. To validate the data, the analyzer needs to be checked against a reference or “zero” air and “span” gas.

There are two methods available to correct data by using the calibration checks to verify the analyzer is corrected for any response change: -

- Daily automatic calibration checks
- Fortnightly manual calibration checks

The monitoring station at Lutterworth uses the daily automatic calibration checks as part of the validation process and the manual calibration is carried out every fortnight to confirm the results.

Table 2 shows the results of Nitrogen Dioxide and PM₁₀ for 2007. Current Guidance advises that it is necessary to apply a correction factor of 1.3 from PM₁₀ results when a TEOM monitor is used. Consequently the annual mean for PM₁₀ is 30.68ug/m³ with 7 exceedences of the 24 hour mean and the annual average for Nitrogen Dioxide is 50.8ug/m³ with no exceedences of the 1 hour mean. These results are then compared to the National Air Quality Objectives for the respective pollutants to confirm as to whether there is an anticipated exceedence of the national objectives.

Data from the real time monitor confirmed that the national objective for nitrogen dioxide in Lutterworth would still not be achieved. Appendix 1 shows the 2007 results from the monitoring station for Nitrogen Dioxide and PM₁₀.

Table 2 - Results of the Lutterworth Real Time Monitor - 2007

The table shows the number of exceedences and average values for Nitrogen Dioxide and Particulates. These are then compared to the NAQS Guideline values

Month	NO ₂ (µg/m ³) Monthly Average	NO ₂ (µg/m ³) Exceedences of 1 hr mean	PM ₁₀ (µg/m ³) Monthly Average	PM ₁₀ exceedences of 24 hr mean
January	47.3	0	20.2	0
February	60.4	0	27.8	1
March	54.3	0	29.5	0
April	56.8	0	27.9	0
May	47.9	0	19.9	0
June	34.5	0	22.7	0
July	37.4	0	19.2	0
August	50.0	0	22.2	0
September	50.0	0	22.1	0
October	56.6	0	25.0	0
November	65.5	0	28.1	3
December	48.6	0	20.9	0
	NO₂ (µg/m³) Monthly Average	NO. OF EXCEEDANCES	AVERAGE	NO. OF EXCEEDANCES
	50.8	0	23.6	4

National Air Quality Strategy Annual Mean Guideline Value for NO₂ and PM₁₀ - 40 µg/m³

National Air Quality Strategy NO₂ 1 Hour Mean Guideline Value - 200 µg/m³ (not to be exceeded more than 18 times in a year)

National Air Quality Strategy PM₁₀ 24 Hour Mean Guideline Value – 50 µg/m³ (not to be exceeded more than 35 times in a year)

The rural monitoring station has been in operation since December 2003 and Table 3 shows the results for this monitoring station for 2007

Table 3

Pollutant	Objective		Results for 2007 Rural Monitoring Station
	Concentration	Measured As	
Nitrogen Dioxide	40µg/m ³	Annual Mean	11.57 µg/m ³
Carbon Monoxide	10.0mg/m ³	Max daily running 8 hr mean	Nil exceedences measured
Ozone	100µg/m ³ not to be exceeded more than 10 times a year	Daily maximum of a running 8hr mean	20 exceedences

Ozone is not one of the pollutants covered by the Local Air Quality Management process. It is recognised that due to the fact that much of the problem from Ozone stems from sources outside of the UK, there is little that the district councils could do to improve the local situation. The problem of Ozone is being addressed on an international scale.

New Developments

In April 2008 the announcement was made that an area of the district had been shortlisted for a potential Eco-town. The proposal is for a development of between 12,000 to 15,000 dwellings at Stoughton. There are no firm details of the proposal and the process involves a three month preliminary consultation to obtain initial views on the proposal with a further period of consultation on the more detailed Sustainability Appraisal before the final announcement is made later this year. At this stage it is not possible to carryout any assessment of the potential impact on air quality such a development may have but if the proposal makes the final stage a more detailed assessment will be undertaken as part of the planning process should an application be recieved.

Action Plan

In 2006 the Action Plan was incorporated into the Leicestershire County Council Local Transport Plan 2006-2011 (Table 4). The potential options were evaluated on a cost/benefit basis and ranked in accordance with the perceived improvements to air quality. The NO₂ impacts have been estimated for Local Transport Plan purposes and give an indication on the likely improvement in air quality as a result of the action.

Table 4 Lutterworth Air Quality Action Plan

Level 4: >2µg/m³ Level 3: 1-2 µg/m³ Level 2: 0.2- µg/m³ Level 1: <0.2 µg/m³
 Cost 1: >£1m Cost 2: £500K -£1m Cost 3: £100K-£500K Cost 4: <£100K

Option description	Lead Authority	AQ impact	Non-air quality impact	AQ rank
		Time Scale		
		Cost		
1. Completion of Lutterworth Western Relief Road to divert traffic from the town centre	County Council	Level 4	Improved town Centre for everyone with fewer road casualties	4X1=4
		5 – 10 yrs		
		Cost 1		
2. 7.5 tonne weight limit to divert lorries from A426 through the town centre.	County Council	Level 4	Improved town centre but negative impact on other routes	4X4=8
		<2 yrs		
		Cost 4		
3. Lower emissions from district and it's contractor vehicle fleets	Harborough District	Level 1	None in Lutterworth but newer fleets could be more efficient	1X3=3
		2 – 5 yrs		
		Cost 3		
4. Cleaner vehicles in town centre with Low Emission Zone	County Council	Level 4	Improved town centre but negative impact on other routes	4X2=8
		5 – 10 yrs		
		Cost 2		
5. Planning Controls to reduce traffic impact of new development on AQMA	Harborough District	Level 1	Safeguarding of town centre environment	1X4=4
		0 – 2 yrs		
		Cost 4		
6. Road side emission testing of goods vehicles	VOSA	Level 2	Possible negative effect on relations with local businesses	2X3=6
		0 – 2 yrs		
		Cost 3		
7. Work with bus companies to reduce bus emissions	County Council	Level 2	Newer buses attracting more patronage	2X4=8
		0 – 2 yrs		
		Cost 4		
8. Network management for road works, incidents and planned events	County Council	Level 1	Less congestion and improved environment and economy	1X4=4
		0 – 2 yrs		
		Cost 4		
9. School travel planning with investment in walking and cycle routes	County Council	Level 1	Less traffic/congestion and health benefits of walking and cycling	1X4=4
		0 -2 yrs		
		Cost 4		
10. Smarter Choices and promotion building on working travel plans	County Council	Level 1	Less traffic/congestion and health benefits of walking and cycling	1X4=4
		0 – 2 yrs		
		Cost 4		
11. Better vehicle use of roadspace		Level 1	Less congestion and	

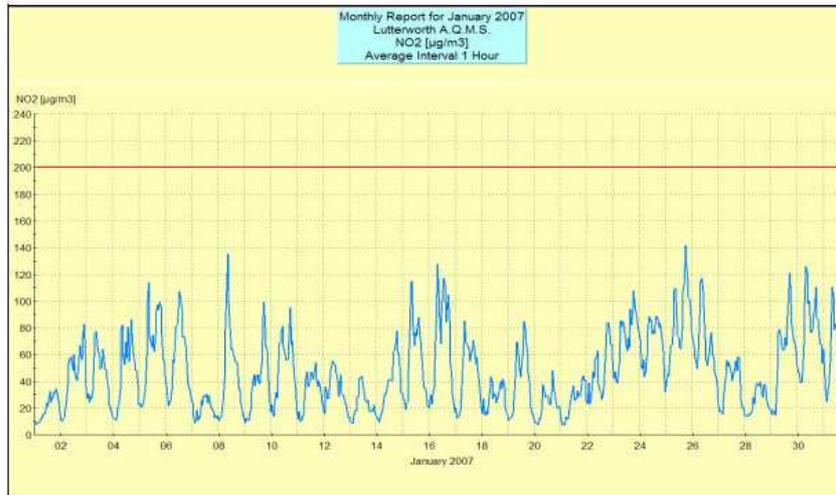
for less disruption to free flowing traffic	County Council	0 – 2 yrs	improved environment and economy	1X4=4
		Cost 4		
12. Land use planning for no unnecessary additional traffic through town centre.	Harborough District	Level 2	Less traffic/congestion and health benefits of walking and cycling	2X4=8
		2 -5 yrs		
		Cost 4		

Progress on the Action Plan will be included in the annual return by the County Council.

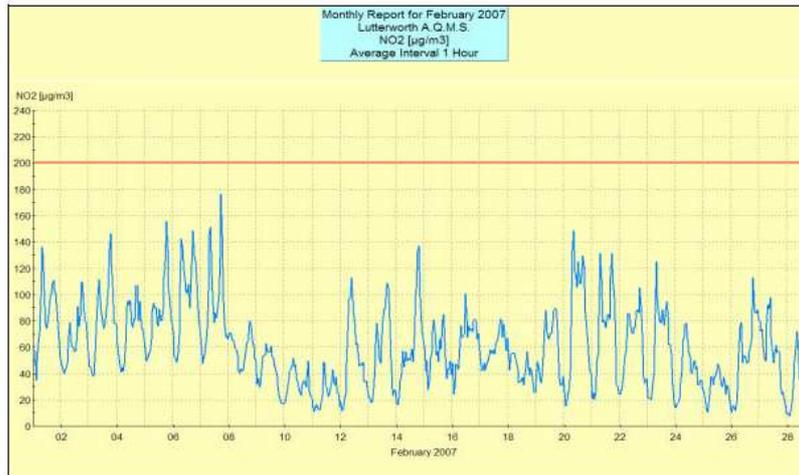
Appendix 1 – Monthly Results from the Real Time Monitor 2006

Nitrogen Dioxide

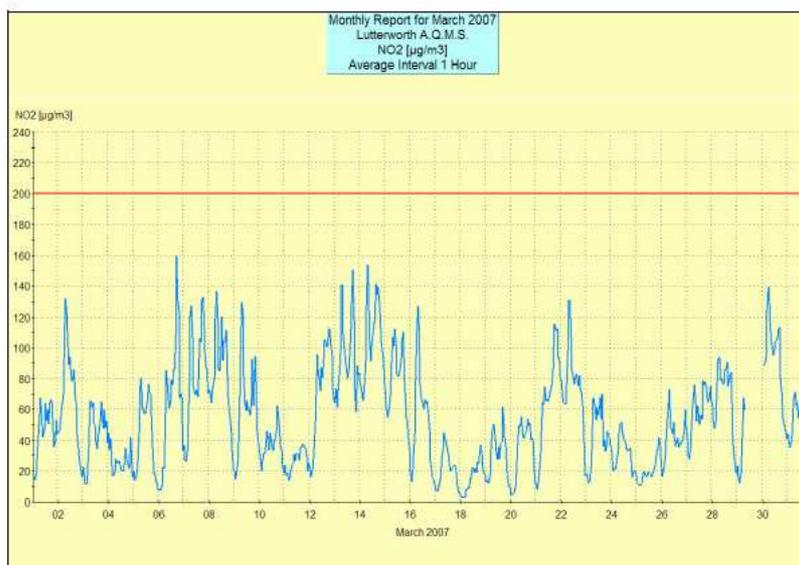
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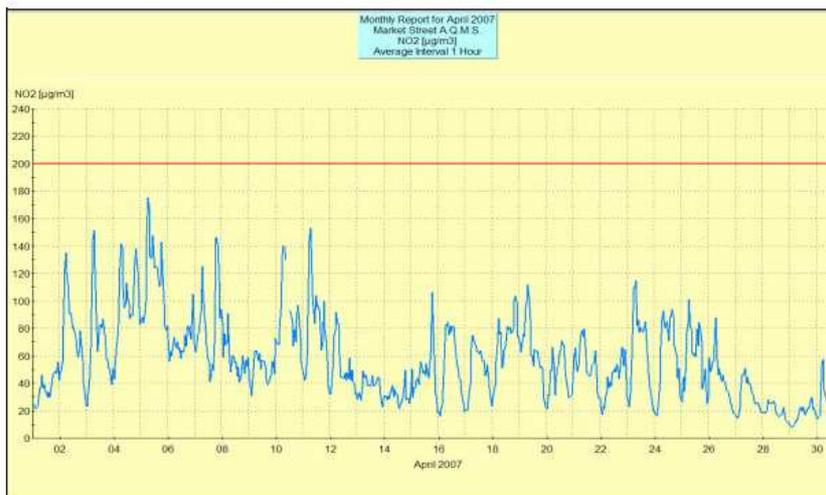
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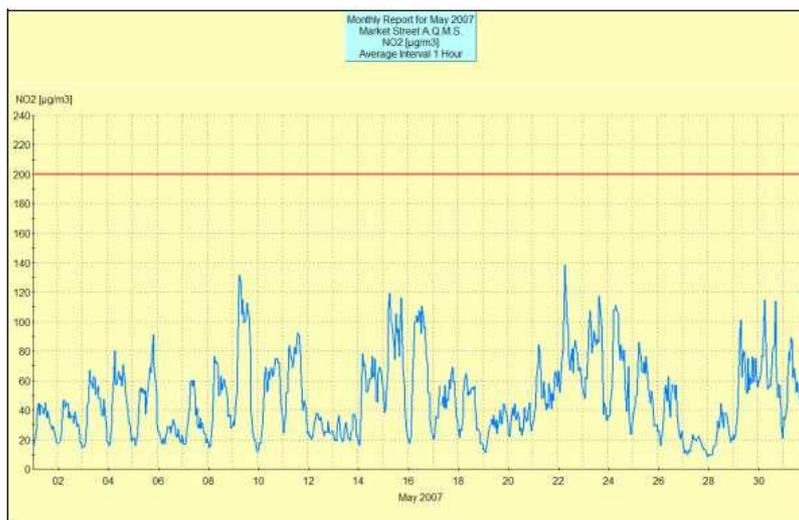
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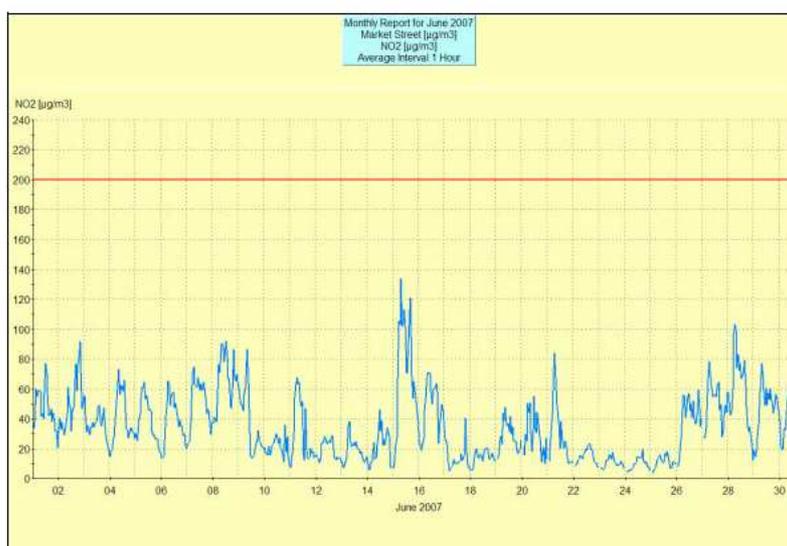
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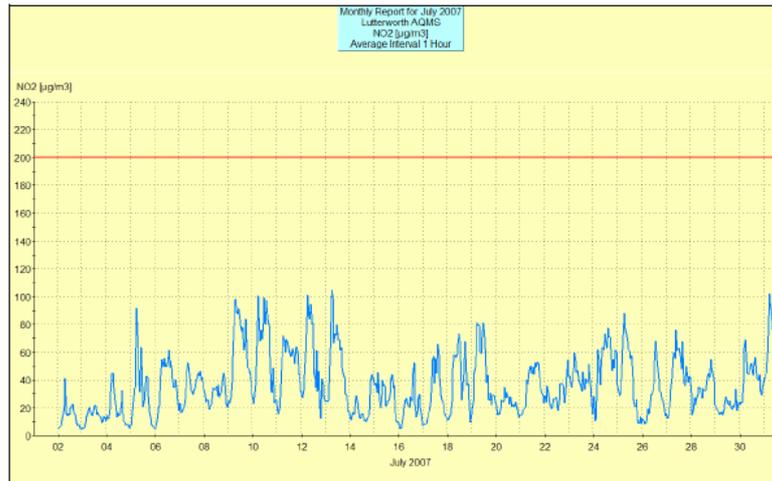
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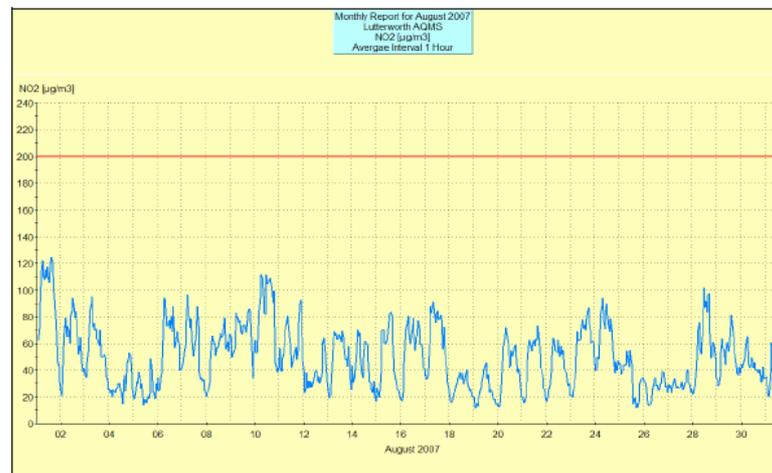
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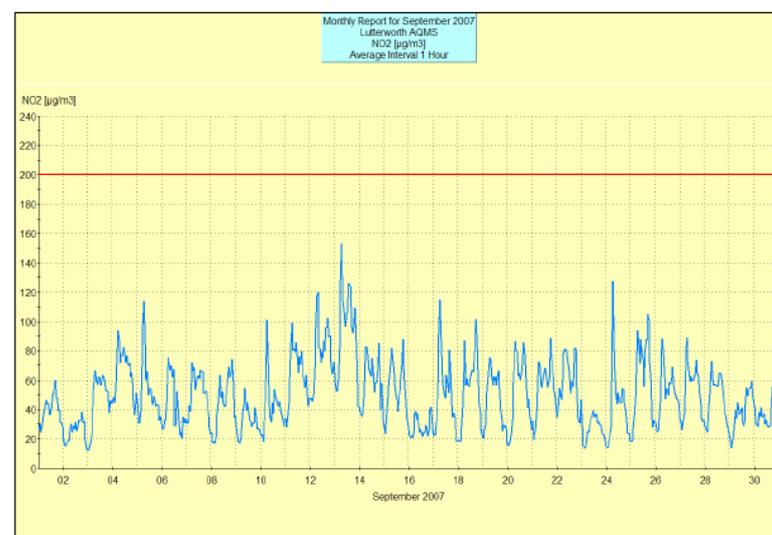
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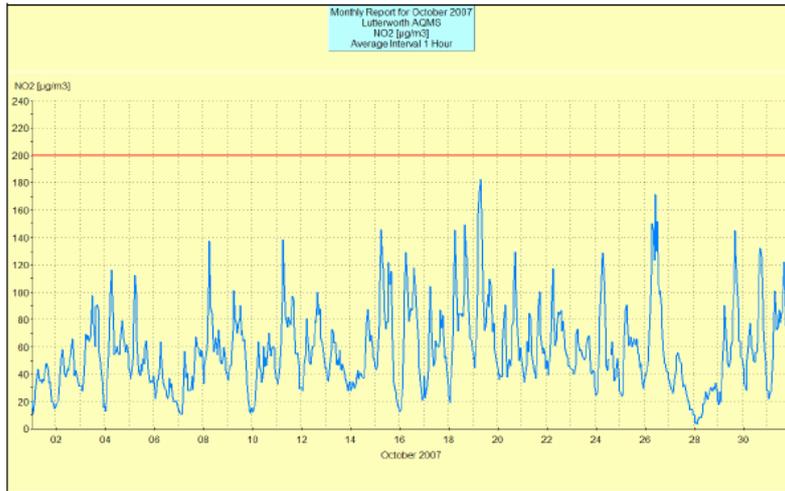
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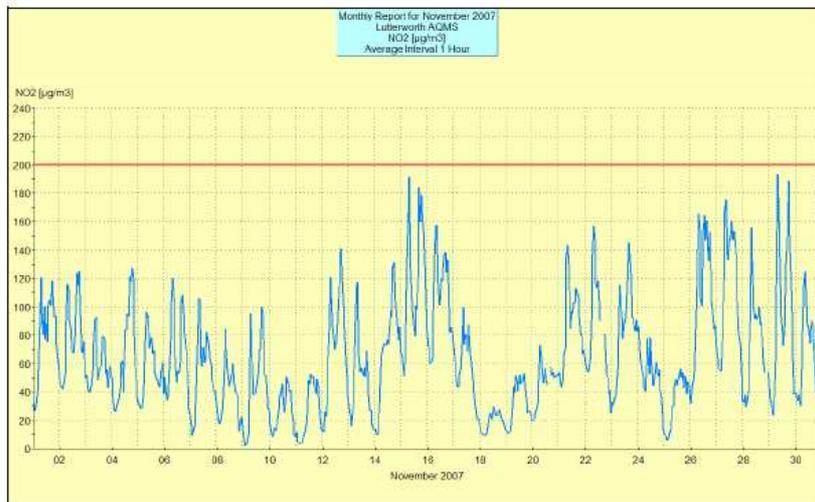
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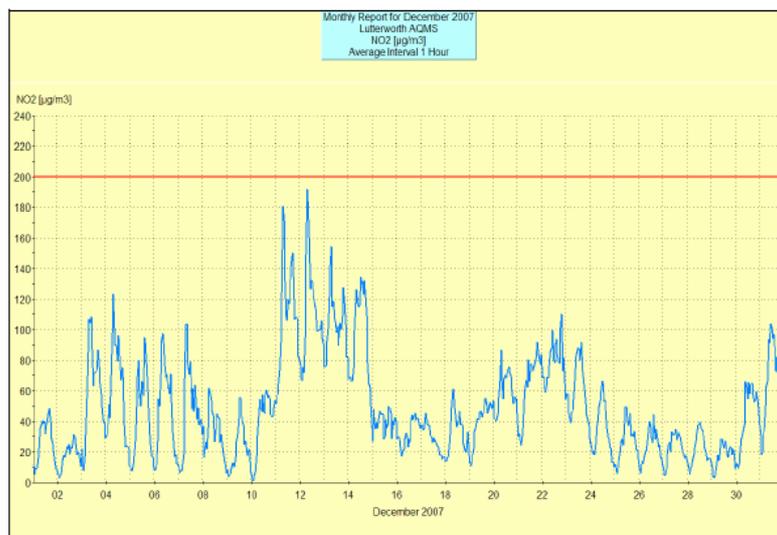
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November

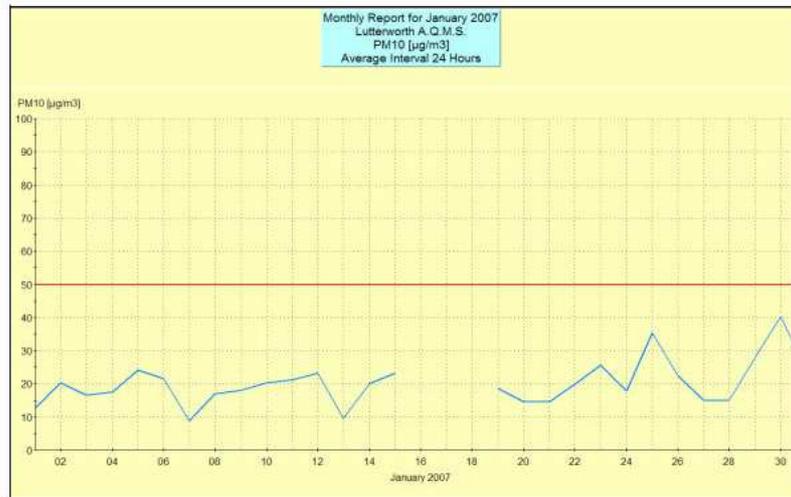


December

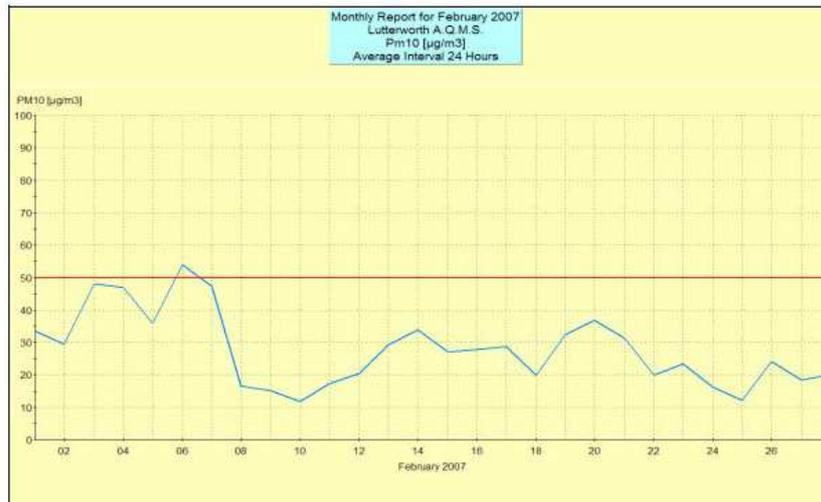


Particulates

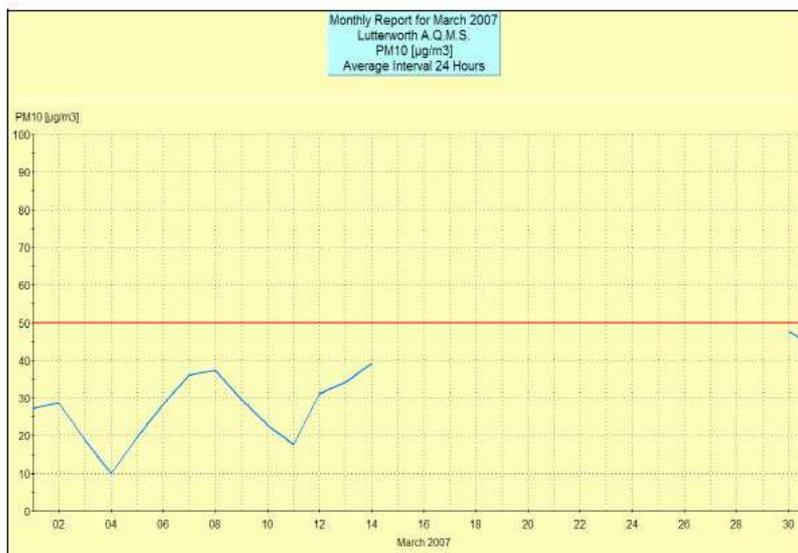
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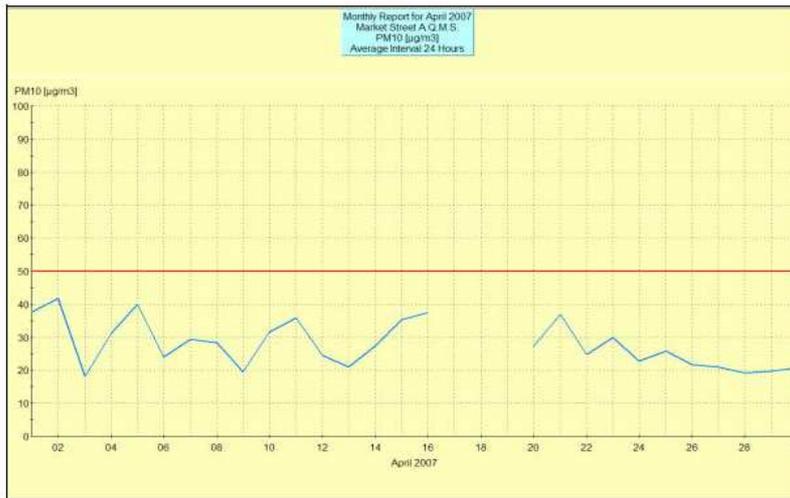
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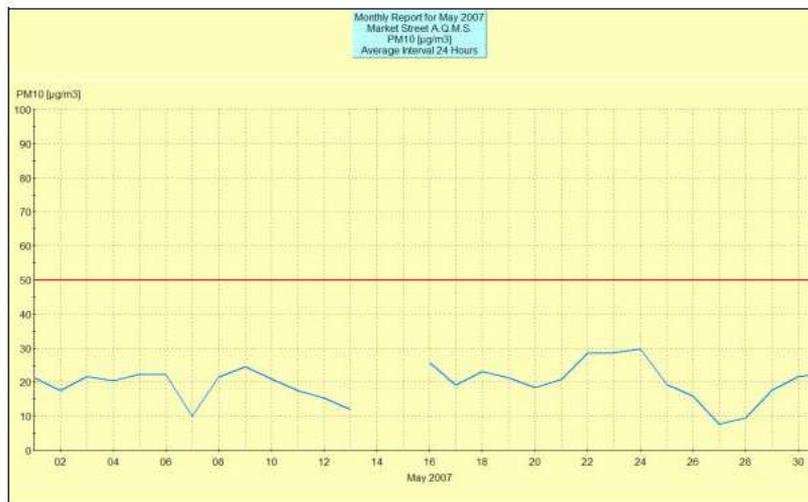
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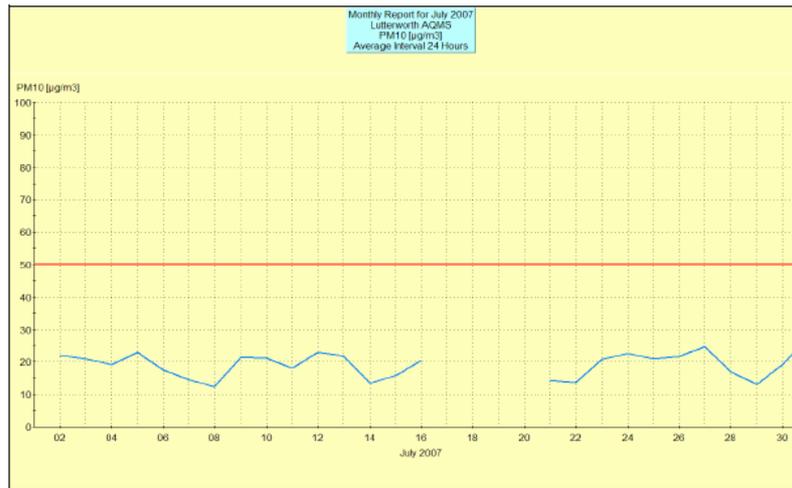
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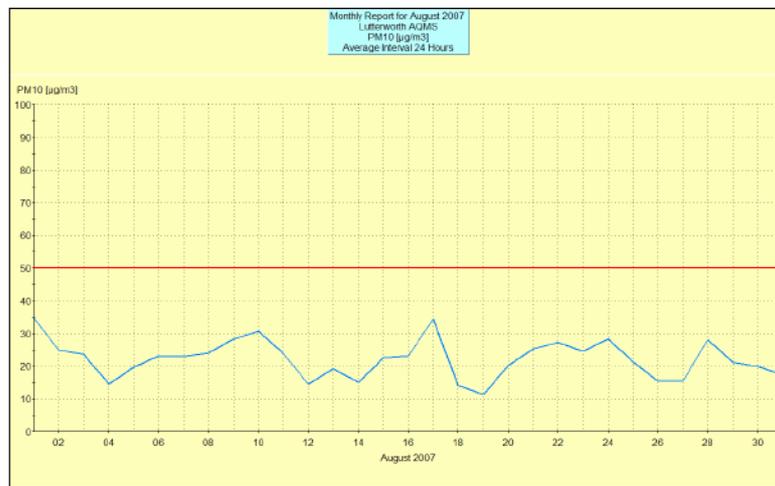
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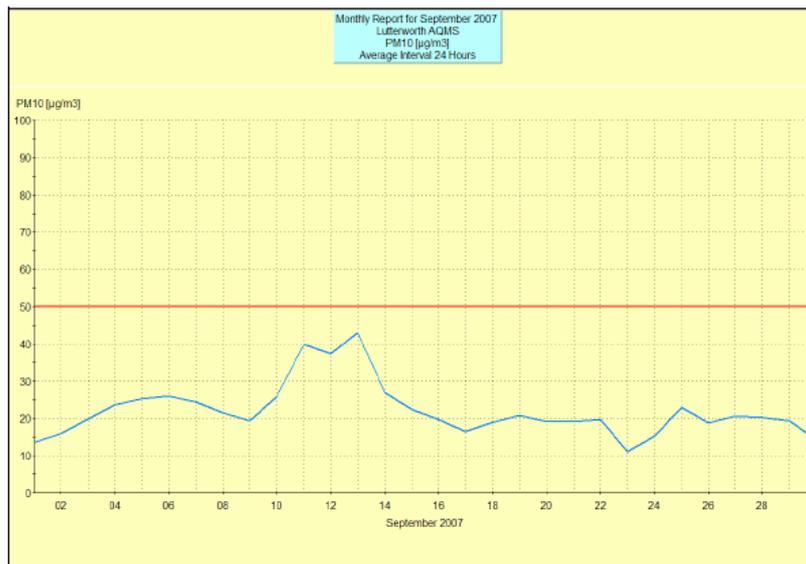
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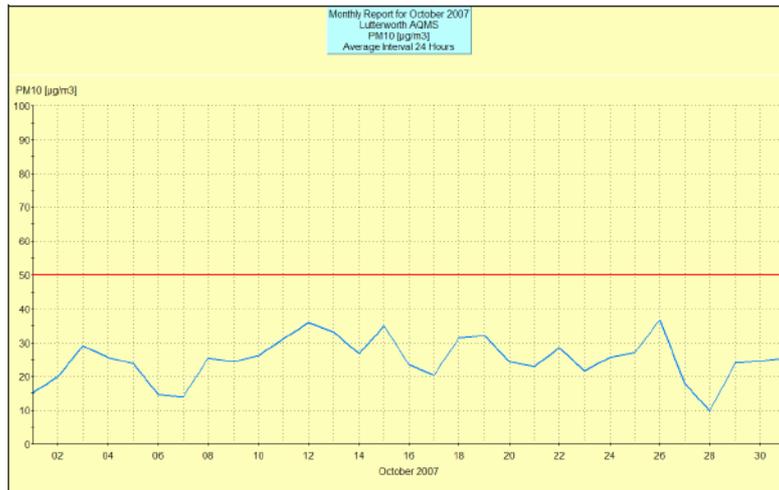
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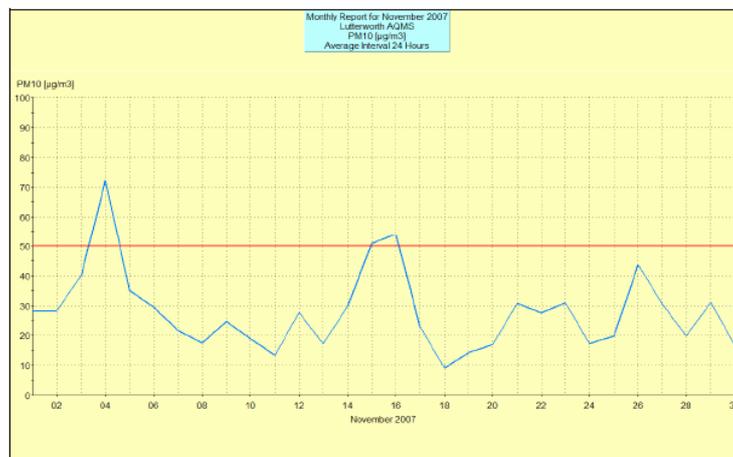
September



October



November



December

