



# Environment Act 1995 Local Air Quality Management Progress Report 2007

**March  
2008**

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### Report written by

**Ryan Carroll**  
**Tommy Moorhouse**

### Checked by

## Introduction

This report is a summary of the results of continuous and passive air quality monitoring carried out in Calderdale in 2007. It covers the year 1 January 2007 to 31 December 2007. It also briefly covers trends in measured pollutant concentrations and significant planning developments in the borough.

The main pollutant of concern in Calderdale, as discussed in the Updating and Screening Assessment 2005, is traffic-related nitrogen dioxide. In 2007 three additional Air Quality Management Areas (AQMAs) were declared in Calderdale, at Luddendenfoot, Stump Cross and Brighouse due to concerns about levels of nitrogen dioxide. This brought the number of AQMAs in Calderdale to six.

## Part 1: Monitoring results

### 1.1 Monitoring Network Overview

There are five monitors deployed around Calderdale with the capability to continuously monitor concentrations of nitrogen dioxide. One monitor can also measure the concentration of fine particles ('particulate matter' sometimes referred to as PM<sub>10</sub> because of the range of size of particles detected).

There is also a network of around 90 diffusion tubes spread around the Borough, concentrated in areas of concern and AQMAs. The results from these tubes are adjusted using data from the continuous monitors. This is described in detail below.

### 1.2 Romon Street Boxes: Nitrogen Dioxide

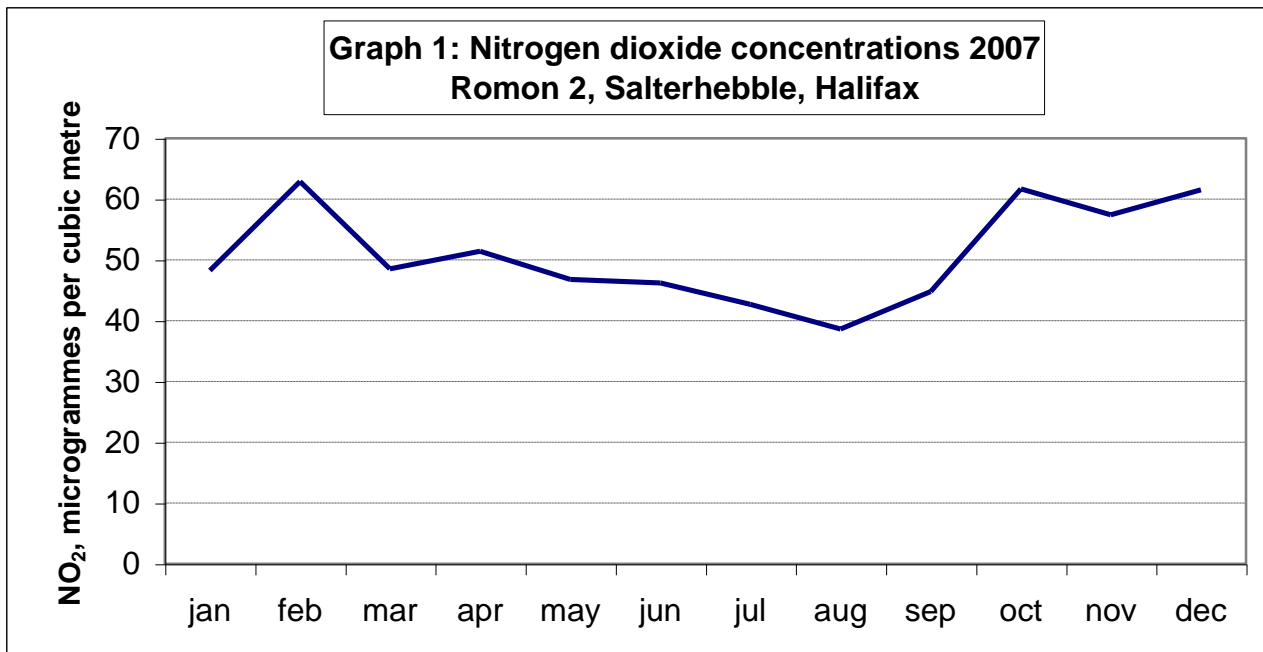
The results from the Romon street boxes for 2007 are set out in Table 1. These results have been scaled using weekly calibration results for each monitor. This allows the natural drift in detector response to be compensated for between services. The monitors are all serviced twice a year.

Table 1: Continuous Monitoring results 2007 for nitrogen dioxide				
Monitor	Location	Annual mean NO <sub>2</sub>	Data capture	No of hours > 200 µgm <sup>-3</sup>
Romon 1	Salterhebble Hill	53.5 µgm <sup>-3</sup>	94.2%	3
Romon 2	Salterhebble Hill	50.6 µgm <sup>-3</sup>	95.4%	2
Romon 3	Market St, Hebden Bridge	46.2 µgm <sup>-3</sup>	96.1%	1
Romon 4	Wharf St, Sowerby Bridge	49.2 µgm <sup>-3</sup>	96.6%	0

Graph 1 shows the monthly mean NO<sub>2</sub> levels for Romon 2 (for periods coinciding with the diffusion tube deployment). The overall trend, with lower means in the summer, was repeated across all sites, including the diffusion tube locations.

There were no significant problems with the continuous monitors in 2007 and the data capture rates were satisfactory.

All the continuous monitors in Table 1 are in roadside locations, within 2m of the kerb edge. In each case the location is considered representative of relevant exposure, in that there are residential properties at similar distances from the kerbside.



### 1.3 Groundhog: Particulate Matter and Nitrogen Dioxide

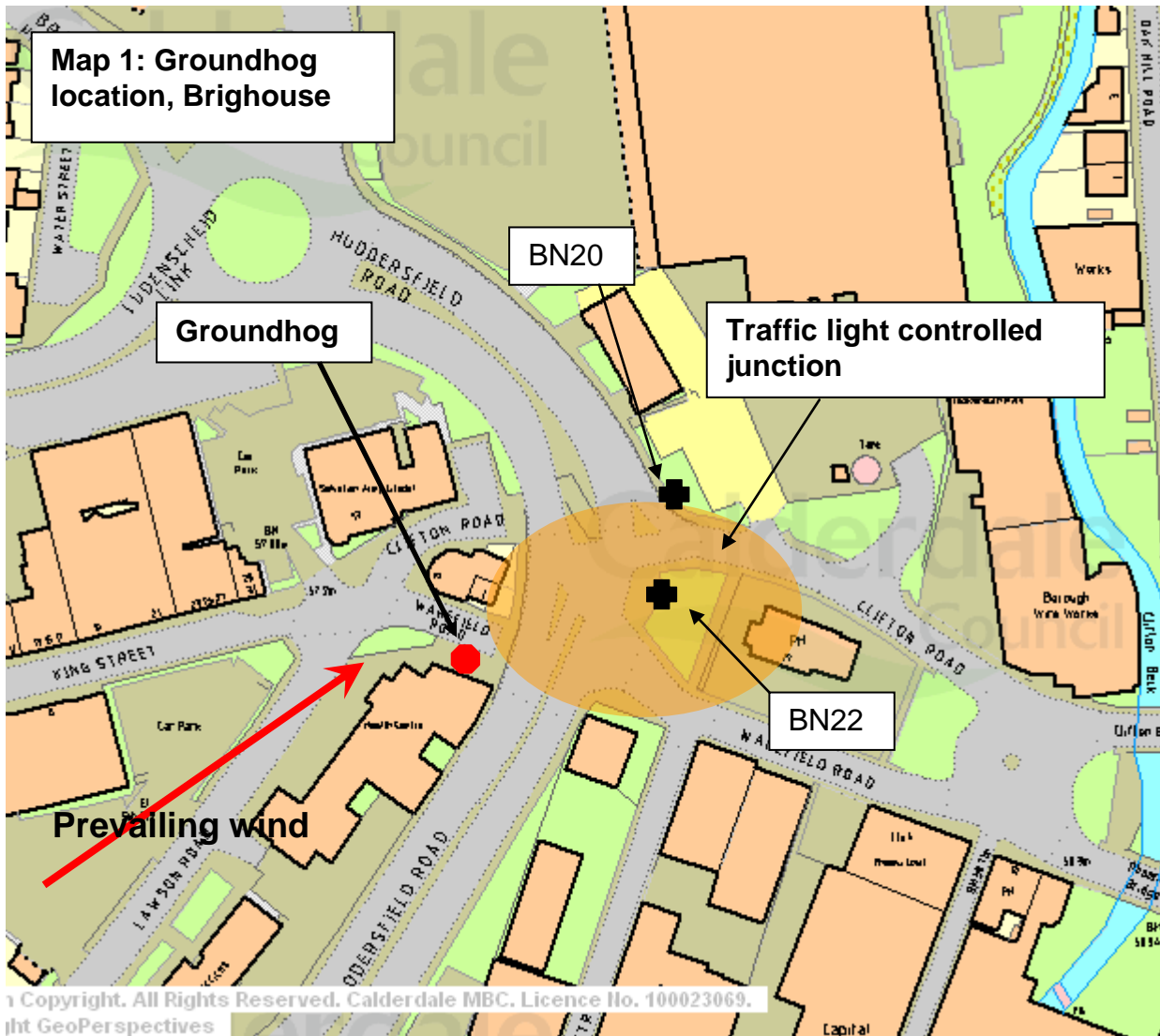
The particulate monitor used by the Council is a PM<sub>10</sub> (TEOM) monitor onboard the Groundhog mobile air quality unit. This has been operating in Brighthouse since April 2007, to consolidate monitoring results from the diffusion tubes following the declaration of the Air Quality Management Area.

The mean for the period 1<sup>st</sup> April 2007 to 31<sup>st</sup> December 2007 was 21.8µgm<sup>-3</sup>, which is considered representative of the annual mean. The air quality objective is 40µgm<sup>-3</sup>. There were no exceedences of the 24 hour objective.

The nitrogen dioxide mean concentration for the same period was 33.0µgm<sup>-3</sup>.

The Groundhog is located downwind of the town centre (see Map 1), from which through traffic is discouraged. As a consequence the monitoring results are showing levels of pollution lower than originally expected. This is to be more thoroughly explored in the Further Assessment for the area.

The location was chosen on the basis that there is a relevant receptor close by, a commercial unit with residential accommodation. Two diffusion tubes (BN20 and BN22) were deployed downwind of the same road junction, and the results, set out in Table 2, confirm that levels are much higher downwind.



### 1.4 Diffusion Tube Results

The Council has relocated many of the diffusion tubes from lamp posts and similar locations to the facias of nearby properties with relevant exposure. Currently the vast majority of diffusion tubes are located so as to represent relevant exposure as closely as possible.

The results presented in Table 2 below include raw and bias-corrected results for 2007. The bias correction is required because compared with the continuous monitors the diffusion tubes are not as accurate (they may not give the true concentration very closely) or precise (there is a greater spread of results around the true concentration). For 2007 data the Council has used the NETCEN bias correction spreadsheet version 02/08, and a copy of the table is reproduced in Appendix B.

Table 2 includes the results from most of the tubes around Calderdale exposed for four months or more.

**Table 2: Diffusion Tube Results 2007 in  $\mu\text{g m}^{-3}$** 

Ref	Location	Number of Months data	Raw Mean 2007	Bias corrected Mean 2007
CD05	Burnley Road, Mytholmroyd	11	41	37
HB1	Market St, Hebden Bridge	11	58	52
HB2	Calder terrace, Hebden Bridge	11	48	43
HB3	Central St, Hebden Bridge	11	28	25
HB4	Crossley Mill Nursery, Hebden Bridge	11	45	41
HB5	Market Street, Hebden Bridge	11	43	39
HB6	Machpelah, Hebden Bridge	11	50	45
HTA H	House, Hill Top Avenue	12	52	47
GH1	Groundhog	12	44	40
GH2	Groundhog	12	44	40
GH3	Groundhog	12	43	38
CRH1	Salterhebble Hill, Halifax	11	69	62
CRH2	Lamp, Salterhebble Hill	12	67	60
CRH4	Dryclough Lane, Lamp	12	45	41
CS2	Lamp Church Street, Halifax	12	47	42
LF1	Burnley Road, Luddendenfoot	11	59	54
LF2	Tillotson Buildings Luddendenfoot	11	48	43
LF3	Lamp adj Coach & Horses Luddendenfoot	11	39	36
LF4	Mill Stream View, Luddendenfoot	11	28	25
WR1	Wakefield Road, Brighouse	12	62	56
WV1	Lamp, Rochdale Road, West Vale	12	43	39
BS1	Colocated, Huddersfield Road	12	61	55
BS2	Colocated, Huddersfield Road	12	62	56
BS3	Colocated, Huddersfield Road	12	62	56
SC1	Godley Lane, Stump Cross	12	34	30
SC2	Hough, Stump Cross	12	33	30
SC3	Bradford Road, Stump Cross E	12	65	58
SC4	Bradford Road, Stump Cross W	12	36	32
SC5	Park Grove (Stump Cross)	12	52	47
BH3	Huddersfield Road, Brighouse	12	60	54
BH5	Bradford Road, Brighouse	12	56	50
AQ1	drainpipe, Huddersfield Road	12	34	31
AQ2	Huddersfield Road	12	30	27
AQ3	Fernbank Huddersfield Road	12	30	27
AQ4	backyard, Stafford Place	12	41	37
AQ5	Church, Huddersfield Road	12	57	51
AQ6	drainpipe, Huddersfield Road	10	35	31
AQ7	lamp, Westbourne Grove	12	34	30
AQ8	drainpipe, Huddersfield Road	12	42	38
AQ9	drainpipe, Doncaster Street	12	30	27

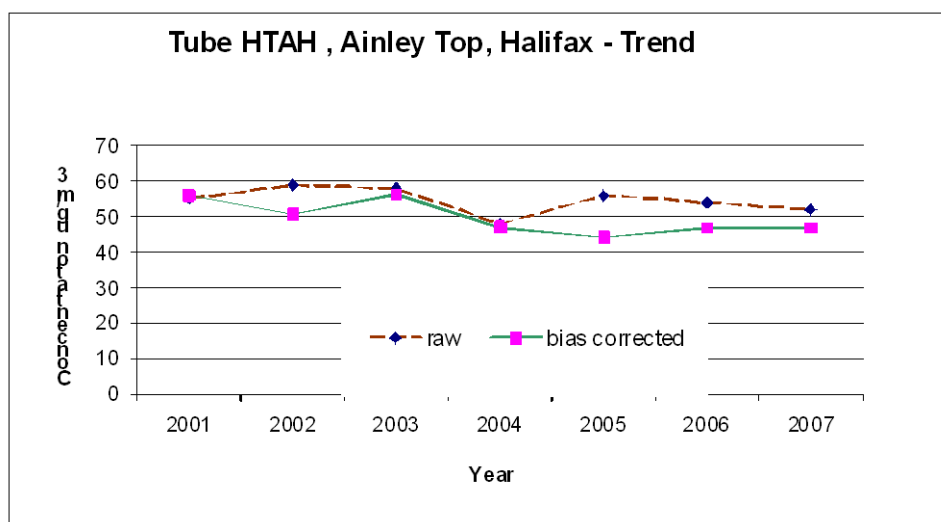
AQ10	Lampost, Bristol Street	9	67	61
AQ11	lamp, Exeter Street	12	54	49
AQ12	lamp, Exeter Street	12	48	43
AQ13	lamp, rookery lane	12	35	31
AQ14	lamp adj Punchbowl	11	64	58
AQ15	Huddersfield Road	12	38	34
AQ16	drainpipe, Chapel Street	12	34	31
AQ18	drainpipe, Elm View	12	41	37
SB1	former CD07, Sowerby Bridge	12	68	61
SB2	The Goit, Sowerby Bridge	12	36	32
SB3	Town Hall St (drainpipe)	12	58	52
SB5	Ryburn Buildings, West Street	12	55	49
SB6	West Street	12	60	54
SB7	Town Hall Street	12	50	45
SB8	former CV5, Sowerby Bridge	12	42	38
SB9	Wharf Street, Sowerby Bridge	12	55	49
SB10	Fairbanks, Sowerby Bridge	12	32	29
SB11	Bolton Brow, Sowerby Bridge	12	42	38
SB12	Bolton Brow, Sowerby Bridge	12	51	46
SB13	Upper Bolton Brow, Sowerby Bridge	12	51	46
SB14	Bolton Brow J & I School	11	33	30
SB15	former CV4, Sowerby Bridge	12	50	45
SB16	Calder House, Sowerby Bridge	12	49	45
SB17	Lamp, Wharf St, Sowerby Bridge	12	51	46
SB18	drainpipe, Wakefield Road	12	46	42
HQ1	Bridge Lanes Hebden Bridge	11	66	60
HQ2	Bankfoot Terrace Hebden Bridge	10	36	33
HQ3	Machpelah (odd nos)	11	48	43
HQ4	Commercial St, Hebden Bridge	11	42	37
HQ6	Lamp adj Albert PH Hebden Bridge	11	36	32
HQ8	Tourist Information Centre, HB	11	30	27
BE1	Lamp, Star PH, Bridge End	12	49	44
BE2	Lamp adj Nursery, Bridge End	12	54	49
BE3	Canalside, Brighouse	12	31	28
BE4	lamp, masonic hall, Brighouse	12	57	51
ER1	drainpipe, Elland Road, Brighouse	12	48	43
HXR1	Halifax Road, Brighouse	12	56	51
LSL1	lamp Ludensheid Link, Brighouse	12	60	54
WR2	Blackburn Buildings, Wakefield Road	12	51	46
WR3	Lamp, Robin Hood PH, Brighouse	12	45	41
BML1	Drainpipe, Barge PH, Brighouse	12	35	31
BG1	lamp adj The Cell, Bull Green	11	44	39
BG2	drainpipe adj King Cross St	10	50	45
BG3	drainpipe, Heaths PH, Bull Green	12	56	51
AT2	drainpipe, Lindley Moor Road	7	49	44

BN20	lamp, near GMB offices, Brighouse	6	66	59
BN22	lamp, Stotts Arms island, Brighouse	5	82	74

## 1.5 Trends in Nitrogen Dioxide Concentrations

The fixed continuous monitors have been in place for less than four years. Keeping in mind the guidance on trend analysis it is not possible to identify trends reliably on the basis of results from these monitors.

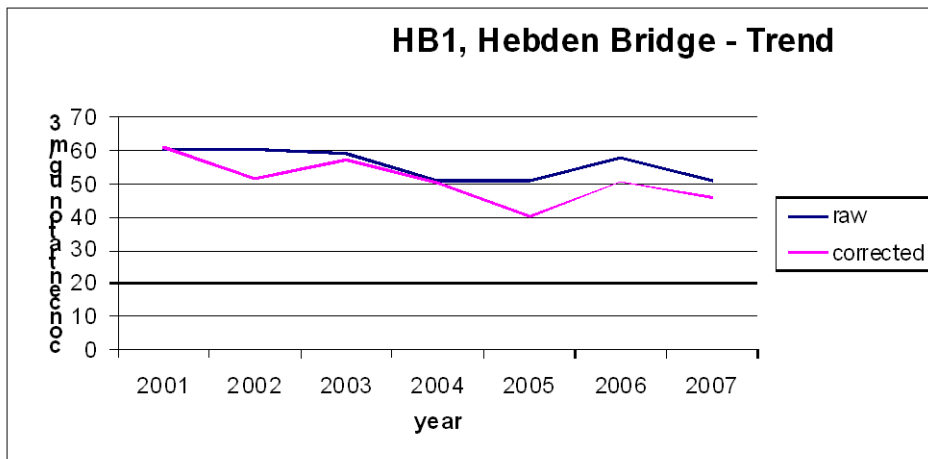
The diffusion tube network, however, includes several tube locations that have been used for longer, and we might hope to get some indication of trends by analysing the data from these tubes. The raw data and bias corrected data are presented below for a selection of tubes. The correction factors are those derived from the NETCEN bias correction spreadsheet version 02/08 for the relevant years.



The trend for this tube, located close to the M62 motorway, appears to be generally downwards, possibly settling between 40 and 50  $\mu\text{g m}^{-3}$ .

While we could carry out statistical analysis to test the hypothesis that there is a significant trend this would be of questionable practical value.





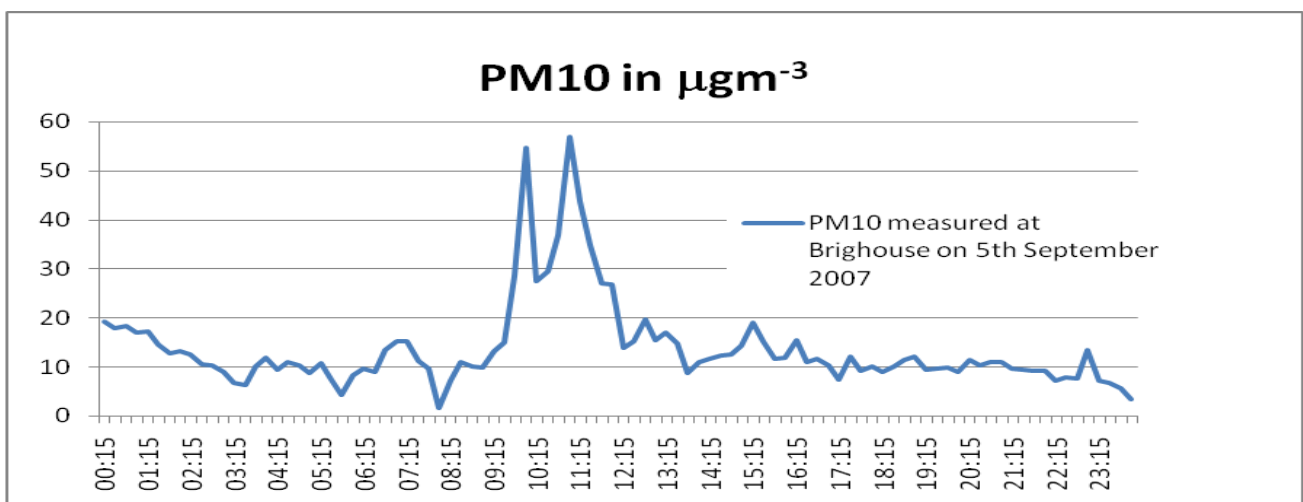
Again, a generally decreasing trend is observable at this tube, situated in the centre of Hebden Bridge. Other tubes have generally been exposed for a shorter time.

## 1.6 Events impacting on Air Quality

The Council maintains a diary of events that could have an impact on air quality, and can cross reference air quality monitoring results with these events. The most common type of event is the closure of the M62 motorway, which usually results in an increased volume of traffic, and potentially a greater proportion of HGVs, on Calderdale's A-roads (The A58 through Sowerby Bridge in particular).

Investigation of the change in air quality associated with such incidents in 2007 suggests that the impact is not as great as one might expect, and no particular incident could be identified that caused any exceedences of the one-hour objectives for nitrogen dioxide.

As an example of the use of the diary, a major fire close to Brighouse on 5<sup>th</sup> September 2007 was recorded. This gave rise to slightly elevated levels of particulates measured at the Groundhog, but the wind direction took the plume north of the town centre.



## **1.7 Quality Assurance and Quality Control**

The Council's quality assurance and quality control systems have been reported in the 2005 Updating and Screening Assessment. The Council continues to maintain and service the monitoring network in accordance with those systems.

## **1.8 Monitoring Summary and Conclusions**

The results of monitoring carried out in 2007 are similar to those reported for 2006. The monitors situated in AQMAs show that the levels of nitrogen dioxide still exceeds the long-term objective in these areas, and this is supported by diffusion tube data where available. The relevant results will be discussed in more detail in the Further Assessments for each AQMA.

Diffusion tube data suggests a slow overall decreasing trend in nitrogen dioxide levels, but the evidence is not comprehensive. Data from the continuous monitors will be more suitable for analysis for future reports.

## **Part 2: New Local Developments**

### **2.1 Overview of Permitted Installations**

Calderdale is host to about 100 Part A and Part B installations permitted under the Pollution Prevention and Control Regulations 2000 (the Environmental Permitting Regulations 2007 from April 2008), the majority being Part Bs. The permitted activities include wood combustion, bulk cement storage, petrol filling stations, dry cleaners and coating of wood and metal.

### **2.2 Part A1 Installations**

There were no new installations in 2007, although sewage undertakers had to apply for Part A1 permits for sludge treatment plants. The impact on air quality is not considered to be significant.

### **2.3 Part A2 installations**

One A2 permit was revoked in 2007 as the installation, involving the manufacture of bricks, had ceased operating for more than a year. The other A2 installations have been inspected in accordance with the Council's inspection policy and found to be complying with their permit conditions and meeting emission limits. The Council has not identified any air quality issues relating to the operation of these installations. One, Waddington & Ledger Ltd, at Lowfields Business Park, Elland, was discussed in the Updating and Screening Assessment 2005.

### **2.4 Part B installations**

In 2007 the Council surveyed its area looking particularly for waste oil burners. A total of five were identified and all applied for, and were granted, permits. These are not considered to have a significant impact upon the local air quality, and dispersion arrangements have been brought up to standard where they were lacking.

Three vapour degreasing installations changed their working practices to reduce or eliminate the use of solvents as a result of the permit requirements. One further operator has stated his intention to reduce solvent consumption below the relevant threshold. Solvents can become involved in a complex set of chemical reactions, especially in the presence of sunlight and, for example, oxides of nitrogen from traffic. These reactions can produce ozone, but this is not thought to be a significant pollutant in Calderdale. In any case, the reduction in emissions of halogenated solvents is seen as a positive step, although the direct effect on local air quality is not expected to be significant.

## **2.5 Other developments**

There have been no new quarry developments, road schemes or landfills that would have an impact on air quality. Several applications have been made by Marshalls plc for further quarrying at or close to an existing permitted installation at Cromwell Quarry, Brookfoot, and these are being considered for their potential impact on particulate levels. The Council has asked the operator to monitor particulates and this should commence in May 2008.

In 2007 the Highways Agency commenced managed access to the M62 eastbound at junction 25. This is to try to help traffic already on the motorway to maintain a more constant speed and so avoid slowing and subsequent acceleration, acceleration being the more polluting component. This has a limited benefit at times of excessively heavy traffic flow. However Calderdale property near or east of this junction has been found to experience air pollution levels well within air quality guidelines.

2007 saw the B 6112 Salterhebble to West Vale partly closed for bridge repairs, with only northbound traffic permitted and diversions via Elland in place. There were no relevant receptors on the closed stretch of road, and diffusion tube WV1, situated on one of the alternative routes, showed no significant increase in levels of nitrogen dioxide over previous years.

Hebden Bridge (AQMA No. 3 declared in 2006) was due to introduce a 20mph in late 2007, but this was delayed.

Substantial changes were made in December 2007 to the major road junction at Hipperholme. Diffusion tube HP2 was relocated from a lamp at the junction (the lamp was removed as part of the work) to a house facade on Leeds Road. There is insufficient data to determine whether there is likely to be an exceedance of the annual NO<sub>2</sub> air quality objective at the house.

During 2007 a number of significant planning developments or redevelopments, some of which might directly or indirectly impact on local air quality levels and raise concern as to compliance with air quality objectives, were proposed or further discussed. These include

- the conversion of Shaw Lodge Mills, Shaw Lodge Lane, Halifax (close to AQMA No 1, Salterhebble)
- Further development at the Shay Stadium, Shay Syke, Halifax (close to AQMA No 1, Salterhebble)
- Changes to the former Sutcliffe flour mills and Brighouse town centre (within AQMA No 6, Brighouse)
- Redevelopment of Copley Valley, between Halifax and Sowerby Bridge

- A commitment by the Council to constructing new swimming pools at Elland, Brighouse and Halifax

There was also a small number of applications for new residential accommodation within the AQMAs themselves. Each was considered on an individual basis to determine whether or not objections to the development should be made on the grounds of adverse effect on air quality.

In 2007 further assessment reports for the AQMAs at Salterhebble (No 1), Sowerby Bridge (No2) and Hebden Bridge (No 3) were published, as was the draft action plan for Salterhebble. Draft action plans for Sowerby Bridge and Hebden Bridge are expected early in 2008.

Particular concern arose from a successful appeal against the Council's refusal to grant planning permission for a new residential development in the Sowerby Bridge AQMA. The council complained to both DEFRA and the Planning Inspectorate about their conflicting stances which influenced the determination of that particular appeal. 2007 also saw the start of the process that will lead to the introduction of a unified planning application form. This will require air quality impacts to be considered in connection with certain developments in or near to AQMAs as part of the process of validating an application in 2008.

### **Contact details**

If you would like to discuss this report or any other aspect of Air Quality Management in Calderdale please contact Ryan Carroll or Tommy Moorhouse at

Calderdale MBC  
Northgate House  
Northgate  
Halifax  
HX1 1UN

Tel (01422) 392307

Email [environmental.health@calderdale.gov.uk](mailto:environmental.health@calderdale.gov.uk)

If you would like this information in another format or language, please contact: 01422 392307

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01422 392307

اہرا ہویہ معلوماہ کی دوسری زبان  
یا شکل میں چاہیے تو رابطہ کریں:  
01422 392307

Town Hall  
Halifax  
HX1 1UJ  
Telephone: 01422 392307  
Fax: 01422 392399  
Email: [environmental.health@calderdale.gov.uk](mailto:environmental.health@calderdale.gov.uk)



2001-2002  
Local Health Strategies  
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