

3.0 Progress Report for Sulphur Dioxide

3.1 The national perspective

The main sources of sulphur dioxide in the United Kingdom are power stations which accounted for more than 71% of the total emissions in 2000. Other sources of emissions include other industrial combustion sources, domestic solid fuel burning and shipping.

Although concentrations of sulphur dioxide have been reduced significantly in recent years, exceedences of the current sulphur dioxide objectives may still occur in the vicinity of localised combustion plant, in areas where solid fuels are still the predominant source of domestic heating and in close proximity to major ports.

In the first round of reviews and assessments a small number of AQMAs were declared due to sulphur dioxide emissions from coal fired boiler plants, domestic coal burning and a major port.

3.2 The local perspective

In the First Stage Review and Assessment of Air Quality in York sulphur dioxide was assessed against the following objectives:

‘The 99.9th percentile of 15-minute averages not to exceed 100ppb by the end of 2005.’

The First Stage Review and Assessment of Air Quality in York concluded that in general concentrations of sulphur dioxide in York are low. However, the occurrence of occasional peaks in the monitoring data, possibly due to power station emissions, was highlighted and it was recommended that a detailed review and assessment of sulphur dioxide should be undertaken.

In the Second and Third Stage Review and Assessment of Air Quality in York sulphur dioxide was assessed against revised objectives which were:

‘A 24 hour mean of 125µg/m³ (47ppb), not to be exceeded more than 3 times a year, to be achieved by the end of 2004’

‘A one hour mean of 350µg/m³ (132ppb), not to be exceeded more than 24 times a year, to be achieved by the end of 2004’

‘A 15 minute mean of 266µg/m³ (100ppb), not to be exceeded more than 35 times a year, to be achieved by the end of 2005’

It was concluded that these objectives would also be met in York without the need for further action at a local level.

The update and screening assessment concluded that no further detailed assessments of sulphur dioxide emissions from industry and boiler plants were needed at this time. However, the update and screening assessment highlighted two potential emissions sources which require further investigation. These were domestic solid fuel burning and diesel locomotives waiting in railway sidings

3.3 Sulphur dioxide monitoring results from real-time monitoring stations

City of York Council has undertaken real time monitoring of sulphur dioxide at three locations in the city. These are :

- Bootham [urban background site]
- Dunnington [sub-urban background site]
- City Centre [city centre site]

All sulphur dioxide analysers are Monitor Labs ML9850b. Full information about the air pollution station locations, data management procedures and other QA/QC procedures for the real time air pollution stations have been previously documented as part of the Second and Third Stage Review and Assessment of Air Quality in York.¹

The results of the sulphur dioxide monitoring undertaken at these sites are shown in Table 9. In accordance with the technical guidance note LAQM.TG(03) the number of exceedences of an objective level can only be reported if the data capture is greater than 90%. Where data capture is less than 90% the following must be reported instead,

- 99.9th percentile of 15 minute means
- 99.7th percentile of 1 hour means
- 99th percentile of 24 hour means

Both exceedences and percentile values are given in Table 9 below.

¹ CITY OF YORK COUNCIL Second and Third Stage Review and Assessment of Air Quality in York – Technical Annex 2: Air Quality Monitoring in York Feb 2001

Table 9 : Summary of real time sulphur dioxide monitoring results

Parameter	Station	01/04/99	01/04/00	01/04/01	01/04/02	01/04/03
		to 31/03/00	to 31/03/01	to 31/03/02	to 31/03/03	to 31/03/04
Number of exceedences of 266 $\mu\text{g}/\text{m}^3$ 15 minute mean objective (35 allowed in one year)	Bootham	4	2	-	-	0
	Dunnington	1	2	0	8	-
	City Centre	-	-	-	-	0
99.9 th percentile of 15 minute means ($\mu\text{g}/\text{m}^3$)	Bootham	-	-	101	77	-
	Dunnington	-	-	-	-	52
	City Centre	146	154	197	132	-
Number of exceedences of 350 $\mu\text{g}/\text{m}^3$ hourly objective (24 allowed in one year)	Bootham	0	0	0	-	0
	Dunnington	0	1	0	0	-
	City Centre	-	-	-	-	0
99.7 th percentile of 1 hour means ($\mu\text{g}/\text{m}^3$)	Bootham	-	-	-	22	-
	Dunnington	-	-	-	-	34
	City Centre	82	114	133	74	-
Number of exceedences of 125 $\mu\text{g}/\text{m}^3$ 24 hour mean objective	Bootham	0	0	0	-	0
	Dunnington	0	0	0	0	-
	City Centre	-	-	-	-	0
99 th percentile of 24 hour means ($\mu\text{g}/\text{m}^3$)	Bootham	-	-	-	11	-
	Dunnington	-	-	-	-	12
	City Centre	29	29	40	22	-
Percentage data capture	Bootham	96%	91%	86%	86%	91%
	Dunnington	98%	99%	91%	96%	78%
	City Centre	83%	31%	56%	42%	98%

3.5 Conclusions

The results shown in Table 9 indicate that the objectives for sulphur dioxide are currently being met at all the real-time monitoring locations around York. A further update and screening exercise for Sulphur Dioxide shall be carried out in April 2006.