

## SCHEDULE 1

Regulation 8(1)

Sampling points for measurement of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide in ambient air

### PART 1

#### **General**

1. Ambient air quality shall be assessed at sampling points located in accordance with this Schedule, except at locations set out in paragraph 2.
2. Compliance with limit values directed at the protection of human health does not need to be assessed at the following locations—
  - (a) any location situated within areas where members of the public do not have access and there is no fixed habitation;
  - (b) on factory premises or at industrial locations to which all relevant provisions concerning health and safety at work apply; and
  - (c) on the carriageway of roads and on the central reservations of roads except where there is normally pedestrian access to the central reservation.
3. Insofar as they are relevant, the principles set out in the Schedule also apply to indicative measurement and modelling.

### PART 2

#### Macroscale siting of sampling points

#### **Sampling points for the protection of human health**

1. Sampling points directed at the protection of human health must be sited to provide data on—
  - (a) the areas within zones where the highest concentrations occur to which the population is likely to be directly or indirectly exposed for a period which is significant in relation to the averaging period of the limit values; and
  - (b) levels in other areas within the zones which are representative of the exposure of the general population.
2. Sampling points shall in general be sited to avoid measuring very small micro-environments in their immediate vicinity. Where feasible, the Department shall locate sampling points so as to be representative of air quality in a street segment of no less than 100 m in length at traffic-orientated sites or an area of at least 250 m x 250 m at industrial sites.
3. Sampling points in urban background locations shall be located so that their pollution level is influenced by the combined contribution from all sources upwind of the station. The pollution level should not be dominated by a single source unless such a situation is typical for a larger urban area. Those sampling points shall, as a general rule, be representative for several square kilometres.
4. Where the objective is to assess rural background levels, the sampling point shall not be influenced by agglomerations or industrial sites in its vicinity, i.e. closer than five kilometres.
5. Where contributions from industrial sources are to be assessed, at least one sampling point shall be installed downwind of the source in the nearest residential area. Where the background

concentration is not known, an additional sampling point shall be situated within the main wind direction.

6. Sampling points shall also, where possible, be representative of similar locations not in their immediate vicinity.

7. Account shall be taken of the need to locate sampling points on islands, where it is necessary for the protection of human health.

### **Protection of ecosystems and vegetation**

8. Sampling points targeted at the protection of ecosystems or vegetation shall be sited more than 20 km from agglomerations or more than 5 km from other built-up areas, industrial installations or motorways or major roads with traffic counts of more than 50,000 vehicles per day. The Department shall locate sampling points so as to be representative of air quality in a surrounding area of at least 1000 km<sup>2</sup>. A sampling point may be sited at a lesser distance or to be representative of air quality in a less extended area, taking account of geographical conditions or opportunities to protect particularly vulnerable areas. Account shall be taken of the need to assess air quality on islands.

## **PART 3**

### **Microscale siting of sampling points**

9. Insofar as is practicable, sampling points shall be situated in accordance with the following criteria—

- (a) the flow around the inlet sampling probe must be unrestricted (free in an arc of at least 270°) without any obstructions affecting the airflow in the vicinity of the sampler and the inlet sampling probe must normally be some metres away from buildings, balconies, trees and other obstacles and at least 0.5 m from the nearest building in the case of sampling points representing air quality at the building line;
- (b) in general, the inlet sampling point shall be between 1.5 m (the breathing zone) and 4 m above the ground. However, higher positions (up to 8 m) may be necessary in some circumstances. Higher siting may also be appropriate if the station is representative of a large area;
- (c) the inlet probe shall not be positioned in the immediate vicinity of sources in order to avoid the direct intake of emissions unmixed with ambient air;
- (d) the sampler's exhaust outlet must be positioned so that recirculation of exhaust air to the sampler inlet is avoided;
- (e) in relation to the location of traffic-orientated samplers, sampling points must be at least 25 m from the edge of major junctions and at least 10 m from the kerbside.

10. The following factors may also be taken into account—

- (a) interfering sources;
- (b) security;
- (c) access;
- (d) availability of electrical power and telephone communications;
- (e) visibility of the site in relation to its surroundings;
- (f) safety of public and operators;
- (g) the desirability of co-locating sampling points for different pollutants; and

(h) planning requirements.

## SCHEDULE 2

Regulation 18(1) and (2)

## Limit values

**Sulphur dioxide**

<i>Averaging period</i>	<i>Limit value</i>
One hour	350 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 24 times a calendar year
One day	125 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 3 times a calendar year

**Nitrogen dioxide**

<i>Averaging period</i>	<i>Limit value</i>
One hour	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a calendar year
Calendar year	40 $\mu\text{g}/\text{m}^3$

**Benzene**

<i>Averaging period</i>	<i>Limit value</i>
Calendar year	5 $\mu\text{g}/\text{m}^3$

**Carbon monoxide**

<i>Averaging period</i>	<i>Limit value</i>
Maximum daily eight hour mean <sup>(1)</sup>	10 $\text{mg}/\text{m}^3$

(1) The maximum daily eight hour mean concentration of carbon monoxide shall be selected by examining eight hour running averages, calculated from hourly data and updated each hour. Each eight hour average so calculated will be assigned to the day on which it ends, i.e. the first calculation period for any one day will be the period from 17.00 on the previous day to 01.00 on that day, the last calculation period for any one day will be the period from 16.00 to 24.00 on that day.

**Lead**

<i>Averaging period</i>	<i>Limit value</i>
Calendar year	0.5 $\mu\text{g}/\text{m}^3$

**Status:** This is the original version (as it was originally made).

### PM<sub>10</sub>

<i>Averaging period</i>	<i>Limit value</i>
One day	50 µg/m <sup>3</sup> not to be exceeded more than 35 times a calendar year
Calendar year	40 µg/m <sup>3</sup>

### PM<sub>2.5</sub>

<i>Averaging period</i>	<i>Limit value</i>	<i>Margin of tolerance</i>	<i>Date by which limit value is to be met</i>
Calendar year	25 µg/m <sup>3</sup>	20% on 11 June 2008, decreasing on the next 1 January and every 12 months thereafter by equal annual percentages to reach 0% by 1 January 2015	1 January 2015

## SCHEDULE 3

Regulation 19(1)

### Target values

#### Arsenic, cadmium, nickel and benzo(a)pyrene

<i>Pollutant</i>	<i>Target value for the total content in the PM<sub>10</sub> fraction averaged over a calendar year</i>	<i>Date by which target value should be met</i>
Arsenic	6 ng/m <sup>3</sup>	31 <sup>st</sup> December 2012
Cadmium	5 ng/m <sup>3</sup>	31 <sup>st</sup> December 2012
Nickel	20 ng/m <sup>3</sup>	31 <sup>st</sup> December 2012
Benzo(a)pyrene	1 ng/m <sup>3</sup>	31 <sup>st</sup> December 2012

### Ozone

<i>Objective</i>	<i>Averaging period</i>	<i>Target value</i>
Protection of human health	Maximum daily eight hour mean <sup>(1)</sup>	120 µg/m <sup>3</sup> not to be exceeded on more than 25 days per calendar year averaged over three years <sup>(2)</sup>
Protection of vegetation	May to July	AOT 40 (calculated from 1h values) 18,000 µg/m <sup>3</sup> .h averaged over five years <sup>(2)</sup>

- (1) The maximum daily eight-hour mean concentration shall be selected by examining eight-hour running averages, calculated from hourly data and updated each hour. Each eight-hour average so calculated shall be assigned to the day on which it ends, that is, the first calculation period for any one day will be the period from 17.00 hours on the previous day to 01.00 hours on that day, the last calculation period for any one day will be the period from 16.00 hours to 24.00 hours on the day.
- (2) If the three or five year averages cannot be determined on the basis of a full and consecutive set of annual data, the minimum annual data required for checking compliance with the target values will be valid data for one year in relation to the target value for the protection of human health and valid data for three years in relation to the target value for the protection of vegetation.

### PM<sub>2,5</sub>

<i>Averaging period</i>	<i>Target value</i>
Calendar year	25 µg/m <sup>3</sup>

### SCHEDULE 4

Regulation 9(2) and Regulation 21(1)

#### Long term objectives for ozone

<i>Objective</i>	<i>Averaging period</i>	<i>Long term objective</i>	<i>Date by which long term objective should be met</i>
Protection of human health	Maximum daily eight hour mean within a calendar year	120 µg/m <sup>3</sup>	Not defined
Protection of vegetation	May to July	AOT 40 (calculated from 1h values) 6000 µg/m <sup>3</sup> .h.	Not defined

**Status:** This is the original version (as it was originally made).

## SCHEDULE 5

Regulation 22

## Information and alert thresholds

**Alert thresholds for Sulphur dioxide and Nitrogen dioxide**

<i>Pollutant</i>	<i>Alert threshold<sup>(1)</sup></i>
Sulphur dioxide	500 µg/m <sup>3</sup>
Nitrogen dioxide	400 µg/m <sup>3</sup>

(1) To be measured over three consecutive hours at locations representative of air quality over the least 100 km<sup>2</sup> or an entire zone, whichever is smaller.

**Information and alert thresholds for Ozone**

<i>Purpose</i>	<i>Averaging period</i>	<i>Threshold</i>
Information	1 hour	180 µg/m <sup>3</sup>
Alert	1 hour	240 µg/m <sup>3</sup>

## SCHEDULE 6

Regulation 23

## Critical levels for the protection of vegetation

**Critical levels for the protection of vegetation**

<i>Averaging period</i>	<i>Critical level</i>
Sulphur dioxide: Calendar year and winter (1 October to 31 March)	20 µg/m <sup>3</sup>
Oxides of nitrogen: Calendar year	30 µg/m <sup>3</sup> NO <sub>x</sub>

## SCHEDULE 7

Regulation 25(4)

## Information to be included in air quality plans

1. Localisation of excess pollution—
  - (a) region;
  - (b) city (map); and
  - (c) measuring station (map, geographical co-ordinates).
2. General information—
  - (a) type of zone (city, industrial or rural area);

- (b) estimate of the polluted area (km<sup>2</sup>) and of the population exposed to the pollution;
  - (c) useful climatic data;
  - (d) relevant data on topography; and
  - (e) sufficient information on the type of targets requiring protection in the zone.
3. Responsible authorities (names and addresses of persons responsible for the development and implementation of air quality plans).
  4. Nature and assessment of pollution—
    - (a) concentrations observed over previous years (before the implementation of the improvement measures);
    - (b) concentrations measured since the beginning of the project; and
    - (c) techniques used for the assessment.
  5. Origin of pollution—
    - (a) list of the main emission sources responsible for pollution (map);
    - (b) total quantity of emissions from these sources (tonnes per year); and
    - (c) information on pollution imported from other regions.
  6. Analysis of the situation—
    - (a) details of those factors responsible for exceeding the limit value or target value (transport, including cross-border transport, formation of secondary pollutants in the atmosphere); and
    - (b) details of possible measures for improvement of air quality.
  7. Details of those measures or projects for improvements which existed prior to 11 June 2008—
    - (a) local, regional, national and international measures; and
    - (b) observed effects of those measures.
  8. Details of those measures or projects adopted with a view to reducing pollution following 11 June 2008—
    - (a) listing and description of all the measures set out in the project;
    - (b) timetable for implementation; and
    - (c) estimate of the improvement of air quality planned and of the expected time required to attain these objectives.
  9. Details of the measures or projects planned or being researched for the long term.
  10. List of the publications, documents and work etc. used to supplement information required by this Schedule.

## SCHEDULE 8

Regulation 28(2)

### Public information in relation to alert and information thresholds for nitrogen dioxide, sulphur dioxide and ozone

1. In cases where the information threshold or the alert threshold for nitrogen dioxide, sulphur dioxide or ozone is exceeded the details set out in paragraphs 3 to 6, as a minimum, shall be made available to the public.

**Status:** This is the original version (as it was originally made).

2. In cases where either the information or alert thresholds are predicted to be exceeded, the information set out in paragraphs 3 to 6 shall be provided where practicable.
3. Information on any incident where information or alert thresholds are exceeded—
  - (a) the location or area where thresholds are exceeded;
  - (b) the type of threshold exceeded (information or alert threshold);
  - (c) the time at which the threshold was exceeded and the duration of the incident; and
  - (d) in the case of ozone, the highest 1-hour and 8-hour mean concentration.
4. Forecast for the following afternoon, day or days—
  - (a) the geographical area in which it is expected that an information or alert threshold will be exceeded; and
  - (b) the expected change in pollution, that is, improvement, stabilisation or deterioration, and the reasons for those changes.
5. Information on the type of population concerned, possible health effects and recommended conduct in particular—
  - (a) information on the population groups at risk;
  - (b) description of likely symptoms;
  - (c) recommended precautions to be taken by the population concerned; and
  - (d) where to find further information.
6. Information provided under this Schedule shall also include—
  - (a) information on preventive action to reduce pollution or exposure to it;
  - (b) an indication of main source sectors; and
  - (c) recommendations for action to reduce emissions.