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STATUTORY INSTRUMENTS

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**2010 No. 1001**

**The Air Quality Standards Regulations 2010**

**PART 2**

**Assessment of ambient air quality**

**CHAPTER 1**

**Sulphur dioxide, nitrogen dioxide and oxides of nitrogen,  
particulate matter, lead, benzene and carbon monoxide**

**Assessment thresholds**

5.—(1) The Secretary of State must classify each zone according to whether or not the upper or lower assessment thresholds specified in Section A of Annex II to Directive [2008/50/EC](#) are exceeded in relation to sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide.

(2) The Secretary of State must review the classification of zones carried out in accordance with paragraph (1) at least every five years, and must do so more frequently than every five years if there are significant changes in the activities which may affect levels of sulphur dioxide, nitrogen dioxide or oxides of nitrogen, particulate matter, lead, benzene or carbon monoxide in ambient air.

(3) When reviewing the classification of zones in accordance with assessment thresholds, the Secretary of State must comply with Section B of Annex II to Directive [2008/50/EC](#).

**Assessment criteria**

6.—(1) The Secretary of State must assess the level of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide in ambient air in all zones.

(2) In all zones where the level of those pollutants exceeds the upper assessment threshold referred to in regulation 5, fixed measurements must be used, but may be supplemented by modelling or indicative measurements or both in order to provide adequate information on the spatial distribution of the ambient air quality.

(3) In all zones where the level of those pollutants is below the lower assessment threshold referred to in regulation 5, modelling or estimation techniques or both may be used instead of measurement.

(4) In all other zones a combination of fixed measurements together with modelling or indicative measurements or both may be used.

(5) In addition to the measurements referred to in paragraphs (1) to (4), the Secretary of State must measure PM<sub>2.5</sub> at rural background locations away from significant sources of air pollution, in order to provide information on an annual average basis on the total mass concentration and chemical speciation concentrations of that pollutant.

(6) For the purposes of paragraphs (1) to (4), measurements must be carried out in accordance with the criteria set out in sections A and C of Annex I to Directive [2008/50/EC](#), and for the purposes

of paragraph (5), measurements must be carried out in accordance with the criteria set out in Annex IV to the same Directive.

(7) Save as provided for in paragraph (8), measurements for the purposes of this regulation must be taken in accordance with the reference measurement methods specified in Section A and Section C of Annex VI to Directive [2008/50/EC](#).

(8) Alternative methods to those referred to in paragraph (7) may be used provided the conditions set out in Section B of that Annex are complied with.

(9) Where measurements are supplemented by modelling or indicative measurement then the Secretary of State must take account of the results of those supplementary methods in assessing ambient air quality for the purposes of these Regulations.

(10) In this Regulation, “chemical speciation concentrations” means the concentrations of different chemical components or species of PM<sub>2.5</sub>.

### **Location and number of sampling points**

7.—(1) The Secretary of State must install sampling points in accordance with Schedule 1 for the assessment of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide.

(2) In zones where fixed measurement is the sole source of information for the assessment of air quality, the number of sampling points must be more than or equal to the minimum number specified in Section A of Annex V to Directive [2008/50/EC](#) for the purpose of assessing compliance with limit values and alert thresholds.

(3) In zones other than agglomerations where fixed measurement is the sole source of information for the assessment of air quality, the number of sampling points must be more than or equal to the minimum number specified in Section C of Annex V to Directive [2008/50/EC](#) for the purpose of assessing compliance with critical levels for the protection of vegetation.

(4) In zones where the information from fixed measurement is supplemented by information from modelling or indicative measurement or both, the number of sampling points in either Section A or C of Annex V, or both, may be reduced by up to 50% provided that the following conditions are met—

- (a) the supplementary methods provide sufficient information for the assessment of air quality in relation to limit values or alert thresholds,
- (b) the supplementary methods provide sufficient information to inform the public as to the state of ambient air quality, and
- (c) the number of sampling points to be installed and the spatial resolution of other techniques are sufficient for the concentration of the relevant pollutant to be established in accordance with the data quality objectives specified in Section A of Annex I to Directive [2008/50/EC](#) and enable assessment results to meet the criteria in Section B of the same annex.

(5) For the measurement of PM<sub>2.5</sub> in rural background locations, the Secretary of State must install a sampling point for every 100,000 km<sup>2</sup>.

## **CHAPTER 2**

### **Ozone**

#### **Assessment criteria**

8.—(1) The Secretary of State must assess the levels of ozone in ambient air in all zones.

(2) The Secretary of State must ensure that fixed measurements are taken in any zone where the concentrations of ozone have exceeded the long-term objectives specified in Schedule 4 during any of the five years preceding those measurements.

(3) Save as provided in paragraph (4), for the purposes of paragraph (2), measurements must be taken in accordance with the reference measurement methods specified in point 8 of Section A of Annex VI to Directive [2008/50/EC](#).

(4) Alternative methods to those referred to in paragraph (3) may be used provided the conditions set out in Section B of that Annex are complied with.

### **Location and number of sampling points**

**9.**—(1) The Secretary of State must install sampling points in accordance with the criteria set out in Annex VIII to Directive [2008/50/EC](#).

(2) In zones where fixed measurement is the sole source of information for the assessment of air quality, the number of sampling points must be more than or equal to the minimum number specified in Section A of Annex IX to Directive [2008/50/EC](#).

(3) In zones where the concentrations of ozone have been below the long-term objectives for each of the previous five years of measurement, the number of sampling points must be determined in accordance with the criteria set out in Section B of Annex IX to Directive [2008/50/EC](#).

(4) In zones where the information from fixed measurement is supplemented by information from modelling or indicative measurement or both, the number of sampling points referred to in paragraph (2) may be reduced provided that the following conditions are met—

- (a) the supplementary methods provide sufficient information for the assessment of air quality in relation to target values, long-term objectives, information and alert thresholds,
- (b) the number of sampling points to be installed and the spatial resolution of supplementary methods are sufficient for the concentration of ozone to be established in accordance with the data quality objectives set out in Section A of Annex I to Directive [2008/50/EC](#) and to enable assessment results to meet the criteria specified in Section B of the same Annex;
- (c) there is at least one sampling point in each zone, with a minimum of one sampling point per two million inhabitants or one sampling point per 50,000 km<sup>2</sup>, whichever produces the greater number of sampling points; and
- (d) nitrogen dioxide is measured at all remaining sampling points except at rural background stations referred to in Section A of Annex VIII to Directive [2008/50/EC](#)

(5) The Secretary of State must ensure that nitrogen dioxide is measured at no less than 50% of the sampling points required under Section A of Annex IX to Directive [2008/50/EC](#).

(6) The measurement referred to in paragraph (5) must be continuous except at rural background locations.

(7) The Secretary of State must ensure that concentrations of the ozone precursor substances listed in Annex X to Directive [2008/50/EC](#) are measured at at least one sampling point.

(8) The Secretary of State may choose the location and number of sampling points for measurements of ozone precursor substances and must take into account the objectives and methods set out in Annex X to Directive [2008/50/EC](#).

## **CHAPTER 3**

Arsenic, cadmium, nickel, mercury, benzo(a)pyrene and other polycyclic aromatic hydrocarbons

### **Assessment thresholds**

**10.**—(1) The Secretary of State must classify each zone according to whether or not the upper and lower assessment thresholds specified in Section I of Annex II to Directive [2004/107/EC](#) are exceeded in relation to arsenic, cadmium, nickel and benzo(a)pyrene.

(2) The Secretary of State must review the classification of zones in paragraph (1) every five years, and must do so more frequently than every five years if there are significant changes in the activities which may affect levels of the pollutants referred to in paragraph (1) in ambient air.

(3) When classifying zones in accordance with assessment thresholds, the Secretary of State must comply with Section II of Annex II to Directive [2004/107/EC](#).

#### **Assessment criteria**

**11.**—(1) The Secretary of State must assess concentrations of arsenic, cadmium, nickel and benzo(a)pyrene in ambient air in all zones.

(2) In zones where the levels of arsenic, cadmium, nickel and benzo(a)pyrene are above the upper assessment threshold referred to in regulation 10, measurement is mandatory but may be supplemented by modelling techniques to provide an adequate level of information on ambient air quality.

(3) In zones where the levels of those pollutants are between the upper and lower assessment thresholds referred to in regulation 10, measurement is mandatory but may be supplemented by indicative measurements as referred to in Section I of Annex IV to Directive [2004/107/EC](#) or modelling, or both.

(4) In zones where the levels of those pollutants are below the lower assessment thresholds, modelling or objective estimation techniques may be used instead of measurement.

#### **Data quality objectives**

**12.** When assessing levels of arsenic, cadmium, nickel, benzo(a)pyrene, other polycyclic aromatic hydrocarbons or gaseous mercury, the Secretary of State must apply the data quality objectives and other standards contained in Annex IV to Directive [2004/107/EC](#).

#### **Location and number of sampling points**

**13.** The location and number of sampling points for the assessment of arsenic, cadmium, nickel and benzo(a)pyrene must be determined in accordance with Annex III to Directive [2004/107/EC](#).

#### **Monitoring of polycyclic aromatic hydrocarbons**

**14.**—(1) The Secretary of State must monitor concentrations of other relevant polycyclic aromatic hydrocarbons in addition to benzo(a)pyrene as the Secretary of State thinks fit, including at least the following—

- (a) benzo(a)anthracene,
- (b) benzo(b)fluoranthene,
- (c) benzo(j)fluoranthene,
- (d) benzo(k)fluoranthene,
- (e) indeno(1,2,3-cd)pyrene,
- (f) dibenz(a,h)anthracene.

(2) Monitoring sites must be located together with sampling points for benzo(a)pyrene.

(3) Monitoring sites must be selected so that geographical variations and long term trends in the concentrations of polycyclic aromatic hydrocarbons can be identified.

(4) Monitoring sites must be selected in accordance with the criteria in Sections I to III of Annex III to Directive [2004/107/EC](#).

### **Background monitoring**

**15.**—(1) The Secretary of State must operate background sampling points to provide indicative measurements of—

(a) concentrations of—

- (i) arsenic, cadmium, nickel and benzo(a)pyrene,
- (ii) the polycyclic aromatic hydrocarbons in paragraph (1) of regulation 14,
- (iii) total gaseous mercury.

(b) total depositions of—

- (i) arsenic, cadmium, nickel and benzo(a)pyrene within the PM<sub>10</sub> fraction;
- (ii) the polycyclic aromatic hydrocarbons in paragraph (1) of regulation 14,
- (iii) mercury.

(2) For the purposes of paragraph (1) the Secretary of State must ensure that—

- (a) at least one sampling point is installed for every 100,000 km<sup>2</sup>; and
- (b) each sampling point is located in accordance with Annex III to Directive [2004/107/EC](#).

(3) In this Regulation “total gaseous mercury” means elemental mercury vapour (Hg<sup>0</sup>) and reactive gaseous mercury, that is, water-soluble mercury species with sufficiently high vapour pressure to exist in the gas phase.

### **Reference methods for sampling and analysis**

**16.** Measurements of arsenic, cadmium, mercury, nickel, benzo(a)pyrene and other polycyclic aromatic hydrocarbons in ambient air and deposition of those pollutants must be made in accordance with the reference measurement methods set out in Annex V to Directive [2004/107/EC](#).