Welsh Statutory Instrument 2002 No. 3183 (W.299)

The Air Quality Limit Values (Wales) Regulations 2002

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STATUTORY INSTRUMENTS

2002 No. 3183 (W.299)

ENVIRONMENTAL PROTECTION, WALES

The Air Quality Limit Values (Wales) Regulations 2002

Made	*17th December 2002*
Coming into force	*31st December 2002*

The National Assembly for Wales ("the National Assembly"), in exercise of the powers conferred upon it by section 29 of the Government of Wales Act 1998[1] and subsection (2) of section 2 of the European Communities Act 1972[2], and having been designated for the purpose of that subsection by Article 2 of the European Communities (Designation) (No. 3) Order 2000[3] in relation to measures relating to the assessment and management of

ambient air quality and compliance with air quality limit values, target values and objectives, hereby makes the following Regulations:

Citation, commencement and application

1. - (1) These Regulations may be cited as the Air Quality Limit Values (Wales) Regulations 2002 and come into force on 31st December 2002.

(2) These Regulations apply in relation to Wales.

Definitions

2. In these Regulations -

"agglomeration" ("*crynhoad*") means a zone with a population concentration in excess of 250,000 inhabitants or, where the population concentration is 250,000 inhabitants or less, a population density per km^2 for which the National Assembly considers that the need for ambient air to be assessed or managed is justified;

"alert threshold" ("*trothwy rhybuddio*") has the meaning given by regulation 9(2);

"ambient air" ("*aer amgylchynol*") means outdoor air in the troposphere, excluding work places;

"assessment" ("*asesu*") means any method used to measure, calculate, predict or estimate the level of a relevant pollutant in the ambient air;

"fixed measurements" ("*mesuriadau sefydlog*") means measurements taken at fixed sites either continuously or by random sampling, the number of measurements being sufficiently large to enable the levels observed to be determined;

"level" ("*lefel*") means the concentration of a relevant pollutant in ambient air;

"limit value" ("*gwerth terfyn*") has the meaning given in regulation 4(1);

"lower assessment threshold" ("*trothwy asesu isaf*") has the meaning given in regulation 6(5);

"National Assembly" ("*Cynulliad Cenedlaethol*") means the National Assembly for Wales;

"natural events" ("*digwyddiadau naturiol*") means volcanic eruptions, seismic activities, geothermal activities, wild-land fires, high-wind events or the atmospheric resuspension or transport of natural particles from dry regions;

"oxides of nitrogen" ("*ocsidau nitrogen*") means the sum of nitric oxide and nitrogen dioxide added as parts per billion and expressed as nitrogen dioxide in micrograms per cubic metre;

"$PM_{2.5}$" means particulate matter which passes through a size-selective inlet with a 50% efficiency cut-off at 2.5 mm aerodynamic diameter;

"PM_{10}" means particulate matter which passes through a size-selective inlet with a 50% efficiency cut-off at 10 mm aerodynamic diameter;

"relevant pollutants" ("*llygrynnau perthnasol*") means sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide;

"upper assessment threshold" ("*trothwy asesu uchaf*") has the meaning given in regulation 6(5); and

"zone" ("*parth*") means a part of Wales shown on a map published by the National Assembly on 3 December 2002, deposited at the offices of the National Assembly, Environmental Protection Division, Cathays Park, Cardiff CF10 3NQ.

Responsibility for implementation of the Air Framework Directive

3. For the purposes of Article 3 (implementation and responsibilities) of Council Directive 96/62/EC on ambient air quality assessment and management[4] the National Assembly is the competent authority in Wales responsible for -

(a) implementation of that Directive;

(b) assessment of ambient air quality;

(c) approval of measuring devices (methods, equipment, networks and laboratories);

(d) ensuring accuracy of measurement by measuring devices and checking the maintenance of such accuracy by those devices, in particular by internal quality controls carried out in accordance with applicable quality assurance standards, including European standards;

(e) analysis of assessment methods; and

(f) co-ordination within Wales of European Community-wide quality assurance programmes, save insofar as that co-ordination entails communication with the European Commission.

Duty to ensure that ambient air quality is improved

4. - (1) The National Assembly must take the measures necessary to ensure that throughout Wales in each zone concentrations of relevant pollutants in ambient air, as assessed in accordance with regulations 5 to 8, do not exceed the limit values set out in Schedule 1 -

(a) where a date is specified in that Schedule in relation to the limit value for that pollutant, from that date;

(b) in any other case, from the date on which these Regulations come into force.

(2) The measures taken must -

(a) take into account an integrated approach to the protection of air, water and soil;

(b) not contravene Community legislation on the protection of the safety and health of workers at work; and

(c) have no significant negative effects on the environment in the other Member States.

Assessment of ambient air quality

5. The National Assembly must ensure that ambient air quality is assessed in each zone

in relation to each of the relevant pollutants in accordance with regulations 6 to 8.

Classification of zones

6. - (1) The National Assembly must classify each zone in relation to each of the relevant pollutants according to whether ambient air quality in that zone for that pollutant is required to be assessed by -

(a) measurements;

(b) a combination of measurements and modelling techniques; or

(c) by the sole use of modelling or objective estimation techniques.

(2) Measurements must be used to assess ambient air quality in relation to a relevant pollutant in a zone if -

(a) the zone is an agglomeration;

(b) the levels of that pollutant in the zone are between the relevant limit values and upper assessment thresholds; or

(c) the levels of that pollutant in the zone exceed the limit values for that pollutant.

(3) A combination of measurements and modelling techniques may be used to assess ambient air quality in any zone in relation to a relevant pollutant where the levels of that pollutant over a representative period are below the relevant upper assessment thresholds.

(4) Where the levels of a relevant pollutant in any zone over a representative period are below the relevant lower assessment thresholds, the sole use of modelling or objective estimation techniques for assessing levels of that pollutant is permissible unless -

(a) the zone is an agglomeration; and

(b) the pollutant being assessed is sulphur dioxide or nitrogen dioxide.

(5) The upper and lower assessment thresholds for the relevant pollutants are to be determined in accordance with Schedule 2.

(6) Where a zone is classified in relation to a pollutant under paragraph (1)(a), modelling techniques may be used for supplementing the measurements taken in order to provide an adequate level of information on ambient air quality in relation to a relevant pollutant in a zone.

(7) The National Assembly may also designate a zone classified under this regulation in relation to a relevant pollutant as follows:

(a) where the relevant pollutant is sulphur dioxide, the zone may be designated under this paragraph[5] if the limit values are exceeded in the zone owing to concentrations of sulphur dioxide in ambient air due to natural sources;

(b) where the relevant pollutant is PM_{10}, the zone may be designated -

(i) under this sub-paragraph[6] if, due to natural events, concentrations of PM_{10} in the ambient air are significantly in excess of normal background levels from natural sources;

(ii) under this sub-paragraph[7] if, due to the resuspension of particulates following the winter sanding of roads, concentrations of PM_{10} in the ambient air are significantly in excess of normal background levels from natural sources.

Review of classifications

7. - (1) The National Assembly must review the classification of each zone under regulation 6 at least once in every five years in accordance with Part II of Schedule 2.

(2) The National Assembly must also review the classification of any zone under regulation 6 in the event of significant changes in activities affecting ambient concentrations in that zone of any of the relevant pollutants.

(3) In this regulation, "classification" includes any designation under regulation 6(7).

Method of assessment of ambient air quality

8. - (1) The National Assembly must ensure that ambient air quality is assessed in each zone by following the specified method for each relevant pollutant in accordance with its current classification.

(2) Where a zone is classified under regulation 6(1)(a) or (b) in relation to a relevant pollutant -

(a) measurements of that pollutant must be taken at fixed sites either continuously or by random sampling; and

(b) the number of measurements must be sufficiently large to enable the levels of that pollutant to be properly determined.

(3) Schedule 3 has effect for the purpose of determining the location of sampling points for the relevant pollutants.

(4) For each zone classified under regulation 6(1)(a) the National Assembly must ensure that, in respect of a relevant pollutant, the minimum number of fixed sampling points determined in accordance with Schedule 4 is used for sampling the concentrations of that pollutant in that zone.

(5) For each zone classified under regulation 6(1)(b) the National Assembly must ensure that, in respect of a relevant pollutant, the number of fixed sampling points used for sampling of that pollutant in that zone, and the spatial resolution of other techniques, shall be sufficient for the concentrations of that pollutant to be established in accordance with Part I of Schedule 3 and Part I of Schedule 5.

(6) Reference methods for -

(a) the analysis of sulphur dioxide, nitrogen dioxide and oxides of nitrogen;

(b) the sampling and analysis of lead;

(c) the sampling and measurement of PM_{10};

(d) the sampling and analysis of benzene; and

(e) the analysis of carbon monoxide

are set out in Schedule 6, and these methods must be used unless other methods are used which the National Assembly considers can be demonstrated to give equivalent results.

(7) The National Assembly must ensure that measuring stations to supply representative data on concentrations of $PM_{2.5}$ are installed and operated, using any method for the sampling and measurement of $PM_{2.5}$ that it considers suitable, and that where possible sampling points for $PM_{2.5}$ are co-located with sampling points for PM_{10}.

(8) For zones which are classified under regulation 6(1)(b) or (c), the National Assembly must ensure that the information set out in Part II of Schedule 5 is compiled.

(9) For sulphur dioxide, nitrogen dioxide, oxides of nitrogen, benzene and carbon monoxide measurements of volume must be standardised at a temperature of 293°K and a pressure of 101.3 kPa.

Action plans

9. - (1) The National Assembly must draw up action plans indicating the measures to be taken in the short term where there is any risk of the limit values for any of the relevant pollutants, or the alert thresholds for sulphur dioxide or nitrogen dioxide, being exceeded, in order to reduce that risk and to limit the duration of such an occurrence.

(2) The alert threshold for sulphur dioxide is that set out in paragraph 1.2 of Part I of Schedule 1, and the alert threshold for nitrogen dioxide is that set out in paragraph 2.2 of Part II of Schedule 1.

Action to be taken where limit values are exceeded

10. - (1) The National Assembly must draw up a list of zones in which the levels of one or more of the relevant pollutants are higher than -

(a) in a case where there is no margin of tolerance shown in Schedule 1 in relation to a limit value, the limit value;

(b) in any other case, the limit value plus the margin of tolerance shown in Schedule 1.

(2) The National Assembly must draw up a list of zones in which the levels of one or more of the relevant pollutants are between the limit value and the limit value plus any margin of tolerance.

(3) Subject to paragraphs (8), (10) and (11), the National Assembly must draw up for each zone listed under paragraph (1) a plan or programme for attaining the limit values for the pollutants in question and must ensure that the plan or programme is implemented.

(4) Where a date by which the limit value is to be met is specified in Schedule 1, the plan or programme is to be for attaining that limit value by that date.

(5) Where no date by which the limit value is to be met is specified in Schedule 1, the plan or programme is to be for attaining that limit value from the date on which these

Regulations come into force[8].

(6) The plan or programme must at least include the information listed in Schedule 7.

(7) Where in any zone the level of more than one pollutant is higher than the limit values, an integrated plan covering all the pollutants in question must be prepared.

(8) For zones to which regulation 6(7)(a) applies, the National Assembly may provide that plan or programmes is only required under this regulation where the limit values are exceeded owing to man-made emissions.

(9) Plans or programmes for PM_{10} which are prepared in accordance with this regulation must also have the aim of reducing concentrations of $PM_{2.5}$.

(10) For zones to which regulation 6(7)(b)(i) applies, the National Assembly may provide that plans or programmes is only required where the limit values are exceeded owing to causes other than natural events.

(11) For zones to which regulation 6(7)(b)(ii) applies, the National Assembly may provide that plans or programmes is only required where the limit values are exceeded owing to PM_{10} levels other than those caused by winter road sanding.

Zones where the levels are lower than the limit value

11. - (1) The National Assembly must draw up a list of zones in which the levels of the relevant pollutants are below the limit values.

(2) The National Assembly must ensure that the levels of the relevant pollutants in these zones are maintained below the limit values and must endeavour to preserve the best ambient air quality compatible with sustainable development.

Public information

12. - (1) The National Assembly must ensure that up-to-date information on ambient concentrations of each of the relevant pollutants is routinely made available to the public.

(2) Information on ambient concentrations of sulphur dioxide, nitrogen dioxide and particulate matter must be updated -

(a) in the case of hourly values for sulphur dioxide and nitrogen dioxide, where practicable on an hourly basis;

(b) in all other cases, as a minimum on a daily basis.

(3) Information on ambient concentrations of lead must be updated on a three-monthly basis.

(4) Information on ambient concentrations of benzene, as an average value over the last 12 months, must be updated -

(a) where practicable on a monthly basis;

(b) in all other cases, as a minimum on a three-monthly basis.

(5) Information on ambient concentrations of carbon monoxide, as a maximum running

average over eight hours, must be updated -

(a) where practicable on an hourly basis;

(b) in all other cases, as a minimum on a daily basis.

(6) Information made available under paragraph (1) must include -

(a) an indication of the extent to which limit values and alert thresholds for particular pollutants have been exceeded over the averaging periods specified in Schedule 1; and

(b) a short assessment of those exceedances and their effects on health.

(7) When an alert threshold is exceeded, the National Assembly must ensure that the necessary steps are taken to inform the public, and the information made available must as a minimum include the information specified in paragraphs 1.3 of Part I and 2.3 of Part II of Schedule 1.

(8) Information to be made available to the public under this regulation must include the map of zones referred to in regulation 2 and action plans, plans and programmes prepared under regulations 9 and 10 respectively.

(9) For the purposes of this regulation, the public includes, but is not limited to, health care bodies and organisations having an interest in ambient air quality and representing the interests of sensitive populations, consumers and the environment.

(10) Information made available under this regulation must be clear, comprehensible and accessible.

Revocations of Air Quality Limit Values (Wales) Regulations 2001 and Air Quality Standards Regulations 1989 and transitional provisions

13. - (1) The Air Quality Limit Values (Wales) Regulations 2001[9] are hereby revoked.

(2) The Air Quality Standards Regulations 1989[10]**,** insofar as they apply to Wales, are revoked in accordance with the following sub-paragraphs -

(a) regulation 2(1) (limit values for sulphur and suspended particulates) and regulation 4(1) (limit value for lead in air) are revoked with effect from 1st January 2005;

(b) regulation 6 (limit value for nitrogen dioxide in the atmosphere) is revoked with effect from 1st January 2010.

(3) Until 1st January 2005, if the methods prescribed by these Regulations for the assessment of suspended particulate matter are used for the purpose of demonstrating compliance with Annex IV to Directive 80/779/EEC of 15th July 1980 on air quality limit values and guide values for total suspended particulates[11]**,** the data so collected must be multiplied by a factor of 1.2.

(4) Where -

(a) the National Assembly was required or authorised to take any action by any provision of the Air Quality Limit Values (Wales) Regulations 2001;

(b) such action was taken by the National Assembly prior to the revocation of those Regulations by these Regulations;

(c) the provision in question is re-enacted by these Regulations,

that action is to be treated, for the purpose of these Regulations, as having been taken under these Regulations.

Signed on behalf of the National Assembly for Wales under section 66(1) of the Government of Wales Act 1998[12]

D. Elis-Thomas
The Presiding Officer of the National Assembly

17th December 2002

SCHEDULE 1
Regulations 4(1), 9(2), 10 (1) and (4), 12(6) and (7)

LIMIT VALUES, MARGINS OF TOLERANCE ETC.

PART I

SULPHUR DIOXIDE

1.1 Limit values for sulphur dioxide

	Averaging period	*Limit value*	*Margin of tolerance[13]*	*Date by which limit value is to be met*
1. Hourly limit value for the protection of human health	1 hour	350 µg/m^3, not to be exceeded more than 24 times a calendar year	60 µg/m^3 on 1st January 2003, reducing on 1st January of each following year by equal annual amounts to reach 0 µg/m^3 by 1st January 2005	1st January 2005

2. Daily limit value for the protection of human health	24 hours	125 µg/m3, not to be exceeded more than 3 times a calendar year	None	1st January 2005
3. Limit value for the protection of ecosystems	Calendar year and winter (1st October to 31st March)	20 µg/m3	None	

1.2 Alert threshold for sulphur dioxide

500 µg/m3 measured over three consecutive hours at locations representative of air quality over at least 100 km^2 or an entire zone or agglomeration, whichever is the smaller.

1.3 Minimum details to be made available to the public when the alert threshold for sulphur dioxide is exceeded

Details to be made available to the public should include at least:

- the date, hour and place of the occurrence and the reasons for the occurrence, where known;

- any forecasts of:

  - changes in concentration (improvement, stabilisation, or deterioration), together with the reasons for those changes,

  - the geographical area concerned,

  - the duration of the occurrence;

  - the type of population potentially sensitive to the occurrence;

  - the precautions to be taken by the sensitive population concerned.

PART II

NITROGEN DIOXIDE (NO_2) AND OXIDES OF NITROGEN (NO_x)

2.1 Limit values for nitrogen dioxide and oxides of nitrogen

	Averaging period	*Limit value*	*Margin of tolerance*	*Date by which limit value is to be met*

1. Hourly limit value for the protection of human health	1 hour	200 µg/m3 NO_2, not to be exceeded more than 18 times a calendar year	70 µg/m3 on 1st January 2003, reducing on 1st January of each following year by equal annual amounts to reach 0 µg/m3 by 1st January 2010	1st January 2010
2. Annual limit value for the protection of human health	Calendar year	40 µg/m3 NO_2	14 µg/m3 on 1st January 2003, reducing on 1st January of each following year by equal annual amounts to reach 0 µg/m3 by 1st January 2010	1st January 2010
3. Annual limit value for the protection of vegetation	Calendar year	30 µg/m3 NO_x	None	

2.2 Alert threshold for nitrogen dioxide

400 µg/m3 measured over three consecutive hours at locations representative of air quality over at least 100 km^2 or an entire zone or agglomeration, whichever is the smaller.

2.3 Minimum details to be made available to the public when the alert threshold for nitrogen dioxide is exceeded

Details to be made available to the public should include at least:

- the date, hour and place of the occurrence and the reasons for the occurrence, where known;

- any forecasts of:

  - changes in concentration (improvement, stabilisation, or deterioration), together with the reasons for those changes,

  - the geographical area concerned,

  - the duration of the occurrence;

  - the type of population potentially sensitive to the occurrence;

  - the precautions to be taken by the sensitive population concerned.

PART III

PARTICULATE MATTER (PM_{10})

	Averaging period	*Limit value*	*Margin of tolerance*	*Date by which limit*

				value is to be met
1. 24-hour limit value for the protection of human health	24 hours	50 µg/m3 PM_{10}, not to be exceeded more than 35 times a calendar year	10 µg/m3 on 1st January 2003, reducing on 1st January of each following year by equal annual amounts to reach 0 µg/m3 by 1st January 2005	1st January 2005
2. Annual limit value for the protection of human health	Calendar year	40 µ g/m3 PM_{10}	3.2 µg/m3 on 1st January 2003, reducing on 1st January of each following year by equal annual amounts to reach 0 µg/m3 by 1st January 2005	1st January 2005

PART IV

LEAD

	Averaging period	*Limit value*	*Margin of tolerance*	*Date by which limit value is to be met*
Annual limit value for the protection of human health	Calendar year	0.5 µg/m3	0.2 µg/m3 on 1st January 2003, reducing on 1st January of each following year by equal annual amounts to reach 0 µg/m3 by 1st January 2005	1st January 2005

PART V

BENZENE

	Averaging period	*Limit value*	*Margin of tolerance*	*Date by which limit value is to be met*
Limit value for the protection of human health	Calendar year	5µg/m3	5µg/m3 on 1st January 2003, reducing on 1st January 2006 and every 12 months thereafter by 1 µg/m3 to reach 0 µg/m3 by 1st January 2010	1st January 2010

PART VI

CARBON monoxide

	Averaging period	*Limit value*	*Margin of tolerance*	*Date by which limit value is to be met*
Limit value for the protection of human health	Maximum daily 8-hour mean	10mg/m3	4 mg/m3 on 1st January 2003, reducing every 12 months thereafter by 2 mg/m3 to reach 0 mg/m3 by 1 January 2005	1 January 2005

The maximum daily 8-hour mean concentration shall be selected by examining 8-hour running averages, calculated from hourly data and updated each hour. Each 8-hour average so calculated shall be assigned to the day on which it ends, i.e. the first calculation period for any one day shall be the period from 17:00 on the previous day to 01:00 on that day; the last calculation period for any one day shall be the period from 16:00 to 24:00 on that day.

SCHEDULE 2

Regulations 6(5) and 7(1)

UPPER AND LOWER ASSESSMENT THRESHOLDS AND EXCEEDANCES

PART I

Upper and lower assessment thresholds

The following upper and lower assessment thresholds will apply:

(a) **SULPHUR DIOXIDE**

	Health protection	*Ecosystem protection*
Upper assessment threshold	60% of 24-hour limit value (75 µg/m3, not to be exceeded more than 3 times in any calendar year)	60% of winter limit value (12 µg/m3)
Lower assessment threshold	40% of 24-hour limit value (50 µg/m3), not to be exceeded more than 3 times in any calendar year)	40% of winter limit value (8 µg/m3)

(b) **NITROGEN DIOXIDE AND OXIDES OF NITROGEN**

	Hourly limit value for the protection of human health (NO_2)	*Annual limit value for the protection of human health (NO_2)*	*Annual limit value for the protection of vegetation (NO_x)*
Upper assessment value	70% of limit value (140 µg/m3, not to be exceeded more than 18 times in any calendar year)	80% of limit value (32 µg/m3)	80% of limit value (24 µg/m3)
Lower assessment value	50% of limit value (100 µg/m3, not to be exceeded more than 18 times in any calendar year).	65% of limit value (26 µg/m3)	65% of limit value (19.5 µg/m3)

(c) **PARTICULATE MATTER[14]**

	24-hour average	*Annual average*
Upper assessment threshold	60% of limit value (30 µg/m3, not to be exceeded more than seven times in any calendar year).	70% of limit value (14 µg/m3)
Lower assessment threshold	40% of limit value (20 µg/m3, not to be exceeded more than seven times in any calendar year).	50% of limit value (10 µg/m3)

(d) **LEAD**

	Annual average
Upper assessment threshold	70% of limit value (0.35 µg/m3)
Lower assessment threshold	50% of limit value (0.25 µg/m3)

(e) **BENZENE**

	Annual average
Upper assessment threshold	70% of limit value (3.5 µg/m3)
Lower assessment threshold	40% of limit value (2 µg/m3)

(f) **CARBON monoxide**

	Eight-hour average

Upper assessment threshold	70% of limit value (7 mg/m3)
Lower assessment threshold	50% of limit value (5 mg/m3)

PART II

Determination of exceedances of upper and lower assessment thresholds

Exceedances of upper and lower assessment thresholds must be determined on the basis of concentrations during the previous five years where sufficient data are available. An assessment threshold will be deemed to have been exceeded if it has been exceeded during at least three separate years out of the previous five years.

Where fewer than five years' data are available, measurement campaigns of short duration during the period of the year and at locations likely to be typical of the highest pollution levels may be combined with results obtained from emission inventories and modelling to determine exceedances of the upper and lower assessment thresholds.

SCHEDULE 3

Regulations 8(3) and 8(5)

LOCATION OF SAMPLING POINTS FOR THE MEASUREMENT OF RELEVANT POLLUTANTS IN AMBIENT AIR

The following considerations will apply to fixed measurement.

PART I

Macroscale siting

(a) ***Protection of human health***
Sampling points directed at the protection of human health should be sited:

(i) to provide data on the areas within zones and agglomerations 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 value(s);

(ii) to provide data on levels in other areas within the zones and agglomerations which are representative of the exposure of the general population.

Sampling points should in general be sited to avoid measuring very small micro-environments in their immediate vicinity. As a guideline, a sampling point should be sited to be representative of air quality in a surrounding area of no less than 200 m^2 at traffic-orientated sites and of several square kilometres at urban-background sites.

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

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

(b) ***Protection of ecosystems and vegetation***
Sampling points targeted at the protection of ecosystems or vegetation should be sited more than 20 km from agglomerations or more than 5 km from other built-up areas, industrial installations or motorways. As a guideline, a sampling point should be sited to be representative of air quality in a surrounding area of at least 1000 km^2. 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.

Account should be taken of the need to assess air quality on islands.

PART II

Microscale siting

The following guidelines should be met as far as practicable:

- the flow around the inlet sampling probe should be unrestricted without any obstructions affecting the airflow in the vicinity of the sampler (normally 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);

- in general, the inlet sampling point should be between 1.5 m (the breathing zone) and 4 m above the ground. 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;

- the inlet probe should not be positioned in the immediate vicinity of sources in order to avoid the direct intake of emissions unmixed with ambient air;

- the sampler's exhaust outlet should be positioned so that recirculation of exhaust air to the sampler inlet is avoided;

- location of traffic-orientated samplers:

- for all pollutants, such sampling points should be at least 25 m from the edge of major junctions and at least 4 m from the centre of the nearest traffic lane,

- for nitrogen dioxide and carbon monoxide, inlets should be no more than 5 m from the kerbside, - for particulate matter, lead and benzene, inlets should be sited so as to be representative of air quality near to the building line.

The following factors may also be taken into account:

- interfering sources;

- security;

- access;

- availability of electrical power and telephone communications;
- visibility of the site in relation to its surroundings;
- safety of public and operators;
- the desirability of co-locating sampling points for different pollutants;
- planning requirements.

PART III

Documentation and review of site selection

The site-selection procedures should be fully documented at the classification stage by such means as compass-point photographs of the surrounding area and a detailed map. Sites should be reviewed at regular intervals with repeated documentation to ensure that selection criteria remain valid over time.

SCHEDULE 4

Regulation 8(4)

CRITERIA FOR DETERMINING MINIMUM NUMBERS OF SAMPLING POINTS FOR FIXED MEASUREMENT OF CONCENTRATIONS OF RELEVANT POLLUTANTS IN AMBIENT AIR

PART I

Minimum number of sampling points for fixed measurement to assess compliance with limit values for the protection of human health and alert thresholds in zones and agglomerations where fixed measurement is the sole source of information

(a) **Diffuse sources**

Population of zone (thousands)	*If concentrations exceed the upper assessment thresholds*	*If maximum concentrations are between the upper and lower assessment thresholds*	*For SO_2 and NO_2 in agglomerations where maximum concentrations are below the lower assessment threshold*
0 - 250	1	1	not applicable

250 - 499	2	1	1
500 - 749	2	1	1
750 - 999	3	1	1
1,000 - 1,499	4	2	1
1,500 - 1,999	5	2	1
2,000 - 2,749	6	3	2
2,750 - 3,749	7	3	2
3,750 - 4,749	8	4	2
4,750 - 5,999	9	4	2
>6,000	10	5	3
	For NO_2 and particulate matter: to include at least one urban-background station and one traffic-orientated station - this requirement shall also apply to benzene and carbon monoxide provided that it does not increase the number of sampling points.		

(b) **Point sources**
For the assessment of pollution in the vicinity of point sources, the number of sampling points for fixed measurement should be calculated taking into account emission densities, the likely distribution patterns of ambient-air pollution and the potential exposure of the population.

PART II

Minimum number of sampling points for fixed measurements to assess compliance with limit values for the protection of ecosystems or vegetation in zones other than agglomerations

If maximum concentrations exceed the assessment threshold	*If maximum concentrations are between the upper and lower assessment thresholds*
1 station every 20,000 km2	1 station every 40,000 km2

In island zones the number of sampling points for fixed measurement should be calculated

taking into account the likely distribution patterns of ambient-air pollution and the potential exposure of ecosystems or vegetation.

SCHEDULE 5

Regulation 8(5) and (8)

DATA-QUALITY OBJECTIVES AND COMPILATION OF RESULTS OF AIR-QUALITY ASSESSMENT

PART I

Data-quality objectives

The following data-quality objectives for the required accuracy of assessment methods, of minimum time coverage and of data capture of measurement are laid down to guide quality-assurance programmes.

	Sulphur dioxide, nitrogen dioxide and oxides of nitrogen	*Particulate matter and lead*
Continuous measurement		
Accuracy	15%	25%
Minimum data capture	90%	90%
Indicative measurement		
Accuracy	25%	50%
Minimum data capture	90%	90%
Minimum time coverage	14% (One measurement a week at random, evenly distributed over the year, or eight weeks evenly distributed over the year.)	14% (One measurement a week at random, evenly distributed over the year, or eight weeks evenly distributed over the year.)
Modelling		
Accuracy:		
Hourly averages	50% - 60%	
Daily averages	50%	
Annual averages	30%	50%
Objective estimation		

Accuracy:	75%	100%

The accuracy of the measurement is defined as laid down in the "Guide to the Expression of Uncertainty of Measurements " (ISO 1993)[15] or in ISO 5725-1 "Accuracy (trueness and precision) of measurement methods and results " (ISO 1994)[16]. The percentages in the table are given for individual measurements averaged, over the period considered, by the limit value, for a 95% confidence interval (bias + two times the standard deviation). The accuracy for continuous measurements should be interpreted as being applicable in the region of the appropriate limit value.

The accuracy for modelling and objective estimation is defined as the maximum deviation of the measured and calculated concentration levels, over the period considered by the limit value, without taking account the timing of the events.

The requirements for minimum data capture and time coverage do not include losses of data due to the regular calibration or the normal maintenance of the instrumentation.

The National Assembly may allow for random measurements to be made instead of continuous measurements for particulate matter and lead by methods for which accuracy within the 95% confidence interval with respect to continuous monitoring has been demonstrated to be within 10%. Random sampling must be spread evenly over the year.

The following data quality objectives, for allowed uncertainty of assessment methods, and of minimum time coverage and of data capture of measurement are provided to guide quality assurance programmes.

	Benzene	*Carbon monoxide*
Fixed measurements		
Uncertainty	25%	15%
Minimum data capture	90%	90%
Minimum time coverage	35% urban background and traffic sites (distributed over the year to be representative of various conditions for climate and traffic) 90% industrial sites	
Indicative measurements		
Uncertainty	30%	25%
Minimum data capture	90%	90%
Minimum time coverage	14% (one day's measurement a week at random, evenly distributed over the year, or 8 weeks evenly distributed over the year)	14% (one measurement a week at random, evenly distributed over the year, or 8 weeks evenly distributed over the year)
Modelling		
Uncertainty:		
Eight-hour averages	-	50%
Annual	50%	-

averages		
Objective estimation		
Uncertainty	100%	75%

The uncertainty (on a 95% confidence interval) of the assessment methods shall be evaluated in accordance with the "Guide to the Expression of Uncertainty of Measurements" (ISO 1993)[17] or the methodology of ISO 5725:1994[18]. The percentages for uncertainty in the above table are given for individual measurements averaged over the period considered by the limit value, for a 95% confidence interval. The uncertainty for the fixed measurements should be interpreted as being applicable in the region of the appropriate limit value.

The uncertainty for modelling and objective estimation is defined as the maximum deviation of the measured and calculated concentration levels, over the period considered, by the limit value, without taking into account the timing of the events.

The requirements for minimum data capture and time coverage do not include losses of data due to the regular calibration of the normal maintenance of the instrumentation.

The National Assembly may allow for random measurements to be made instead of continuous measurements for benzene if the uncertainty, including the uncertainty due to random sampling, meets the quality objective of 25%. Random sampling must be spread evenly across the year.

PART II

Results of air quality assessment

The following information should be compiled for zones and agglomerations within which sources other than measurement are employed to supplement information from measurement or as the sole means of air quality assessment:

- a description of assessment activities carried out;

- the specific methods used, with references to descriptions of the method;

- the sources of data and information;

- a description of results, including accuracies and, in particular, the extent of any area or, if relevant, the length of road within the zone over which concentrations exceed limit value(s) or, as may be, limit value(s) plus applicable margin(s) of tolerance and of any area within which concentrations exceed the upper assessment threshold or the lower assessment threshold;

- for limit values the object of which is the protection of human health, the population potentially exposed to concentrations in excess of the limit value.

Where possible maps shall be compiled showing concentration distributions within each zone and agglomeration.

SCHEDULE 6

Regulation 8(6)

REFERENCE METHODS FOR ASSESSMENT OF CONCENTRATIONS OF RELEVANT POLLUTANTS

PART I

Reference method for the analysis of sulphur dioxide

ISO/FDIS 10498 (Standard in draft) Ambient air - determination of sulphur dioxide - ultraviolet fluorescence method[19].

PART II

Reference method for the analysis of nitrogen dioxide and oxides of nitrogen

ISO 7996: 1985 Ambient air - determination of the mass concentrations of nitrogen oxides - chemiluminescence method[20].

PART IIIA

Reference method for the sampling of lead

The reference method for the sampling of lead will be that described in the Annex to Directive 82/884/EEC[21] until such time as the limit value in Schedule 1 to these Regulations is to be met, when the reference method will be that for PM_{10} specified in Part IV of this Schedule.

PART IIIB

Reference method for the analysis of lead

ISO 9855: 1993 Ambient air - Determination of the particulate lead content of aerosols collected in filters. Atomic absorption spectroscopy method[22].

PART IV

Reference method for the sampling and measurement of PM_{10}

The reference method for the sampling and measurement of PM_{10} will be that described in EN 12341 " Air Quality - Field Test Procedure to Demonstrate Reference Equivalence of Sampling Methods for the PM_{10} fraction of particulate matter" [23]. The measurement principle is based on the collection on a filter of the PM_{10} fraction of ambient particulate matter and the gravimetric mass determination.

PART V

Reference method for the sampling and analysis of benzene

The reference method for the measurement of benzene will be pumped sampling on a sorbent cartridge followed by gas chromatographic determination.

PART VI

Reference method for the analysis of carbon monoxide

The reference method for the measurement of carbon monoxide will be a method based on the non-dispersive infra-red spectrometric (NDIR) method.

SCHEDULE 7

Regulation 10(6)

INFORMATION TO BE INCLUDED IN THE PLAN OR PROGRAMME FOR IMPROVEMENT OF AIR QUALITY

1. ***Localisation of excess pollution***

- region
- city (map)
- measuring station (map, geographical coordinates).

2. ***General information***

- type of zone (city, industrial or rural area)
- estimate of the polluted area (km^2) and of the population exposed to the pollution
- useful climatic data
- relevant data on topography
- 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 improvement plans.

4. ***Nature and assessment of pollution***

- concentrations observed over previous years (before the implementation of the improvement measures)

- concentrations measured since the beginning of the project

- techniques used for the assessment.

5. ***Origin of pollution***

- list of the main emission sources responsible for pollution (map)

- total quantity of emissions from these sources (tonnes/year)

- information on pollution imported from other regions.

6. ***Analysis of the situation***

- details of those factors responsible for the excess (transport, including cross-border transport, formation)

- details of possible measures for improvement of air quality.

7. ***Details of those measures or projects for improvement which existed prior to 21st November 1996***

- local, regional, national, international measures

- observed effects of these measures.

8. ***Details of those measures or projects adopted with a view to reducing pollution following 21st November 1996***

- listing and description of all the measures set out in the project

- timetable for implementation

- 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, work etc used to supplement information requested in this Schedule.***

EXPLANATORY NOTE

(This note is not part of the Regulations)

These regulations implement in Wales Council Directive 96/62/EC on ambient air quality assessment and management, Council Directive 99/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air, and Council Directive 2000/69/EC relating to limit values for benzene and

carbon monoxide in ambient air.

They replace the Air Quality Limit Values (Wales) Regulations 2001 (S.I. 2001/2683) (W.224), which implemented Council Directives 96/62/EC and 99/30/EC with effect from 19th July 2001.

Regulation 3 designates the National Assembly for Wales ("the National Assembly") as the competent authority for the implementation of Article 3 (implementation and responsibilities) of Council Directive 96/62/EC.

Regulation 4 places the National Assembly under a duty to take the measures necessary to ensure that in each zone in Wales concentrations of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide ("the relevant pollutants") do not exceed limit values. The limit values for each pollutant, and the dates by which they are to be met, are set out in Schedule 1.

Regulation 5 requires the National Assembly to ensure that ambient air is assessed for each zone.

Regulation 6 requires the National Assembly to classify each zone in relation to each of the relevant pollutants. Regulation 6 together with Schedule 2 provide for the determination of upper and lower assessment thresholds for each relevant pollutant. Regulation 6 sets out the requirements for measurement or other assessment of air quality depending on pollution levels in relation to these thresholds. It also provides for the designation of zones for which action programmes are not required in certain circumstances, even though limit values for sulphur dioxide or particulates are exceeded in those zones.

Regulation 7 places a duty on the National Assembly to review the classification of zones every five years or in the event of significant changes affecting levels of any of the relevant pollutants.

Regulation 8 requires the National Assembly to ensure that specified methods are used for assessing air quality for each pollutant in each zone. Schedule 3 sets out how sampling points for the relevant pollutants are to be determined. Schedule 4 sets out criteria for the minimum number of sampling points for fixed measurements to assess compliance with limit values in zones where that is the only source of information, and with limit values for the protection of ecosystems or vegetation in certain other zones. Schedule 5 makes provision for data quality objectives for the required accuracy of assessment methods, and for compilation of the results of air quality assessment. Schedule 6 prescribes reference methods for the analysis, sampling or measurement of the relevant pollutants. Regulation 8(7) places a duty on the National Assembly to ensure that measuring stations supply data on concentrations of $PM_{2.5}$ particulate matter.

Regulation 9 requires the National Assembly to draw up action plans indicating measures to be taken in the short term where there is a risk that limit values for any of the relevant pollutants, or alert thresholds for sulphur dioxide or nitrogen dioxide, will be exceeded. The alert thresholds for sulphur dioxide and nitrogen dioxide are set out in paragraph 1.2 of Part I and paragraph 2.2 of Part II of Schedule 1 respectively.

Regulation 10 requires the National Assembly to draw up lists of zones where the levels of one or more of the relevant pollutants is above the limit value, or between the limit value and any margin of tolerance shown in Schedule 1. For such zones, regulation 10 places a duty on the National Assembly to draw up a plan or programme, which must contain at least the information set out in Schedule 7 (including the location and origin of the pollution, the responsible authorities and the measures taken to deal with the pollution).

Regulation 11 requires the National Assembly to list zones where levels of the relevant

pollutants are below limit values, to ensure that levels of these pollutants are maintained below the limit values, and to endeavour to preserve the best ambient air quality compatible with sustainable development.

Regulation 12 requires the National Assembly to ensure that up-to-date information on ambient concentrations of each of the relevant pollutants is routinely made available to the public. It prescribes the frequency and content of such information. Where alert thresholds for sulphur dioxide or nitrogen dioxide are exceeded, further information, set out in paragraph 1.3 of Part I and 2.3 of Part II of Schedule 1 must be provided. This information includes details of the place and time of the occurrence, forecasts, and precautions to be taken by sensitive populations.

Regulation 13 revokes the Air Quality Limit Values (Wales) Regulations 2001. It also revokes, in relation to Wales and at the dates specified, parts of the Air Quality Standards Regulations 1989; other parts of those regulations have been revoked by the Air Quality Limit Values (Wales) Regulations 2001. The Air Quality Standards Regulations 1989, as amended by S.I. 1995/3146, implemented Council Directive 80/779/EEC on air quality limit values and guide values for sulphur dioxide and suspended particulates; Council Directive 82/884/EEC on a limit value for lead in air; and Council Directive 85/203/EEC on air quality standards for nitrogen dioxide. These Directives are repealed, with transitional provisions lasting up to 2005 and 2010, by Council Directive 99/30/EC.

Where action was taken by the National Assembly under the Air Quality Limit Values (Wales) Regulations 2001 under a provision of those Regulations re-enacted by these Regulations, it is to be treated as having been taken under these Regulations. For example, the classification of zones in relation to relevant pollutants which took place under regulation 5 of the 2001 regulations is to be treated as having taken place under regulation 6 of these Regulations. The duty to review that classification every 5 years therefore applies by reference to the date of the original classification.

A number of provisions of existing legislation confer powers on public bodies which are relevant to the achievement of limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide in ambient air. The most notable of these are -

1. Provisions conferring power on local authorities -

(a) concerning "local air quality management" under Part IV of the Environment Act 1995 (c.25);

(b) for control of smoke emissions under the Clean Air Act 1993 (c.11);

(c) for taking account of air quality issues when making land use planning and transport plans;

(d) for the control of traffic growth and management, under the Road Traffic Reduction Act 1997 (c.54), the Road Traffic Regulation Act 1984 (c.27) and the Road Traffic Act 1991 (c.40).

2. Control of industrial emissions -

(a) by local authorities by means of "local air pollution control" and by the Environment Agency under "integrated pollution control" under Part I of the Environmental Protection Act 1990 (c.43);

(b) by the Environment Agency and local authorities using "integrated pollution prevention and control" under the Pollution Prevention and Control Act 1999 (c.24) and the Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I. 2000/1973).

3. Control of transport emissions

A series of vehicle emission regulations transposing EC Directives impose limits on vehicle emissions including: S.I. 1992/2137 (covering directives 91/441/EEC and 91/542/EEC); S.I. 1993/2199 (covering directive 93/59/EEC); S.I. 1995/2210 (covering directive 94/12//EC); S.I. 1997/1544 (covering directive 96/69/EC) and S.I. 2000/3197 (covering directive 98/69/EC). Environmental standards for fuel were set in 1994 (S.I. 1994/2295) and 1999 (S.I. 1999/3107).

A full account of all the measures through which achievement of limit values will be sought is set out in the "Air Quality Strategy for England, Scotland, Wales and Northern Ireland" published by the Department of the Environment, Transport & the Regions, Scottish Executive, National Assembly for Wales and Northern Ireland Assembly, January 2000 (Cm. 4548).

Notes:

[1] 1998 c.38.back

[2] 1972 c.68.back

[3] S.I. 2000/2812.back

[4] OJ No L296, 21.11.96, p. 55.back

[5] *See* regulation 10(8).back

[6] *See* regulation 10(10).back

[7] *See* regulation 10(11).back

[8] Regulation 9(3) of the Air Quality Limit Values (Wales) Regulations 2001 imposed a corresponding obligation to prepare a plan or programme for the attainment of the relevant limit values, in relation to these pollutants, by dates prior to the coming into force of these Regulations.back

[9] S.I. 2001/2683 (W.224).back

[10] S.I. 1989/317, amended by S.I. 1995/3146 and partially revoked, in relation to Wales, by S.I. 2001/2683 (W. 224).back

[11] OJ L229, 30.8.1980, p.30.back

[12] 1998 c.38.back

[13] The figures for Margins of Tolerance for each of the relevant pollutants given in this Schedule are calculated from those given in Annex I of Directive 99/30/EC and Annexes I and II of Directive 2000/69/EC.back

[14] The upper and lower assessment thresholds for PM_{10} are based on the indicative limit values for 1 January 2010, which will be reviewed in the light of further information on

health and environmental effects, technical feasibility and experience in the application of the existing "Stage 1" limit values. *See* Article 10 of Directive 99/30/EC.back

[15] Copies of this International Standards Organisation publication can be purchased from the British Standards Institution "BSI" sales department either by telephone on 020-8996-9001 or by post from the BSI, Standards House, 389 Chiswick High Road, London W4 4AL.back

[16] Copies of this International Standards Organisation publication can be purchased from the British Standards Institution "BSI" as for footnote (a) above.back

[17] Copies of this International Standards Organisation publication can be purchased from the British Standards Institution "BSI" sales department either by telephone on 020-8996-9001 or by post from the BSI, Standards House, 389 Chiswick High Road, London W4 4AL.back

[18] Copies of this International Standards Organisation publication can be purchased from the British Standards Institution "BSI" as for footnote (a) above.back

[19] Copies of this International Standards Organisation publication can be purchased from the British Standards Institution "BSI" sales department either by telephone on 020-8996-9001 or by post from the BSI, Standards House, 389 Chiswick High Road, London W4 4AL.back

[20] Copies of this International Standards Organisation publication can be purchased from the British Standards Institution "BSI" as for footnote (a) above.back

[21] OJ L378, 31.12.1982, p.15.back

[22] Copies of this International Standards Organisation publication can be purchased from the British Standards Institution "BSI" sales department either by telephone on 020-8996-9001 or by post from the BSI Standards House, 389 Chiswick High Road, London W4 4AL.back

[23] European Standards Institute "CEN" publication reference BSEN 12341, obtainable from the British Standards Institution "BSI" as for footnote (a) above.back

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