STATUTORY RULES OF NORTHERN IRELAND

2002 No. 94

ENVIRONMENTAL PROTECTION

The Air Quality Limit Values Regulations (Northern Ireland) 2002

Made	*8th March 2002*
Coming into operation . .	*1st May 2002*

The Department of the Environment, being a Department designated(**a**) for the purposes of section 2(2) of the European Communities Act 1972(**b**) in relation to measures relating to the control of pollution in ambient air, in exercise of the powers conferred on it by that section and of every other power enabling it in that behalf, hereby makes the following Regulations:

Citation and commencement

1. These Regulations may be cited as the Air Quality Limit Values Regulations (Northern Ireland) 2002 and shall come into operation on 1st May 2002.

Definitions and interpretation

2.—(1) In these Regulations—

"agglomeration" 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 Department considers that the need for ambient air to be assessed or managed is justified;

"alert threshold" has the meaning given by regulation 8(2);

"ambient air" means outdoor air in the troposphere, excluding work places;

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

"fixed measurements" 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" means the concentration of a relevant pollutant in ambient air;

"limit value" has the meaning given in regulation 3(1);

"lower assessment threshold" has the meaning given in regulation 5(5);

(**a**) S.I. 1988/785
(**b**) 1972 c. 68

"margin of tolerance" means the percentage of the limit value by which this value may be exceeded subject to the conditions laid down in Schedule 1;

"natural events" 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" means the sum of nitric oxide and nitrogen dioxide added as parts per billion and expressed as nitrogen dioxide in microgrammes 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 µm aerodynamic diameter;

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

"relevant pollutants" means sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead;

"upper assessment threshold" has the meaning given in regulation 5(5);

"the Department" means the Department of the Environment;

"zone" means a part of the territory of Northern Ireland which is designated by the Department for the purposes of these regulations and shown on a map published by the Department, the Scottish Executive, the National Assembly for Wales and the Department of Environment, Transport and the Regions in January 2001, a copy of which is deposited at the offices of the Department, Calvert House, 23 Castle Place, Belfast BT1 1FY.

(2) The Interpretation Act (Northern Ireland) 1954**(a)** shall apply to these regulations as it applies to a Measure of the Northern Ireland Assembly.

Duty to ensure that ambient air quality is improved

3.—(1) Northern Ireland departments shall take the measures necessary to ensure that throughout Northern Ireland in each zone concentrations of relevant pollutants in ambient air, as assessed in accordance with regulations 4 to 7, do not exceed the limit values set out in Schedule 1 from the dates specified in that Schedule.

(2) The measures taken shall—

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

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

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

(**a**) 1954 c. 33 (N.I.)

Assessment of ambient air quality

4. The Department shall ensure that ambient air quality is assessed in each zone in relation to each of the relevant pollutants in accordance with regulations 5 to 7.

Classification of zones

5.—(1) The Department shall 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 the pollutant over a representative period are below the relevant upper assessment thresholds.

(4) Where the levels of a relevant pollutant in any zone 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 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 classification of zones required by paragraph (1) shall include any zones which may be classified by the Department as exceeding limit values for—

(*a*) sulphur dioxide owing to concentrations of sulphur dioxide in ambient air due to natural sources;

(*b*) PM_{10} owing to concentrations of PM_{10} in ambient air due to—

(i) natural events which result in concentrations significantly in excess of normal background levels from natural sources; or

(ii) the resuspension of particulates following the winter sanding of roads.

Review of classifications

6.—(1) The Department shall review the classification of each zone under regulation 5 at least once in every five years in accordance with Part II of Schedule 2.

(2) The Department shall also review the classification of any zone under regulation 5 in the event of significant changes in activities affecting ambient concentrations in the zone of any of the relevant pollutants.

Method of assessment of ambient air quality

7.—(1) The Department shall 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 5(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 shall have effect for the purposes of determining the location of sampling points for the relevant pollutants.

(4) For each zone classified under regulation 5(1)(*a*) the Department shall ensure that, in respect of a relevant pollutant, the minimum number of sampling points for fixed measurement of concentrations 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 5(1)(*b*) the Department shall ensure that, in respect of a relevant pollutant, the number of sampling points for fixed measurement 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; and

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

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

(7) The Department shall ensure that—

(*a*) measuring stations to supply representative data on concentrations of $PM_{2.5}$ are installed and operated using the method for the sampling and measurement of $PM_{2.5}$ that it considers suitable; and

(*b*) sampling points for $PM_{2.5}$ are, where possible, co-located with sampling points for PM_{10}.

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

(9) For sulphur dioxide, nitrogen dioxide and oxides of nitrogen the volume must be standardised at a temperature of 293°K and a pressure of 101,3 kPa.

Action plans

8.—(1) The Department, after consultation with other Northern Ireland departments, shall 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

9.—(1) The Department shall 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 Department shall 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 (6), (8) and (9), the Department, after consultation with other Northern Ireland departments, shall draw up for each zone listed under paragraph (1) a plan or programme for attaining the limit values for the pollutants in question within the time limits specified in Schedule 1; and the Department and those other Northern Ireland departments shall ensure that the plan or programme is implemented.

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

(5) 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 shall be prepared.

(6) For any zone designated under regulation 5(7)(*a*), the Department may provide that plans or programmes shall only be required under this regulation where the limit values are exceeded owing to man-made emissions.

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

(8) For any zone designated under regulation 5(7)(*b*)(i), the Department may provide that plans or programmes shall only be required where the limit values are exceeded owing to causes other than natural events.

(9) For any zone designated under regulation 5(7)(*b*)(ii), the Department may provide that plans or programmes shall only be required where the limit values are exceeded owing to PM_{10} levels other than those caused by winter road sanding.

(10) Where the level of a pollutant exceeds, or is likely to exceed, the limit value plus the margin of tolerance or, as the case may be, the alert threshold following significant pollution originating in another Member State, the Department shall notify the Secretary of State for Environment, Food and Rural Affairs.

Zones where the levels are lower than the limit value

10.—(1) The Department shall draw up a list of zones in which the levels of the relevant pollutants are below the limit values.

(2) Northern Ireland departments shall ensure that the levels of the relevant pollutants in these zones are maintained below the limit values and shall endeavour to preserve the best ambient air quality compatible with sustainable development.

Public information

11.—(1) The Department shall 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 shall 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 shall be updated on a three-monthly basis.

(4) Information made available under paragraph (1) shall 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.

(5) When an alert threshold is exceeded, the Department shall ensure that the necessary steps are taken to inform the public, and the information made

available shall as a minimum include the information specified in paragraphs 1.3 of Part I and 2.3 of Part II of Schedule 1.

(6) Information to be made available to the public under this regulation shall include the map mentioned in the definition of "zone" in regulation 2 and action plans, plans and programmes prepared under regulations 8 and 9 respectively.

(7) 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.

(8) Information made available under this regulation shall be clear, comprehensible and accessible.

Revocation of Air Quality Standards Regulations (NI) 1990

12.—(1) The Air Quality Standards Regulations (NI) 1990(**a**) are hereby revoked as follows:

(2) Regulation 3(1) (limit values for sulphur dioxide and suspended particulates) and Regulation 5 (limit values for lead in air) shall be revoked with effect from 1st January 2005.

(3) Regulation 4 (measurement of sulphur dioxide and suspended particulates), 6 (measurement of lead in air), and 8 (measurement of nitrogen dioxide in the atmosphere) shall be revoked with effect from 1st May 2002.

(4) Regulation 7 (limit value for nitrogen dioxide in the atmosphere) shall be revoked with effect from 1st January 2010.

Sealed with the Official Seal of the Department of the Environment on 8th March 2002.

(L.S.) *Dermot Nesbitt*
Minister of the Environment

(**a**) S.R. 1990 No. 145

SCHEDULE 1 Regulations 3(1), 8(2), 9(1) and (3), 11(4) and (5)

Limit Values, Margins of Tolerance etc.

PART I

SULPHUR DIOXIDE

1.1 *Limit values for sulphur dioxide*

	Averaging Period	*Limit Value*	*Margin of tolerance* (**a**)	*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	120 µg/m^3 on 19th July 2001, 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/m^3, 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/m^3	None	1st May 2002

1.2 *Alert threshold for sulphur dioxide*

500 µg/m^3 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; and
  - 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/m^3, NO_2 not to be exceeded more than 18 times a calendar year	90 µg/m^3 on 19th July 2001, reducing on 1st January of each following year by equal annual amounts to reach 0 µg/m^3 by 1st January 2010	1st January 2010
2. Annual limit value for the protection of human health	Calendar year	40 µg/m^3 NO_2	18 µg/m^3 on 19th July 2001, reducing on 1st January of each following year by equal annual amounts to reach 0 µg/m^3 by 1st January 2010	1st January 2010
3. Annual limit value for the protection of vegetation	Calendar year	30 µg/m^3 NO_x	None	1st May 2002

2.2 *Alert threshold for nitrogen dioxide*

400 µg/m^3 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; and
  - 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/m^3 PM_{10} not to be exceeded more than 35 times a calendar year	20 µg/m^3 on 19th July 2001, 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. Annual limit value for the protection of human health	Calendar year	40 µg/m^3 PM_{10}	6.4 µg/m^3 on 19th July 2001, 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

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/m^3	0.4 µg/m^3 on 19th July 2001, 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

(**a**) The figures for margins of tolerance for each of the relevant pollutants given in this Schedule are calculated from those given in Annexes I to IV to Directive 99/30/EC.

SCHEDULE 2 Regulations 5(5) and 6(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/m^3) not to be exceeded more than 3 times in any calendar year	60% of winter limit value (12 µg/m^3)
Lower assessment threshold	40% of 24-hour limit value (50 µg/m^3) not to be exceeded more than 3 times in any calendar year	40% of winter limit value (8 µg/m^3)

(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 threshold	70% of limit value (140 µg/m^3) not to be exceeded more than 18 times in any calendar year	80% of limit value (32 µg/m^3)	80% of limit value (24 µg/m^3)
Lower assessment threshold	50% of limit value (100 µg/m^3) not to be exceeded more than 18 times in any calendar year	65% of limit value (26 µg/m^3)	65% of limit value (19.5 µg/m^3)

(c) PARTICULATE MATTER(**a**)

	24-hour average	*Annual average*
Upper assessment threshold	60% of limit value (30 µg/m^3) not to be exceeded more than 7 times in any calendar year	70% of limit value (14 µg/m^3)
Lower assessment threshold	40% of limit value (20 µg/m^3) not to be exceeded more than 7 times in any calendar year	50% of limit value (10 µg/m^3)

(**a**) The upper and lower assessment thresholds for PM_{10} are based on the following 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

	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	50mg/m^3 PM_{10} not to be exceeded more than 7 times a calendar year	To be derived from data and to be equivalent to Stage 1 limit value.	1st January 2010
2. Annual limit value for the protection of human health	Calendar year	20 mg/m^3 PM_{10}	50% on 1st January 2005 reducing every 12 months thereafter by equal annual percentages to reach 0% by 1st January 2010	1st January 2010

(d) LEAD

	Annual average
Upper assessment threshold	70% of limit value (0.35 µg/m^3)
Lower assessment threshold	50% of limit value (0.25 µg/m^3)

PART II

DETERMINATION OF EXCEEDANCES OF UPPER AND LOWER 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 those 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 Regulation 7(3) and (5)

Location of Sampling Points for the Measurement of Sulphur Dioxide, Nitrogen Dioxide and Oxides of Nitrogen, Particulate Matter and Lead 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 1,000 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-oriented 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, inlets should be no more than 5 m from the kerbside,
    - for particulate matter and lead, 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 7(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 agglomeration or zone (thousands)	*If concentrations exceed the upper assessment threshold*	*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 thresholds*
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			

(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 upper assessment threshold	*If maximum concentrations are between the upper and lower assessment thresholds*
1 station every 20 000 km^2	1 station every 40 000 km^2

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 7(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)(**a**) or in ISO 5725-1 'Accuracy (trueness and precision) of measurement methods and results' (ISO 1994)(**b**). 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 of the timing of the events.

(**a**) and (**b**) Copies of these International Standards Organisation publications 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

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 Department 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.

PART II

RESULTS OF AIR QUALITY ASSESSMENT

The following information should be compiled for zones or 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 or agglomeration 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 7(6)

Reference Methods for Assessment of Concentrations of Sulphur Dioxide, Nitrogen Dioxide and Oxides of Nitrogen, Particulate Matter (PM_{10} and $PM_{2.5}$) and Lead.

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(**a**).

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(**b**).

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(**c**) 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(**d**).

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'(**e**). 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.

(**a**), (**b**) and (**d**) Copies of these International Standards Organisation publications 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.
(**c**) O.J. L378, 31.12.1982, p. 15
(**e**) European Standards Institute ' CEN ' publication reference BSEN 12341, obtainable from the British Standards Institute ' BSI ' as for footnote above

SCHEDULE 7 Regulation 9(4)

Information to be included in the Plan or Programme for Improvement of Air Quality.

1. *Localization 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 populations 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 i.e.*
   — 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 are made in the implementation in Northern Ireland of European Council Directive 96/62/EC on ambient air quality assessment and management, and European Council Directive 99/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead ('the relevant pollutants' in ambient air).

Regulation 3 places a duty upon any relevant government department to ensure that in each zone in Northern Ireland concentrations of relevant pollutants do not exceed the limit values. The limit values for each pollutant, and the date by which they are to be met, are set out in Schedule 1.

Regulation 4 requires the Department of the Environment ("the Department") to assess ambient air quality in each zone in accordance with regulations 5 to 7.

Regulation 5 requires the Department to classify each zone in relation to each of the relevant pollutants in accordance with the method required to assess air quality in that zone. Regulation 5 together with Schedule 2 provide for the determination of upper and lower assessment thresholds for each relevant pollutant, and regulation 5 sets out the requirements for measurement or other assessment of air quality depending on pollution levels in relation to the thresholds.

Regulation 6 places a duty on the Department 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 7 requires the Department 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 7 places a duty on the Department to ensure that measuring stations supply data on concentrations of $PM_{2.5}$ particulate matter.

Regulation 8 requires the Department to draw up, after consultation with other relevant government departments, 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 Schedule 1.

Regulation 9 requires the Department 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, the regulation places a duty on the Department to draw up, after consultation with other relevant government departments, 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). Such relevant departments are obliged by the regulation to implement the plan or programme.

Regulation 10 requires the Department to list zones where levels of the relevant pollutants are below limit values. The regulation also places a duty on the Department and other relevant government departments 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 11 requires the Department 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 Schedule 1 must be provided (this includes details of the place and time of the occurrence, forecasts, and precautions to be taken by sensitive populations).

Regulation 12 revokes for Northern Ireland and at different dates parts of the Air Quality Standards Regulations (NI) 1990 giving effect to limit values for the relevant pollutants in earlier directives.

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