



# National Environment Protection (Ambient Air Quality) Measure

as amended

made under section 20 of the

*National Environment Protection Council Act 1994 (Cwlth), National Environment Protection Council (New South Wales) Act 1995 (NSW), National Environment Protection Council (Victoria) Act 1995 (Vic), National Environment Protection Council (Queensland) Act 1994 (Qld), National Environment Protection Council (Western Australia) Act 1996 (WA), National Environment Protection Council (South Australia) Act 1995 (SA), National Environment Protection Council (Tasmania) Act 1995 (Tas), National Environment Protection Council Act 1994 (ACT) and the National Environment Protection Council (Northern Territory) Act 1994 (NT)*

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This compilation was prepared on #Xxx 2014 taking into account amendments up to and including Variation to the National Environment Protection (Ambient Air Quality) Measure 2014

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## Introductory Note

Section 14 of the *National Environment Protection Council Act 1994* and the equivalent provision of the corresponding Act of each participating State and Territory provides for the making of measures by the National Environment Protection Council and the matters to which they may relate. This Measure relates to ambient air quality (section 14 (1) (a)).

The Measure is to be implemented by the laws and other arrangements participating jurisdictions consider necessary: see section 7 of the Commonwealth Act and the equivalent provision of the corresponding Act of each participating State and Territory.

## Part 1 Preliminary

### 1 Citation [see Note 1]

This Measure may be cited as the National Environment Protection (Ambient Air Quality) Measure **as varied 2014**.

Note This Measure commences on gazettal: see *National Environment Protection Council Act 1994*, s 21 and *Acts Interpretation Act 1901*, s 48 as applied by s 46A.

### 2 Definitions

- (1) This clause defines particular words and expressions used in this Measure.
- (2) The words and expressions indicated by an asterisk are defined in the Commonwealth Act and are included for information only to assist readers of the Measure. Minor changes from the definitions in the Commonwealth Act are indicated by square brackets ([ ]).
- (3) In this Measure:

\***Agreement** means the agreement made on 1 May 1992 between the Commonwealth, the States, the Australian Capital Territory, the Northern Territory and the Australian Local Government Association, a copy of which is set out in the Schedule [to the Commonwealth Act].

**ambient air** means the external air environment, it does not include the air environment inside buildings or structures.

**Commonwealth Act** means the *National Environment Protection Council Act 1994* of the Commonwealth.

**Continuous direct mass measurement technique** means a method for continuously monitoring suspended particulate matter changes of particles in ambient air, providing near real time measurement of mean particle concentration.

**Section 2**

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**Council** means the National Environment Protection Council established by section 8 of the Commonwealth Act and the equivalent provision of the corresponding Act of each participating State and Territory.

**Fire management** means all activities associated with the management of fire prone land, including the use of fire to meet land management goals and objectives.

**Manual gravimetric method** means a manual method for sampling particles by drawing air through a filter and determining the mass by weighing the filters.

**monitoring station** means a facility for measuring the concentration of one or more pollutants in the ambient air in a region or sub-region.

**\*national environment protection goal** means a goal:

- (a) that relates to desired environmental outcomes; and
- (b) that guides the formulation of strategies for the management of human activities that may affect the environment.

**\*national environment protection protocol** means a protocol that relates to the process to be followed in measuring environmental characteristics to determine:

- (a) whether a particular standard or goal is being met or achieved; or
- (b) the extent of the difference between the measured characteristic of the environment and a particular standard or a particular goal.

**\*national environment protection standard** means a standard that consists of quantifiable characteristics of the environment against which environmental quality can be assessed.

**\*participating jurisdiction** means the Commonwealth, a participating State or a participating Territory.

**\*participating State** means a State:

- (a) that is a party to the Agreement; and
- (b) in which an Act that corresponds to [the Commonwealth] Act is in force in accordance with the Agreement.

**\*participating Territory** means a Territory:

- (a) that is a party to the Agreement; and
- (b) in which an Act that corresponds to [the Commonwealth] Act is in force in accordance with the Agreement.

**particles as PM<sub>10</sub>** means particulate matter with an equivalent aerodynamic diameter of 10 micrometres or less.

**particles as PM<sub>2.5</sub>** means particulate matter with an equivalent aerodynamic diameter of 2.5 micrometres or less.

**performance monitoring station** means a monitoring station used to measure achievement against the goal.

**pollutant** means a pollutant mentioned in Schedule 1.

**ppm** means parts per million by volume.

**principal Measure** means the National Environment Protection (Ambient Air Quality) Measure.

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**Clause 3**

**region** means an area within a boundary surrounding population centres as determined by the relevant participating jurisdiction.

**sub-region** means a populated area within a region whose air quality differs from other areas in the region due to the topography, meteorology and sources of pollutants.

**TEOM** means tapered element oscillating microbalance.

**$\mu\text{g}/\text{m}^3$**  means microgram per cubic metre referenced to a temperature of 0 degrees Celsius and an absolute pressure of 101.325 kilopascals.

### **3 Application**

Participating jurisdictions must:

- (a) for carbon monoxide, nitrogen dioxide, photochemical oxidants (as ozone), sulfur dioxide, lead, particles as  $\text{PM}_{2.5}$  and particles as  $\text{PM}_{10}$ , establish monitoring procedures and commence assessment and reporting in accordance with the Protocol in this Measure.

**Section 4**

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**Part 2 National environment protection goal****4 Purpose of Part**

The purpose of this Part is to set out a goal:

- (a) that relates to the desired environmental outcomes; and
- (b) that guides the formulation of strategies for the management of human activities that may affect the environment.

**5 Desired environmental outcome**

The desired environmental outcome of this Measure is ambient air quality that allows for the adequate protection of human health and well-being.

**6 National environment protection goal**

The National Environment Protection Goal of this Measure is:

- (a) for carbon monoxide, nitrogen dioxide, photochemical oxidants (as ozone), sulfur dioxide and lead to achieve the National Environment Protection Standards as assessed in accordance with the monitoring protocol (Part 4) to the extent specified in Schedule 2 column 5; and
- (b) for particles as PM<sub>2.5</sub> and particles as PM<sub>10</sub> to achieve the National Environment Protection Standards as assessed in accordance with the monitoring protocol (Part 4) within 0-10<sup>(a)</sup> years from commencement of variation to the extent specified in Schedule 2 column 5.

<sup>(a)</sup> pending outcomes of consultation. More stringent standards will require longer lead time.

## Part 3                      National environment protection standards

### 7                      Purpose of Part

The purpose of this Part is to set standards that consist of quantifiable characteristics of the air against which ambient air quality can be assessed.

### 8                      National environment protection standards

- (1) The national environment protection standards of this Measure are the standards set out in Schedule 2.
- (2) For each pollutant mentioned in table 1 of Schedule 2, the standard for an averaging period mentioned in the Schedule is the concentration in column 4 of table 1 of Schedule 2.

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**Section 9**

## **Part 4 National environment protection protocol**

### **9 Purpose of Part**

The purpose of this Part is to set out the processes to be followed in measuring the concentration of pollutants in the air to determine:

- (a) whether the standards of this Measure are being met; or
- (b) the extent of the difference between the measured concentration of pollutants in the air and the standards.

### **10 Monitoring plans**

- (1) Each participating jurisdiction must ensure that a monitoring plan consistent with this Part is prepared setting out how the jurisdiction proposes to monitor air quality for the purposes of this Measure.
- (2) Each monitoring plan must be submitted to Council.

### **11 Methods of measuring and assessing concentration of pollutants**

For the purpose of evaluating performance against the standards the concentration of pollutants in the air:

- (a) is to be measured at performance monitoring stations; or

Note Because the concentrations of different pollutants vary across a region, it would not be necessary or appropriate to co-locate the measuring instrumentation for all pollutants at each performance monitoring station.

- (b) is to be assessed by other means that provide information equivalent to measurements which would otherwise occur at a performance monitoring station.

Note These methods could include, for example, the use of emission inventories, windfield and airshed modelling, and comparisons with other regions.

### **12 Accreditation of performance monitoring**

- (1) Subject to subclause (2) the operator of a performance monitoring station shall be accredited by the National Association of Testing Authorities, (NATA).
- (2) The operator may apply an equivalent system for ensuring adequate monitoring, quality assurance, and validation procedures.

### **13 Location of performance monitoring stations**

- (1) To the extent practicable, performance monitoring stations should be sited in accordance with the requirements for Australian Standard AS/NZS 3580.1.1:2007 (Methods for sampling and analysis of ambient air – Guide



**Clause 16**

to siting air monitoring equipment) Any variations from AS/NZS 3580.1.1:2007 must be notified to Council for use in assessing reports.

- (2) Performance monitoring station(s) must be located in a manner such that they contribute to obtaining a representative measure of the air quality likely to be experienced by the general population in the region or sub-region.
- (3) A performance monitoring station should be operated in the same location for at least 5 years unless the integrity of the measurements is affected by unforeseen circumstances.

**14 Number of performance monitoring stations**

- (1) Subject to subclauses (2) and (3) below, the number of performance monitoring stations for a region with a population of 25,000 people or more should be the next whole number above the number calculated in accordance with the formula:

$$1.5P + 0.5$$

where *P* is the population of the region (in millions).

- (2) Additional performance monitoring stations may be needed where pollutant levels are influenced by local characteristics such as topography, weather or emission sources.
- (3) Fewer performance monitoring stations may be needed where it can be demonstrated that pollutant levels are reasonably expected to be consistently lower than the standards mentioned in this Measure.

**15 Trend stations**

- (1) A number of performance monitoring stations in each participating State and participating Territory shall be nominated as trend stations.
- (2) The number of performance monitoring stations to be nominated as trend stations shall be sufficient to monitor and assess long term changes in ambient air quality in different parts of the jurisdiction.
- (3) A trend station shall be operated in the same location for one or more decades.

**16 Monitoring methods**

- (1) Subject to subclauses (2) and (3) the Australian Standard Methods set out in Schedule 3 should be used for monitoring pollutants in the air.
- (2) Where an Australian Standard Method has not yet been developed for a monitoring method, appropriate internationally recognised methods or standards may be used that provide equivalent information for assessment purposes.
- (3) Other monitoring methods may be used if:

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**Section 17**

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- (a) calibration and validation studies show:
  - (i) the accuracy and precision of the other method; and
  - (ii) the method can be compared with the relevant Australian Standard Method; and
- (b) the equipment used is calibrated to the standard required by the equipment manufacturer; and
- (c) the equipment provides equivalent information for assessment purposes.

**17 Evaluation of performance against standards and goal**

- (1) Each participating jurisdiction must evaluate its annual performance as set out in this clause.
- (2) For each performance monitoring station in the jurisdiction or assessment in accordance with subclause 11 (b) there must be:
  - (a) a determination of the exposed population in the region or sub-region represented by the station; and
  - (b) an evaluation of performance against the standards and goal of this Measure as:
    - (i) meeting; or
    - (ii) not meeting; or
    - (iii) not demonstrated.
- (3) Jurisdictions must evaluate and report population weighted exposure to particles as PM<sub>2.5</sub> for regions with populations greater than 1 million people.
- (4) Jurisdictions may provide an evaluation of a region as a whole against the standards using appropriate methodologies that provide equivalent information for assessment purposes.
- (5) Performance must be evaluated as 'not demonstrated' if there has been no monitoring or no assessment by an approved alternative method as provided in clause (11).

**18 Reporting**

- (1) Each participating jurisdiction must submit a report on its compliance with the Measure in an approved form to Council by the 30 June next following each reporting year.
- (2) In this clause *reporting year* means a year ending on 31 December.

The report must include:

- (a) the evaluations and assessments mentioned in clause 17; and
- (b) an analysis of the extent to which the standards of this Measure are, or are not, met in the jurisdiction; and
- (c) a statement of the progress made towards achieving the goal.

**Clause 18**

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- (3) The description of the circumstances which led to exceedences, including the influence of natural events and fire management, must be reported to the extent that such information can be determined.
- (4) A report for a pollutant must include the percentage of data available in the reporting period.

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## **Schedule 1      Pollutants**

Carbon monoxide

Sulfur dioxide

Nitrogen dioxide

Lead

Photochemical Oxidants (as Ozone)

Particles

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## Schedule 2 Standards and Goal

**Table 1: Standards and Goal for Pollutants other than Particles as PM<sub>2.5</sub>**

Column 1 Item	Column 2 Pollutant	Column 3 Averaging period	Column 4 Maximum concentration	Column 5 Goal within 10 years Maximum allowable exceedences
1	Carbon monoxide	8 hours	9.0 ppm	1 day a year
2	Nitrogen dioxide	1 hour 1 year	0.12 ppm 0.03 ppm	1 day a year none
3	Photochemical oxidants (as ozone)	1 hour 4 hours	0.10 ppm 0.08 ppm	1 day a year 1 day a year
4	Sulfur dioxide	1 hour 1 day 1 year	0.20 ppm 0.08 ppm 0.02 ppm	1 day a year 1 day a year none
5	Lead	1 year	0.50 µg/m <sup>3</sup>	none
6	Particles as PM <sub>10</sub>	1 day 1 year	40-50 µg/m <sup>3</sup> (a) 20 µg/m <sup>3</sup> (b)	5 days a year (c) none
7	Particles as PM <sub>2.5</sub>	1 day 1 year	25 µg/m <sup>3</sup> 8 µg/m <sup>3</sup>	5 days a year (c) none

(a) Subject to the outcomes of consultation. Numerical values being considered are in the range of 40-50 µg/m<sup>3</sup>.

(b) Introduction of an annual PM<sub>10</sub> standard and the numerical value of such a standard is subject to the outcomes of consultation.

(c) The form of the standards is subject to the outcomes of consultation.

For the purposes of this Measure the following definitions shall apply:

- (1) Lead sampling must be carried out for a period of 24 hours at least every sixth day.
- (2) Measurement of lead must be carried out on Total Suspended Particles (TSP) or its equivalent.
- (3) In Column 3, the averaging periods are defined as follows:
  - 1 hour clock hour average
  - 4 hour rolling 4 hour average based on 1 hour averages
  - 8 hour rolling 8 hour average based on 1 hour averages
  - 1 day calendar day average
  - 1 year calendar year average

- (4) In Column 5, the time periods are defined as follows:
- day      calendar day during which the associated standard is exceeded
  - year     calendar year.
- (5) All averaging periods of 8 hours or less must be referenced by the end time of the averaging period. This determines the calendar day to which the averaging periods are assigned.
- (6) For the purposes of calculating and reporting 4 and 8 hour averages, the first rolling average in a calendar day ends at 1.00 am, and includes hours from the previous calendar day.
- (7) The concentrations in Column 4, are the arithmetic mean concentrations.

## Schedule 3 Australian Standards Methods for Pollutant Monitoring

Pollutant	Method title	Method number
Carbon monoxide	Determination of Carbon Monoxide-Direct Reading Instrumental Method	AS/NZS 3580.7.1-2011/Amdt 1-2012
Nitrogen dioxide	Determination of Oxides of Nitrogen-Chemiluminescence Method	AS/NZS 3580.5.1-2011
Photochemical oxidants (as ozone)	Determination of Ozone-Direct Reading Instrumental Method	AS/NZS 3580.6.1-2011
Sulfur dioxide	Determination of Sulfur Dioxide-Direct Reading Instrumental Method	AS/NZS 3580.4.1-2008
Lead	Determination of Particulate Lead-High Volume Sampler Gravimetric Collection-Flame Atomic Absorption Spectrometric Method  Determination of Total Suspended Particulates (TSP) - High Volume Sampler Gravimetric Method	AS2800-1985  AS/NZS 3580.9.3:2003
Particles as PM <sub>10</sub>	Determination of Suspended Particulate Matter-PM <sub>10</sub> High Volume Sampler with Size Selective Inlet-Gravimetric Method  Determination of Suspended Particulate Matter-Dichotomous sampler (PM <sub>10</sub> , coarse PM and PM <sub>2.5</sub> ) – Gravimetric method  Determination of Suspended Particulate Matter-PM <sub>10</sub> continuous direct mass method using tapered element oscillating microbalance analyser.  Determination of Suspended Particulate Matter-PM <sub>10</sub> Low Volume Sampler-Gravimetric Method  Determination of Suspended Particulate Matter-PM <sub>10</sub> low volume sampler-Gravimetric method  Determination of Suspended Particulate Matter-PM <sub>10</sub> beta attenuation monitors	AS/NZS 3580.9.6:2003AS/NZS 3580.9.7:2009  AS/NZS 358-.9.8-2008  AS/NZS 3580.9.9:2006  AS/NZS 3580.9.9:2006  AS/NZS 3580.9.11:2008/Amdt 1 :2009
Particles as PM <sub>2.5</sub>	Determination of Suspended Particulate Matter-PM <sub>2.5</sub> low volume sampler-Gravimetric Method	AS/NZS 3580.9.10:2008

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	Determination of Suspended Particulate Matter- PM <sub>2.5</sub> beta attenuation monitors	AS/NZS 3580.9.12:2013
	Determination of Suspended Particulate Matter- PM <sub>2.5</sub> continuous direct mass method using a tapered element oscillating microbalance monitor	AS/NZS 3580.9.13:2013
	Determination of Suspended Particulate Matter- PM <sub>2.5</sub> high volume sampler with size selective inlet – Gravimetric Method	AS/NZS 3580.9.14:2013

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**Table of Instruments (to be updated following variation)****Notes to the National Environment Protection  
(Ambient Air Quality) Measure****Note 1**

The National Environment Protection (Ambient Air Quality) Measure (in force under section 20 of the *National Environment Protection Council Act 1994* (Cwlth), *National Environment Protection Council (New South Wales) Act 1995* (NSW), *National Environment Protection Council (Victoria) Act 1995* (Vic), *National Environment Protection Council (Queensland) Act 1994* (Qld), *National Environment Protection Council (Western Australia) Act 1996* (WA), *National Environment Protection Council (South Australia) Act 1995* (SA), *National Environment Protection Council (Tasmania) Act 1995* (Tas), *National Environment Protection Council Act 1994* (ACT) and the *National Environment Protection Council (Northern Territory) Act 1994* (NT)) as shown in this compilation is amended as indicated in the Tables below.

**Table of Instruments (to be updated following variation)**

<b>Title</b>	<b>Date of notification in Gazette</b>	<b>Date of commencement</b>	<b>Application, saving or transitional provisions</b>
<i>National Environment Protection (Ambient Air Quality) Measure</i>	8 July 1998 (see c. 1 and Gazette 1998, No. GN27)	8 July 1998	
<i>National Environment Protection (Ambient Air Quality) Measure Variation, 2003</i>	2 June 2003 (see c. 1 and Gazette 2003, No. S190)	2 June 2003	—

**Table of Amendments (to be updated following variation)**

**Table of Amendments (to be updated following variation)**

ad. = added or inserted    am. = amended    rep. = repealed    rs. = repealed and substituted

<b>Provision affected</b>	<b>How affected</b>
C. 2 .....	am. Variation 2003
C. 3 .....	am. Variation 2003
C. 6 .....	am. Variation 2003
C. 8 .....	am. Variation 2003
Schedule 2 .....	am. Variation 2003
Schedule 4 .....	ad. Variation 2003
Schedule 5 .....	ad. Variation 2003
<b>C. 1</b>	<b>am. Variation 2014</b>
<b>C. 2</b>	<b>am. Variation 2014</b>
<b>C. 3</b>	<b>am. Variation 2014</b>
<b>C. 6</b>	<b>am. Variation 2014</b>
<b>C. 8</b>	<b>am. Variation 2014</b>
<b>C. 11</b>	<b>am. Variation 2014</b>
<b>C. 12</b>	<b>am. Variation 2014</b>
<b>C. 13</b>	<b>am. Variation 2014</b>
<b>C. 14</b>	<b>am. Variation 2014</b>
<b>C. 15</b>	<b>am. Variation 2014</b>
<b>C.17</b>	<b>am. Variation 2014</b>
<b>Schedule 2</b>	<b>am. Variation 2014</b>
<b>Schedule 3</b>	<b>am. Variation 2014</b>
<b>Schedule 4</b>	<b>rep. Variation 2014</b>
<b>Schedule 5</b>	<b>rep. Variation 2014</b>