

THE

AUSTRALIAN CAPITAL TERRITORY
2002 AMBIENT AIR QUALITY REPORT

AGAINST THE

NATIONAL ENVIRONMENT PROTECTION MEASURE
FOR AMBIENT AIR QUALITY

JUNE 2003

Section A - Monitoring Summary

This 2002 Ambient Air Quality National Environment Protection Measure (NEPM) annual report has been prepared with reference to the Peer Review Committee's (PRC) *Technical Paper No. 8 – Annual Reports* (October 2002).

At the start of 2002, in accordance with its approved monitoring plan, the ACT was monitoring carbon monoxide, nitrogen dioxide, ozone, particulate matter less than 10 microns (PM₁₀) and lead.

In July 2002 Health Protection Services (HPS), who operate the ACT Government monitoring network, ceased lead monitoring. This decision is based on the fact that ambient air lead levels are now significantly lower than the national standard and with the phase out on leaded petrol on 1 January 2002 there is now no significant source of air borne lead.

The ACT contains one region, namely Canberra, as defined by the NEPM and based on a population of 311,000 requires only one performance monitoring station (PMS).

In regions, such as Canberra, where only a single performance monitoring station is required the PRC recommends that such a station be located to be generally representative of upper bound (GRUB) pollutants concentrations.

By using GRUB stations to monitor the ambient air across a region we can be reasonably sure that, if the NEPM Standards are met at those sites, then in theory most of the total population of the region will be exposed to air at or below these pollution levels. In this way the desired environmental outcome of the NEPM of adequate protection of human health and well-being should be assured.

The maximums measured at the existing station in the residential suburb of Monash are at the upper bound of levels historically recorded in Canberra. Under the ACT's approved monitoring plan it has been designated as our PMS. Monash is located in southern Canberra and sits centrally in the Tuggeranong Valley. The station is located approximately 250 metres north of Isabella Drive and 150 metres west of Cockcroft Avenue on vacant land.

The Monash station has been operational since 1996 and is sited in accordance with AS2922-1987 (Ambient Air - Guide for Siting of Sampling Sites). It is intended that this remain a permanent monitoring and trend site for the ACT.

HPS are committed to maintaining appropriate management systems to ensure adequate monitoring, quality assurance and validation procedures. In March 2002 it received NATA accreditation for its monitoring operations.

Section B - Assessment of Compliance with Goal And Standards

Annual compliance summary for 8-hour carbon monoxide

NEPM standard - 9.0 ppm

Region/ Performance monitoring station	Data availability rates (% of hours)					Number of exceedences (days)	Performance against the standards and goal
	Q1	Q2	Q3	Q4	Annual		
<u>Canberra</u>							
Monash	95.6	93.9	89.8	88.8	92	0	met

Annual compliance summary for 1-hour and 1-year nitrogen dioxide

NEPM standard - 1hour 0.12 ppm, 1year 0.03 ppm

Region/ Performance monitoring station	Data availability rates (% of hours)					Annual mean Concentration (ppm)	Number of 1-hour exceedences (days)	Performance against the standards and goal	
	Q1	Q2	Q3	Q4	Annual			1- hour	1- year
<u>Canberra</u>									
Monash	91.2	75.4	92	94.5	88.3	0.02	0	met	met

Annual compliance summary for 1-hour and 4-hour ozone

NEPM standard - 1-hour 0.10 ppm , 4- hour 0.08 ppm

Region/ Performance monitoring station	Data availability rates (% of hours)					Number of exceedences (days)		Performance against the standards and goal	
	Q1	Q2	Q3	Q4	Annual	1-hour	4-hour	1-hour	4-hour
<u>Canberra</u>									
Monash	94.4	93.1	91.7	94.9	93.5	0	0	met	met

Annual compliance summary for 24-hour PM₁₀NEPM standard 50 µg/m³

Region/ Performance monitoring station	Data availability rates (% of days)					Number of exceedences (days)	Performance against the standards and goal
	Q1	Q2	Q3	Q4	Annual		
<u>Canberra</u>							
Monash	32. 2	93. 4	87. 0	60. 9	68.4	5	not demonstrated*

* ND due to insufficient data in Q1 & Q4. Continuous monitoring using a Tapered Element Oscillating Microbalance only commenced on 14 March. Prior to this monitoring was undertaken on a 1 in 6 day cycle using a Hi-Vol sampler.

Annual compliance summary for 1-year LeadNEPM standard 0.50 µg/m³

Region/ Performance monitoring station	Data availability rates (% of days)					Annual mean Concentration (µg/m ³)	Performance against the standards and goal
	Q1	Q2	Q3	Q4	Annual		
<u>Canberra</u>							
Monash	85. 7	100	6.7	0	64.1	0.01*	met*

* This is based on measurements up until monitoring ceased in early July.

Section C - Analysis Of Air Quality Monitoring

The ACT is making steady progress towards achieving the goal of the NEPM, which is to achieve the standards by June 2008. The tables below show that, with the exception of PM₁₀, all parameters are below NEPM standards.

Canberra's PM₁₀ problem is primarily due to emission from domestic wood heaters used during winter for home heating. The ACT Government acknowledges this problem and is working towards addressing the issue in an informed and measured manner to ensure a satisfactory outcome for all Canberrans.

Annual summary statistics for daily peak 8-hour carbon monoxide

NEPM standard 9.0 ppm

Region/ Performance monitoring station	Number of days	Highest (ppm)	Highest (date/ time)	2 nd Highest (ppm)	2 nd Highest (date/ time)
<u>Canberra</u>					
<u>Monash</u>	345	4.33	25 June:02	4.20	6 June:02

Annual summary statistics for daily peak 1-hour nitrogen dioxide

NEPM standard 0.12 ppm

Region/ Performance monitoring station	Data recovery rates (% days)	Highest (ppm)	Highest (date/ time)	2 nd Highest (ppm)	2 nd Highest (date/ time)
<u>Canberra</u>					
<u>Monash</u>	334	0.045	12 Nov:20	0.043	3 Oct:19

Annual summary statistics for daily peak 1-hour ozone

NEPM standard 0.10 ppm

Region/ Performance monitoring station	Data recovery rates (% days)	Highest (ppm)	Highest (date/ time)	2 nd Highest (ppm)	2 nd Highest (date/ time)
<u>Canberra</u>					
<u>Monash</u>	358	0.063	19 Nov:11	0.061	17 Dec:3

Annual summary statistics for daily peak 4-hour ozone

NEPM standard 0.08 ppm

Region/ Performance monitoring station	Data recovery rates (% days)	Highest (ppm)	Highest (date/ time)	2 nd Highest (ppm)	2 nd Highest (date/ time)
<u>Canberra</u>					
<u>Monash</u>	357	0.058	17 Dec:15	0.054	19 Nov:13

Annual summary statistics for 24-hour PM₁₀NEPM standard 50 ? g/m³

Region/ Performance monitoring station	Data recovery rates (% days)	Highest (? g/m ³)	Highest (date/ time)	6 th Highest (? g/m ³)	6 th Highest (date/ time)
<u>Canberra</u>					
<u>Monash</u>	250	108.4	26/11	48.4	16/12

Only two exceedences occurred during the traditional wood heater season, May to September, which is low by Canberra standards. The other exceedences (17 October, 26 November & 4 December) were due to dust storms coming from western NSW as a result of the drought. The generally higher levels in December were also due to smoke from bushfires in the Shoalhaven reaching Canberra.

Percentiles of daily peak pollutant concentration for Monash 2001

Pollutant	Data recovery rates (%)	Max conc. (ppm)	99 th percentile (ppm)	98 th percentile (ppm)	95 th percentile (ppm)	90 th percentile (ppm)	75 th percentile (ppm)	50 th percentile (ppm)
CO 8 hr	92	4.33	3.66	3.43	2.88	2.27	1.2	0.35
NO2 1hr	88.3	0.045	0.036	0.034	0.031	0.026	0.022	0.017
Ozone	93.5	0.063	0.055	0.052	0.047	0.042	0.032	0.024
1hr	93.5	0.058	0.051	0.049	0.044	0.039	0.031	0.023
Ozone	75	108.4	56.6	48.5	42.4	37.7	25.3	16.2
4hr								
PM10								