THE

AUSTRALIAN CAPITAL TERRITORY
2003 AMBIENT AIR QUALITY REPORT

AGAINST THE

AMBIENT AIR QUALITY
NATIONAL ENVIRONMENT PROTECTION MEASURE

JUNE 2004

Section A - Monitoring Summary

This 2003 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).

This report covers four of the six criteria pollutants, namely carbon monoxide, nitrogen dioxide, ozone and particulate matter less than 10 microns (PM_{10}).

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 have been consistently recorded as being significantly lower then the national standard. The ACT does not monitored sulfur dioxide due to a lack of industry.

The ACT contains one region, namely Canberra, as defined by the NEPM and based on a population of 322,492[1] 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 would be exposed to air at or below these pollution levels. In this way the NEPM's desired environmental outcome 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 NEPM 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.

During this reporting period the ACT Government purchased and installed an instrument to monitor $PM_{2.5}$. Data from this instrument will be included in the 2004 Annual Report.

The ACT Government monitoring network is NATA accredited.

[1] Source Australian Bureau of Statistics, Publication number 3218.0 Regional Population Growth, Friday 22 March 2004

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		
Canberra Monash	93.0	64.5	94.2	95.6	86.8	0	Not demonstrated*

* ND - due to lack of data for the period 24/4 to 12/5 in Q2.

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
Canberra Monash	91.8	86.9	89.0	94.1	90.4	0.01	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
Canberra Monash	91.6	88.1	94.2	95.7	92.4	1	1	Met	Met

Annual compliance summary for 24-hour PM_{10}

NEPM standard 50 $\mu g/m^3$

Region/ Performance monitoring station	Data availability rates (% of days)					Number of exceedences (days)	Performance against the standards and goal
	Q1	Q2	Q3	Q4	Annual		
Canberra Monash	93.3	97.8	98.9	100	97.5	13	Not met*

*NM: see following explanation in Section C – Analysis of Air Quality Monitoring

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 PM_{10}, all parameters met the NEPM goal.

Traditionally Canberra's PM_{10} exceedences are due to emission from domestic wood heaters. However, during January this year the ACT, as did other jurisdictions, experienced extreme bushfire activity. All but two of the exceedences recorded were due to bushfire activity. The other two exceedences, including the highest PM_{10} reading were due to severe dust storms as a result of the ongoing drought conditions in western NSW. The 1 and 4 hour ozone exceedences were due to the wildfire conditions experienced on 18 January.

In relation to wood heaters, it is the first winter on record that no exceedences of the standard have been recorded. It is expected that with the introduction of the Government's Wood Heater Replacement Program this trend will continue.

Annual summary statistics for daily peak 8-hour carbon monoxide
NEPM standard 9.0 ppm

Region/ Performance monitoring station	Data recovery rates (% days)	Highest (ppm)	Highest (date/ time)	2nd Highest (ppm)	2nd Highest (date/ time)
Canberra Monash	337	3.7	11July:03	3.6	21 June:03

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)	2nd Highest (ppm)	2nd Highest (date/ time)
Canberra Monash	345	0.064	18 Jan:17	0.054	20 Jan :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)	2nd Highest (ppm)	2nd Highest (date/ time)
Canberra Monash	350	0.102	18 Jan:17	0.092	21 Jan:12

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)	2nd Highest (ppm)	2nd Highest (date/ time)
Canberra					
Monash	350	0.082	21 Jan:14	0.078	25 Jan:17

Annual summary statistics for 24-hour PM_{10}
NEPM standard 50 $\mu g/m^3$

Region/ Performance monitoring station	Data recovery rates (% days)	Highest ($\mu g/m^3$)	Highest (date)	6th Highest ($\mu g/m^3$)	6th Highest (date)
Canberra					
Monash	356	350.4	20 March	123.7	21 Jan

Percentiles of daily peak pollutant concentration for Monash 2003

Pollutant	Data recovery rates (%)	Max conc. (ppm)	99th percen tile (ppm)	98th percen tile (ppm)	95th percen tile (ppm)	90th percen tile (ppm)	75th percen tile (ppm)	50th percen tile (ppm)
CO 8 hr	**86.8**	**3.7**	**3.0**	**2.8**	**2.5**	**2.0**	**0.8**	**0.3**
NO2 1hr	**90.4**	**0.064**	**0.042**	**0.033**	**0.028**	**0.025**	**0.021**	**0.016**
Ozone 1hr	**92.4**	**0.102**	**0.069**	**0.061**	**0.050**	**0.045**	**0.035**	**0.026**
Ozone 4hr	**92.4**	**0.082**	**0.063**	**0.058**	**0.048**	**0.043**	**0.033**	**0.025**
PM10	**97.5**	**350.4**	**136.4**	**105.3**	**39.6**	**30.3**	**21.2**	**14.6**