Air Monitoring Report for South Australia 2008

Compliance with the National Environment Protection (Ambient Air Quality) Measure

June 2009

Air Monitoring Report for South Australia 2008:
Compliance with the National Environment Protection (Ambient Air Quality) Measure, June 2009

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SECTION A – MONITORING SUMMARY

Air quality in South Australia is monitored in accordance with a monitoring plan developed under the National Environment Protection (Ambient Air Quality) Measure (AAQ NEPM) (NEPC, 1998). This report assesses compliance with this measure.

South Australia's monitoring results for 2008 indicated that:

- Where sufficient data were available to compare with the goals set by the AAQ NEPM (to be achieved by 2008), the goal of AAQ NEPM was met for all pollutants, except for 1-hour sulfur dioxide, 24-hour PM_{10} particles at Port Pirie and 24-hour PM_{10} particles at Whyalla.
- Exceedances of the PM_{10} standard were recorded on numerous occasions throughout the state. The majority occurred on hot dry days, accompanied by Northerly winds. Bushfires occurring both within SA and interstate also contributed to the total particle levels.
- In Port Pirie, exceedances of the 1-hour SO_2 standard were recorded twenty eight times and exceedances of the 24-hour PM_{10} standard were recorded on seventeen occasions.
- Consistently high data capture rates were achieved in most cases, except where instrument malfunction occurred or sites were decommissioned during the 2008 reporting year.
- During 2008 monitoring was concluded at:
    - Netley ($PM_{2.5}$ Partisol monitoring)
- Development of monitoring stations continues in order to meet the monitoring requirements specified in the plan. The stations yet to be developed include:
    - Grenfell St Adelaide as a replacement for the now closed Tandanya station
    - North east Adelaide (PM_{10} and SO_2)
    - Southern wineries (O_3, NO_2, PM_{10}, SO_2)
    - Barossa / Angaston (O_3, NO_2, PM_{10}, SO_2)
    - Riverland (O_3, NO_2, PM_{10}, SO_2)

NOTE: There has been some delay in the planned installation of the above sites. This is due to diversion of resources to meet State monitoring needs, requiring alternate use of resources and of TEOM monitoring units otherwise planned for north eastern Adelaide. It is possible initial assessment of these sites will be through modelling.

Current performance monitoring stations

The AAQ NEPM requires the assessment of carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), lead (Pb) and particles less than 10 micrometres effectrive aerodynamic diameter (PM_{10}) (NEPC, 1998). In 2003, the AAQ NEPM was varied to include monitoring of particles less than 2.5 micrometres effective aerodynamic diameter ($PM_{2.5}$).

South Australia's AAQ NEPM air monitoring plan was approved by the NEPC in 2001. Data presented in this report have been produced in accordance with the plan (SA EPA, 2001), which details the stations where air pollutants are measured. Five regions have been identified in the monitoring plan: Adelaide, Spencer, Mount Gambier, Riverland and Barossa. Monitoring is currently being undertaken within the Adelaide and Spencer airsheds.

Performance monitoring stations (PMS) are designated as either trend or campaign stations to indicate the intended duration of monitoring. Trend stations are chosen to monitor pollutant levels over an extended period. Campaign sites are chosen as part of a screening program and may only operate for a short period if the pollutant levels do not warrant ongoing measurement. Figures 1 and 2 below show current monitoring stations and population density within the Adelaide and Spencer regions. The monitoring stations within the Adelaide region represent an exposed population of 1,020,675 based on census collection districts. Monitoring within the townships of Pt Pirie and Whyalla represent an exposed population of 34,324 based on census collection districts (ABS, 2009).

Additions to the monitoring network

The EPA has made no additions to the NEPM monitoring network in 2008.

Table 1 below describes the station type, pollutants monitored, methods used and locations of stations where data were collected for the 2008 reporting year. Table 2 describes a summary of exposure at the monitoring stations. Table 3 describes compliance of stations with siting criteria not covered in the monitoring plan.

NATA status

The South Australian Environment Protection Authority operates all monitoring stations described in this report. The EPA obtained NATA accreditation of its monitoring network and laboratory in February of 2006 (accreditation number 15220).

Table 1 Summary of South Australian current performance monitoring stations

Performance monitoring station	Region (site type)	AAQ NEPM pollutants and method of measurement						
		CO AS3580.7.1 - 1992	NO_2 AS3580.5.1 - 1993	O_3 AS3580.6.1 - 1990	SO_2 AS3580.4.1 - 1990	Pb AS2724.3 -1984 AS2800 - 1985	PM_{10} AS3580.9.8 - 2001	$PM_{2.5}$ AS3580.9.8 - 2001 DR 04060
Adelaide								
ELI01 - Elizabeth Downs	Adelaide (Trend)		×	×			×	
NOR01 - Northfield	Adelaide (Trend)		×	×	×			
NET01 - Netley	Adelaide (Trend)		×	×			×	×
KEN01 - Kensington Gardens	Adelaide (Trend)		×	×			×	
CHD01 - Christie Downs	Adelaide (Campaign)		×	×			×	
Spencer								
PTP01 - Pt Pirie Oliver Street	Spencer (Campaign)				×	×	×	
PTP05 - Pt Pirie Frank Green Park	Spencer (Trend)					×		
WHY07 - Whyalla Schulz Park	Spencer (Trend)						×	

Table 2 Summary of Exposure at South Australian Performance Monitoring Stations

Performance monitoring station	**Region** **(site type / exposed population)**
Adelaide	
ELI01 - Elizabeth Downs Heard St. Elizabeth Downs	Trend station in a largely residential area within the Northern Adelaide airshed
NOR01 - Northfield Folland Ave. Hampstead	Trend station in a largely residential area within the Central Adelaide airshed
NET01 - Netley Transport Ave. Netley	Trend station in a largely residential area within the Central Western Adelaide airshed
KEN01 - Kensington Gardens East Tce. Kensington	Trend station in a largely residential area within the Central Eastern Adelaide airshed
CHD01 - Christie Downs Sabina Cres. Christie Downs	Campaign station in a largely residential area within the Southern Adelaide airshed
Spencer	
PTP01 - Pt Pirie, Oliver Street Oliver St. Port Pirie	Campaign station in a largely residential area within an industrial township in the Spencer airshed
PTP05 - Pt Pirie, Frank Green Park Senate Rd. Port Pirie	Trend station in a largely residential area within an industrial township in the Spencer airshed
WHY07 - Whyalla, Schulz Park McLennan Ave. Whyalla Norrie	Trend station in a largely residential area within an industrial township in the Spencer airshed

Table 3 Compliance with AS 2922-1987 for stations not covered in the monitoring plan

Region **Site Name**	**Height Above Ground**	**Min. Distance to Support Structure**	**Clear Sky Angle of 120^{O}**	**Unrestricted Airflow 270/360**	**20m From Trees**	**No Boiler or Incinerators Nearby**	**Min Distance from Road or Traffic**	**Comments**
Adelaide								
CHD01 - Christie Downs	✔	✔	✔	✔	✔	✘	✔	
Spencer								
WHY07 - Whyalla Schulz Park	✔	✔	✔	✔	✔	✔	✔	This site was originally WHY05 - Civic Park and was moved to comply with the standard. The HVS method was replaced with TEOM

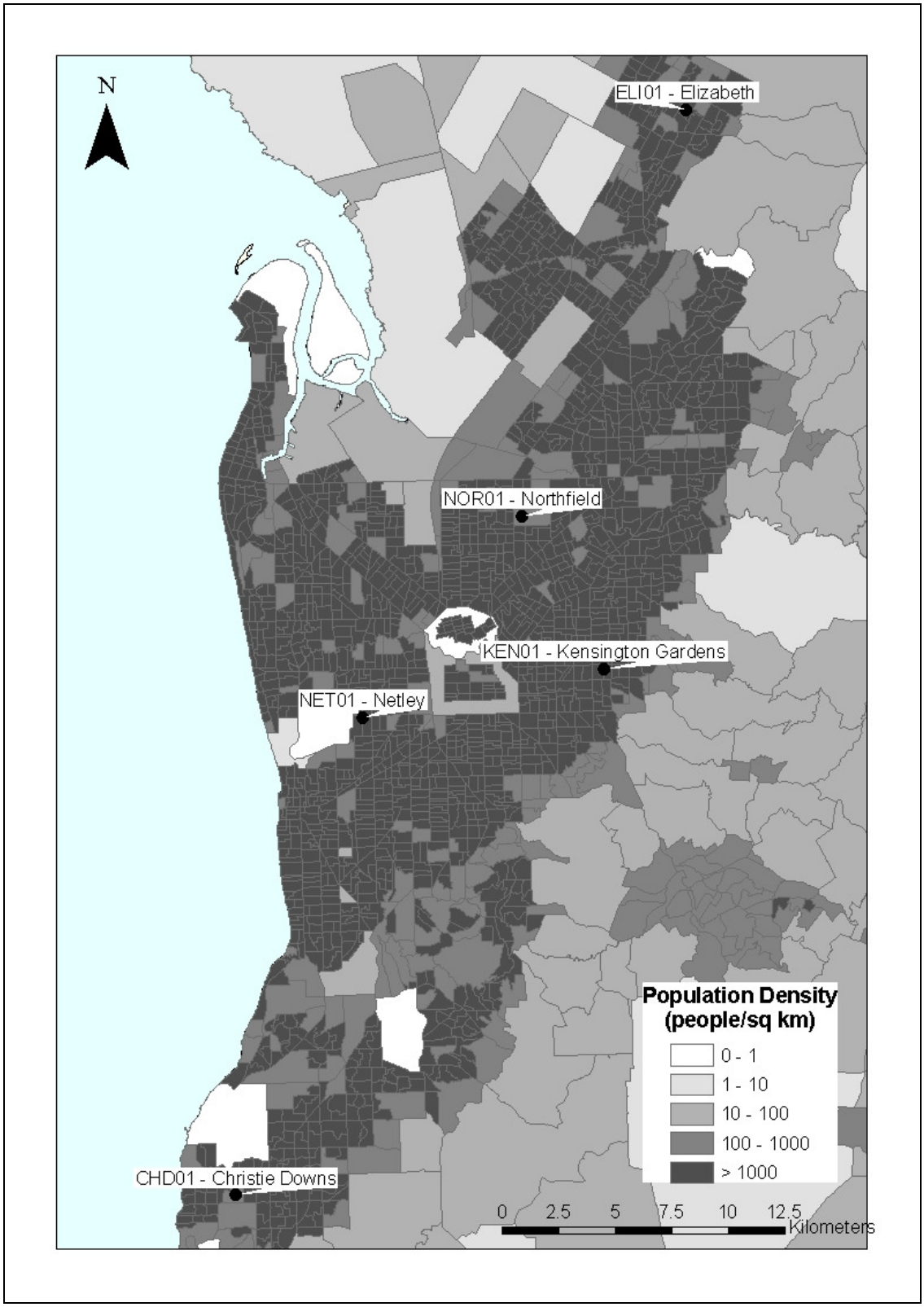

Figure 1 Adelaide region and population density based on the 2006 census (Australian Bureau of Statistics 2009) with current monitoring sites.

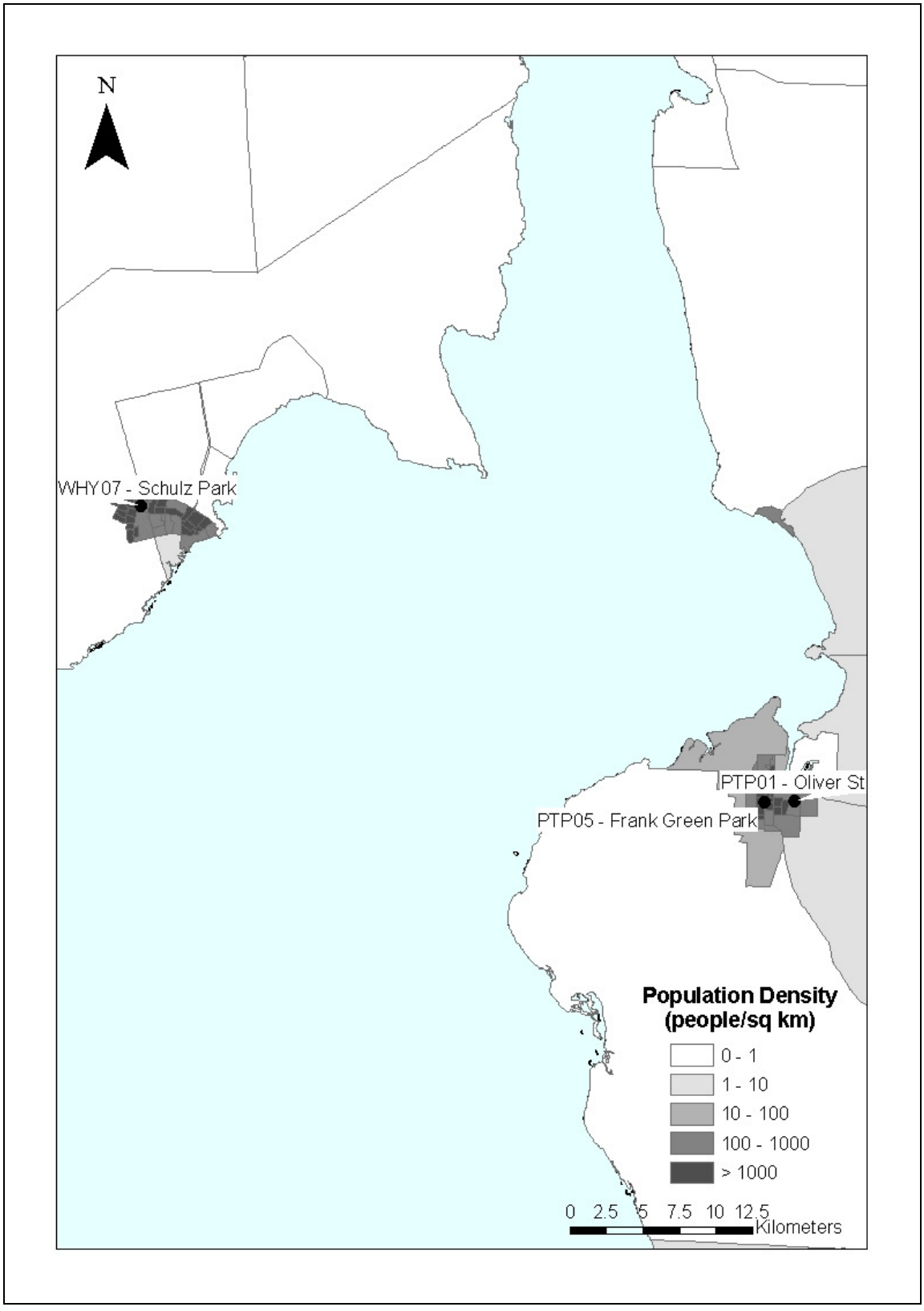

Figure 2 Spencer region and population density based on the 2006 census (Australian Bureau of Statistics 2009) with current monitoring sites.

SECTION B - ASSESSMENT OF COMPLIANCE WITH STANDARDS AND 2008 GOAL

Tables 4 to 10 provide information for compliance assessment required under the AAQ NEPM. The AAQ NEPM standards and goals are specified in Schedule 2 of the NEPM. The AAQ NEPM goal is to achieve the standards to the extent specified by 2008 (NEPC, 1998).

Performance is assessed as meeting the standards and 2008 goal if the number of exceedances of the standard is no more than the number specified in Schedule 2 of the AAQ NEPM, and data recovery was at least 75% in each quarter of the year (NEPC, 1998).

If insufficient data are collected to demonstrate that the standards and goal have or have not been met, performance is assessed as 'not demonstrated' (NEPC, 2002).

Calculations and reporting methods used, comply with requirements detailed in the NEPC Peer Review Committee, Technical Paper No 8: Annual Reports (NEPC, 2002).

PM_{10} data reported as 'TEOM data' indicate data which has undergone an internal correction factor for US EPA equivalency and without subsequent treatment, as specified in Option 4 of PRC technical paper No 10 – Collection and reporting of TEOM PM_{10} Data (NEPM PRC, 2001).

Carbon monoxide

Table 4 2008 compliance summary for CO in South Australia

AAQ NEPM Standard 9.0 ppm (8-hr average)

Region	Data availability rates (% hours)					Number of exceedances (days)	Performance against the standards and goal
performance monitoring station/s	Q1	Q2	Q3	Q4	Annual		
Adelaide							
ELI01-Elizabeth Downs	100	84	100	99	96	0	Met

Nitrogen dioxide

Table 5 2008 compliance summary for NO_2 in South Australia

AAQ NEPM Standard 0.12 ppm (1-hour average), 0.03 ppm (1-year average)

Region performance monitoring station/s	Data availability rates (% of hours)					Number of exceedances (days)	Annual mean (ppm)	Performance against the standards and goal	
	Q1	Q2	Q3	Q4	Annual			1-hour	1-year
Adelaide									
ELI01 - Elizabeth Downs	98	97	82	96	93	0	0.004	Met	Met
NOR01 - Northfield	96	97	98	98	97	0	0.006	Met	Met
NET01 - Netley	97	97	97	98	97	0	0.008	Met	Met
KEN01 - Kensington Gardens	86	97	97	98	95	0	0.004	Met	Met
CHD01 - Christie Downs	96	92	95	96	95	0	0.005	Met	Met

Ozone

Table 6 2008 compliance summary for O_3 in South Australia

AAQ NEPM Standards 0.10 ppm (1-hr average), 0.08 ppm (4-hr average)

Region performance monitoring station/s	Data availability rates (% of hours)					Number of exceedances (days)		Performance against the standards and goal	
	Q1	Q2	Q3	Q4	Annual	1-hour	4-hour	1-hour	4-hour
Adelaide									
ELI01 - Elizabeth Downs	97	98	98	97	97	0	1	Met	Met
NOR01 - Northfield	97	97	98	98	97	0	0	Met	Met
NET01 - Netley	96	97	98	98	97	0	0	Met	Met
KEN01 - Kensington Gardens	87	97	98	98	95	0	0	Met	Met
CHD01 - Christie Downs	96	96	95	97	96	0	0	Met	Met

Sulfur dioxide

Table 7 2008 compliance summary for SO_2 in South Australia

AAQ NEPM Standards 0.20 ppm (1-hr average), 0.08 ppm (24-hr average), 0.02 ppm (1-yr average)

Region performance monitoring station/s	Data availability rates (% of hours)					Number of exceedances (days)		Annual 1-hour mean (ppm)	Performance against the standards and goal		
	Q1	Q2	Q3	Q4	Annual	1-hr	24-hrs		1-hr	24-hrs	1-yr
Adelaide											
NOR01 - Northfield	97	97	98	98	97	0	0	0.000	Met	Met	Met
Spencer											
PTP01 - Pt Pirie Oliver Street	97	98	98	98	97	28	0	0.009	Not Met	Met	Met

Particulate matter as PM_{10}

Table 8 2008 compliance summary for PM_{10} in South Australia

AAQ NEPM Standard 50 µg/m^3 (24-hr average)

Region performance monitoring station/s	Data availability rates (% of days)					Number of exceedances (days)	Performance against the standards and goal
	Q1	Q2	Q3	Q4	Annual		
Adelaide							
ELI01 - Elizabeth Downs	93	91	100	92	94	3	Met
KEN01 - Kensington Gardens	95	98	100	95	97	3	Met
NET01 - Netley	95	100	100	100	99	4	Met
CHD01 - Christie Downs	92	97	97	98	96	3	Met
Spencer							
WHY07 - Whyalla Schulz Park	96	96	100	99	98	6	Not Met
PTP01 - Pt Pirie Oliver Street	95	100	99	97	98	17	Not Met

The SA EPA uses Section 6 Option 4 (no temperature adjustment of TEOM data) of Peer Review Committee, Technical Paper No 10 Collection and Reporting of TEOM $PM1_0$ Data, May 2001 to report TEOM data. This is as volatiles are not expected to be significant.

Lead

Table 9 2008 compliance summary for Lead in South Australia

AAQ NEPM Standard 0.50 µg/m^3 (1-yr average)

Region performance monitoring station/s	Data availability rates (% of days)					Annual mean (µg/m^3)	Performance against the standards and goal
	Q1	Q2	Q3	Q4	Annual		
Spencer							
PTP05 - Pt Pirie Frank Green Park	100	100	100	100	100	0.14	Met
PTP01 - Pt Pirie Oliver Street	100	87	93	100	95	0.41	Met

Lead data is reported to ambient conditions and analyses were carried out by NATA accredited facilities at the Queensland Health Scientific Services laboratory.

Particulate matter as $PM_{2.5}$

Table 10 2008 compliance summary for $PM_{2.5}$ in South Australia

AAQ NEPM Advisory Reporting Standard 25 µg/m^3 (24-hr average), 8 µg/m^3 (1-yr average)

Region performance monitoring station/s	Data availability rates (% of days)					Annual Mean (µg/m^3)
	Q1	Q2	Q3	Q4	Annual	
Adelaide						
^NET01 - Netley	27	11	0	0	9	6.0
*NET01 - Netley	98	100	87	83	92	7.7

^Indicates monitoring by one–day-in-three partisol monitoring (Maximum data availability rate is 33%). Monitoring using the Partisol at this site was concluded on the 27th April 2008.

*Indicates monitoring by Tapered Element Oscillating Microbalance (TEOM)

The SA EPA uses Section 6 Option 4 (no temperature adjustment of TEOM data) of Peer Review Committee, Technical Paper No 10 Collection and Reporting of TEOM $PM1_0$ Data, May 2001 to report TEOM data. This is as volatiles are not expected to be significant.

SECTION C - ANALYSIS OF AIR QUALITY MONITORING

Progress Towards Achieving the AAQ NEPM 2008 Goal

As assessed against the National Environment Protection (Ambient Air Quality) Measure (NEPC, 1998), the following observations were made for 2008:

- For CO, the standard and goal was met at the Elizabeth station
- For NO_2, the standards and goals were met at all stations
- For O_3, the 4-hour rolling standard was exceeded on one occasion at the Elizabeth station. The standards and goals were met at all of the other stations.
- For SO_2 the 1-hour standard and goal was not met at Port Pirie, Oliver Street. All other stations met the standard and goal
- For PM_{10} in the Adelaide region, the standard was exceeded on three occasions at the Elizabeth station; on three occasions at the Kensington station; on three occasions at the Christie Downs station and on four occasions at the Netley station. For the Spencer region, the standard was not met on six occasions at Whyalla, Schulz Park and on seventeen occasions at Port Pirie, Oliver Street. The goal was not met at Whyalla, Schulz Park and Port Pirie, Oliver Street. The goal was met for all other stations for this reporting period.
- For Pb, the annual standard and goal were met at Frank Green Park and Oliver Street monitoring sites
- For $PM_{2.5}$ the 24-hour advisory reporting standard was met for both monitoring methodologies however monitoring using the Partisol ceased on the 27th April 2008.

Circumstances which led to Exceedances

Exceedances of the PM_{10} standard occurred on a number of occasions throughout the state. This was often associated with dry days, coupled with strong northerly winds. Bushfires occurring both within SA and interstate also contributed to the total particle levels. Table 11 below summarises dates and times of exceedances occurring during the 2008 reporting year.

Exceedances of the SO_2 standard and goal occurred at Port Pirie. These exceedances were due to emissions from a major lead and zinc smelter located within the region, coupled with suitable meteorological conditions. Table 12 summarises dates and times of exceedances occurring during the 2008 reporting year.

Table 11 Summary of PM_{10} exceedances in the Spencer region during 2008

AAQ NEPM Standard 50 µg/m^3 (24-hr average)

Date of Exceedance (dd mon)	Spencer Region		
	WHY07 - Whyalla Schulz Park	PTP01 - Pt Pirie Oliver Street	Inferred Cause
02/01/2008	-	77.8µg/m^3	
03/01/2008	-	52.6µg/m^3	
07/01/2008	-	64.4µg/m^3	
11/01/2008	-	69.7µg/m^3	
15/01/2008	-	102.7µg/m^3	
12/02/2008	-	53.5µg/m^3	
13/02/2008	-	56.0µg/m^3	
19/02/2008	-	53.9µg/m^3	
10/03/2008	-	53.7µg/m^3	
11/03/2008	-	83.7µg/m^3	
13/03/2008	51.6µg/m^3	82.6µg/m^3	
14/03/2008	-	62.9µg/m^3	
18/03/2008	-	98.4µg/m^3	
02/04/2008	87.5µg/m^3	235.1µg/m^3	
30/07/2008	-	55.0µg/m^3	
13/09/2008	96.5µg/m^3	60.0µg/m^3	
27/09/2008	56.1µg/m^3	-	Industry?
01/10/2008	59.5µg/m^3	-	Industry
25/10/2008	66.2µg/m^3	61.3µg/m^3	
07/11/2008			

The SA EPA uses Section 6 Option 4 (no temperature adjustment of TEOM data) of Peer Review Committee, Technical Paper No 10 Collection and Reporting of TEOM $PM1_0$ Data, May 2001 to report TEOM data. This is as volatiles are not expected to be significant.

Table 12 Summary of PM_{10} exceedances in the Adelaide region during 2008

Date of Exceedance (dd mon)	Adelaide Region				
	CHD01	ELI01	KEN01	NET01	Inferred Cause
13/03/2008	-	56.0µg/m^3	54.4µg/m^3	89.1µg/m^3	Wind raised dust
14/03/2008	89.7µg/m^3	77.5µg/m^3	55.5µg/m^3	90.3µg/m^3	Wind raised dust
02/04/2008	79.5µg/m^3	-	69.1µg/m^3	-	Wind raised dust
25/10/2008	59.9µg/m^3	68.8µg/m^3	-	57.1µg/m^3	Wind raised dust
07/11/2008	-	-	-	77.0µg/m^3	

The SA EPA uses Section 6 Option 4 (no temperature adjustment of TEOM data) of Peer Review Committee, Technical Paper No 10 Collection and Reporting of TEOM $PM1_0$ Data, May 2001 to report TEOM data. This is as volatiles are not expected to be significant.

Table 13 Summary of SO_2 exceedances during 2008 in South Australia

AAQ NEPM Standard 0.20 ppm (1-hr average)

Date / time of Exceedance (dd mon hh:mm)	Spencer Region	
	PTP01 - Pt Pirie Oliver Street	Inferred Cause
24/01/2008 10:00	0.467ppm	Industry
11/02/2008 11:00	0.264ppm	Industry
16/02/2008 09:00	0.202ppm	Industry
08/03/2008 12:00	0.278ppm	Industry
11/03/2008 10:00	0.283ppm	Industry
23/03/2008 12:00	0.359ppm	Industry
18/4/2008 12:00	0.399ppm	Industry
23/5/2008 13:00	0.205ppm	Industry
01/06/2008 13:00	0.212ppm	Industry
03/06/2008 13:00	0.224ppm	Industry
11/07/2008 12:00	0.207ppm	Industry
19/08/2008 14:00	0.262ppm	Industry
25/08/2008 15:00	0.293ppm	Industry
05/09/2008 14:00	0.277ppm	Industry
09/09/2008 15:00	0.262ppm	Industry
14/09/2008 23:00	0.259ppm	Industry
21/09/2008 15:00	0.381ppm	Industry
30/09/2008 16:00	0.309ppm	Industry
05/10/2008 14:00	0.522ppm	Industry
09/10/2008 12:00	0.255ppm	Industry
25/10/2008 07:00	0.212ppm	Industry
06/11/2008 12:00	0.503ppm	Industry
09/11/2005 15:00	0.239ppm	Industry
17/11/2008 14:00	0.307ppm	Industry
30/11/2008 16:00	0.325ppm	Industry
08/12/2008 12:00	0.462ppm	Industry
16/12/2008 10:00	0.332ppm	Industry
20/12/2008 12:00	0.206ppm	Industry

Analysis of extent to which standards and goals are met or not met

Annual summary statistics described in Tables 13 to 20 below allow assessment of air quality against the standards and the extent of compliance with the goal. Instances where the standard or goal has been exceeded are highlighted in bold. The AAQ NEPM states that the short-term standards should not be exceeded on more than one day for CO, NO_2, O_3, SO_2 and on no more than five days per year for PM_{10} (NEPC, 2002). The second highest daily value for the year (or the sixth for PM_{10}) indicates the extent to which the standards are or are not met.

Carbon monoxide

Table 14 2008 summary statistics for daily peak 8-hour CO in South Australia

AAQ NEPM Standard 9.0 ppm (8-hr rolling average)

Region & Station/s	Number of valid days	Highest (ppm)	Highest (dd mon hh:mm)	2nd highest (ppm)	2nd highest (dd mon hh:mm)
Adelaide					
ELI01 - Elizabeth	352	0.45	19 Jun 03:00	0.41	21 Jul 02:00

Nitrogen dioxide

Table 15 2008 summary statistics for daily peak 1-hour NO_2 in South Australia

AAQ NEPM Standard 0.12 ppm (1-hr average)

Region & Station/s	Number of valid days	Highest (ppm)	Highest (dd mon hh:mm)	2nd highest (ppm)	2nd highest (dd mon hh:mm)
Adelaide					
ELI01 - Elizabeth	354	0.031	24 Apr 19:00 18 Oct 21:00	0.029	19 Jun 10:00
CHD01 – Christie Downs	360	0.036	24 Apr 14:00	0.035	18 Apr 14:00
KEN01 – Kensington	357	0.032	08 Apr 19:00	0.030	12 Mar 10:00
NET01 - Netley	366	0.047	21 Apr 09:00 23 Apr 07:00	0.044	12 Nov 21:00
NOR01 - Northfield	365	0.041	24 Apr 19:00	0.036	03 Mar 08:00 08 Apr 19:00 18 Apr 19:00

Ozone

Table 16 2008 summary statistics for daily peak 1-hour O_3 in South Australia

AAQ NEPM Standard 0.10 ppm (1-hr average)

Region & Station/s	Number of valid days	Highest (ppm)	Highest (dd mon hh:mm)	2nd highest (ppm)	2nd highest (dd mon hh:mm)
Adelaide					
ELI01 - Elizabeth	366	0.097	11 Mar 14:00	0.060	30 Jan 15:00 02 Feb 14:00 04 Feb 11:00
CHD01 – Christie Downs	364	0.068	04 Jan 14:00	0.063	16 Feb 13:00
KEN01 - Kensington	357	0.072	11 Mar 14:00	0.069	04 Jan 12:00
NET01 - Netley	365	0.071	12 Mar 14:00	0.069	04 Jan 14:00
NOR01 - Northfield	366	0.074	11 Mar 14:00	0.066	04 Jan 14:00 09 Jan 16:00

Table 17 2008 summary statistics for daily peak 4-hour O_3 in South Australia

AAQ NEPM Standard 0.08 ppm (4-hr average)

Region & Station/s	Number of valid days	Highest (ppm)	Highest (dd mon hh:mm)	2nd highest (ppm)	2nd highest (dd mon hh:mm)
Adelaide					
ELI01 - Elizabeth	366	**0.086**	**11 Mar 16:00**	0.054	02 Feb 16:00
CHD01 – Christie Downs	364	0.060	04 Jan 15:00	0.058	16 Feb 15:00
KEN01 - Kensington	358	0.067	11 Mar 16:00	0.060	09 Jan 17:00
NET01 - Netley	366	0.061	04 Jan 15:00	0.058	12 Mar 15:00
NOR01 - Northfield	366	0.068	11 Mar 16:00	0.061	04 Jan 15:00

Sulfur dioxide

Table 18 2008 summary statistics for daily peak 1-hour SO_2 in South Australia

AAQ NEPM Standard 0.20 ppm (1-hr average)

Region & Station/s	Number of valid days	Highest (ppm)	Highest (dd mon hh:mm)	2nd highest (ppm)	2nd highest (dd mon hh:mm)
Adelaide					
NOR01 - Northfield	366	0.009	09 Jun 00:00	0.008	29 Jun 18:00
Spencer					
PTP01 – Pt Pirie Oliver St	366	**0.522**	**05 Oct 14:00**	**0.503**	**06 Nov 12:00**

Table 19 2008 summary statistics for daily peak 24-hour SO_2 in South Australia

AAQ NEPM Standard 0.08 ppm (24-hr average)

Region & Station/s	Number of valid days	Highest (ppm)	Highest (dd mon)	2nd highest (ppm)	2nd highest (dd mon)
Adelaide					
NOR01 - Northfield		0.002	24 Apr 10 Jun 29 Jun	0.001	01 Jan 07 Mar 01 Apr 01 May 25 May 28 May 30 May 09 Jun 18 Jun 25 Jun 28 Jun 06 Jul 17 Jul 20 Jul 25 Jul 20 Aug 06 Sep 26 Sep 27 Sep 18 Oct 25 Oct 10 Nov
Spencer					
PTP01 – Pt Pirie Oliver St	363	0.076	25 Oct	0.067	07 Dec

Particulate matter as PM_{10}

Table 20 2008 summary statistics for 24-hour PM_{10} in South Australia

AAQ NEPM Standard 50 µg/m^3 (24-hr average)

Region & Station/s	Number of valid days	Highest (ppm)	Highest (dd mon)	6th highest (µg/m^3)	6th highest (dd mon)
Adelaide					
ELI01 - Elizabeth	345	77.5	14 Mar	43.8	13 Nov
CHD01 – Christie Downs	351	89.7	14 Mar	34.8	15 Sep
KEN01 - Kensington	354	69.1	02 Apr	36.2	17 Mar
NET01 - Netley	361	90.3	14 Mar	45.1	26 Sep
Spencer					
PTP01 – Pt Pirie Oliver St	357	**235.1**	**02 Apr**	**77.8**	**02 Jan**
WHY07 – Whyalla Schulz Park	357	**96.5**	**13 Sep**	**51.6**	**13 Mar**

The SA EPA uses Section 6 Option 4 (no temperature adjustment of TEOM data) of Peer Review Committee, Tech nical Paper No 10 Collection and Reporting of TEOM $PM1_0$ Data, May 2001 to report TEOM data. This is as volatiles are not expected to be significant.

Particulate matter as $PM_{2.5}$

Table 21 2008 summary statistics for 24-hour $PM_{2.5}$ in South Australia

AAQ NEPM Advisory Reporting Standard 25 µg/m^3 (24-hr average)

Region & Station/s	Number of valid days	Highest (ppm)	Highest (dd mon)	6th highest (µg/m^3)	6th highest (dd mon)
Adelaide					
NET01* - Netley	336	20.2	05 Jan	14.6	04 Jan
NET01^ - Netley	34	14.2	18 Apr	8.6	10 Mar

^Indicates monitoring by one –day-in-three partisol monitoring

*Indicates monitoring by Tapered Element Oscillating Microbalance (TEOM).

The SA EPA uses Section 6 Option 4 (no temperature adjustment of TEOM data) of Peer Review Committee, Tech nical Paper No 10 Collection and Reporting of TEOM $PM1_0$ Data, May 2001 to report TEOM data. This is as volatiles are not expected to be significant.

SECTION D - DATA ANALYSIS

Tables 21 to 47 provide results of additional analyses of daily peak values, including percentiles of daily peak concentrations. Where available, trend data has been included. Percentile data for 2002 has been recalculated from daily maxima as required in PRC technical paper number 8 (2002).

Carbon monoxide

Table 22 Percentiles of daily peak 8-hour CO concentrations for Adelaide, ELI01 – Elizabeth Downs (2002 - 2008)

AAQ NEPM Standard 9.0 ppm (8-hr average)

Region Adelaide	Data availability (% of days)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	84	0.8	0.7	0.6	0.4	0.3	0.2	0.1
2003	92	1.4	0.8	0.7	0.5	0.4	0.2	0.1
2004	98	0.8	0.6	0.5	0.4	0.3	0.2	0.1
2005	94	0.8	0.6	0.4	0.4	0.3	0.1	0.1
2006	86	0.7	0.5	0.4	0.3	0.2	0.1	0.0
2007	100	0.6	0.4	0.3	0.3	0.2	0.1	0.0
2008	96	0.5	0.4	0.3	0.3	0.2	0.1	0.0

Nitrogen dioxide

Table 23 Percentiles of daily peak 1-hour NO_2 concentrations for Adelaide, ELI01-Elizabeth Downs (2002-2008)

AAQ NEPM Standard 0.12 ppm (1-hr average)

Region Adelaide	Data availability rates (%)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	94	0.040	0.034	0.033	0.029	0.026	0.022	0.014
2003	97	0.043	0.030	0.028	0.025	0.022	0.019	0.011
2004	95	0.037	0.031	0.029	0.025	0.023	0.019	0.012
2005	95	0.038	0.031	0.028	0.025	0.023	0.019	0.011
2006	89	0.043	0.030	0.029	0.026	0.023	0.017	0.011
2007	94	0.039	0.026	0.025	0.023	0.021	0.017	0.011
2008	93	0.031	0.027	0.027	0.024	0.023	0.018	0.011

Table 24 Percentiles of daily peak 1-hour NO_2 concentrations for NOR01-Northfield (2002 - 2008)

AAQ NEPM Standard 0.12 ppm (1-hr average)

Region Adelaide	Data availability rates (%)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	94	0.047	0.038	0.033	0.031	0.028	0.024	0.018
2003	95	0.039	0.035	0.032	0.031	0.028	0.024	0.017
2004	96	0.045	0.038	0.033	0.029	0.026	0.023	0.017
2005	94	0.039	0.035	0.033	0.030	0.028	0.024	0.018
2006	93	0.034	0.031	0.030	0.028	0.025	0.021	0.016
2007	96	0.037	0.034	0.032	0.029	0.027	0.023	0.017
2008	97	0.041	0.035	0.034	0.030	0.028	0.025	0.017

Table 25 Percentiles of daily peak 1-hour NO_2 concentrations for NET01-Netley (2002 - 2008)

AAQ NEPM Standard 0.12 ppm (1-hr average)

Region Adelaide	Data availability rates (%)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	84	0.050	0.042	0.037	0.035	0.032	0.028	0.023
2003	97	0.039	0.036	0.035	0.032	0.029	0.026	0.021
2004	96	0.103	0.041	0.038	0.034	0.030	0.026	0.021
2005	97	0.051	0.042	0.037	0.034	0.031	0.028	0.022
2006	95	0.054	0.037	0.036	0.033	0.030	0.027	0.021
2007	97	0.040	0.038	0.036	0.032	0.030	0.028	0.023
2008	97	0.047	0.040	0.039	0.035	0.031	0.027	0.022

Table 26 Percentiles of daily peak 1-hour NO_2 concentrations for KEN01-Kensington Gardens (2002 - 2008)

AAQ NEPM Standard 0.12 ppm (1-hr average)

Region Adelaide	Data availability rates (%)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	94	0.041	0.030	0.030	0.028	0.025	0.022	0.015
2003	97	0.040	0.034	0.031	0.026	0.024	0.021	0.014
2004	96	0.037	0.032	0.028	0.025	0.023	0.019	0.013
2005	97	0.031	0.029	0.027	0.026	0.024	0.019	0.013
2006	96	0.037	0.028	0.027	0.025	0.022	0.018	0.013
2007	94	0.035	0.030	0.029	0.026	0.023	0.020	0.014
2008	95	0.032	0.028	0.027	0.025	0.023	0.019	0.012

Table 27 Percentiles of daily peak 1-hour NO_2 concentrations for CHD01-Christie Downs (2006 - 2008)

AAQ NEPM Standard 0.12 ppm (1-hr average)

Region Adelaide	Data availability rates (%)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2006	69	0.033	0.024	0.023	0.020	0.016	0.008	0.003
2007	97	0.038	0.031	0.030	0.027	0.025	0.020	0.013
2008	95	0.036	0.033	0.031	0.028	0.026	0.021	0.013

Ozone

Table 28 Percentiles of daily peak 1-hour O_3 concentrations for ELI01-Elizabeth Downs (2002 – 2008)

AAQ NEPM Standard 0.10 ppm (1-hr average)

Region Adelaide	Data availability rates (%)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	95	0.072	0.062	0.053	0.045	0.040	0.033	0.030
2003	97	0.077	0.064	0.059	0.050	0.042	0.034	0.029
2004	96	0.088	0.065	0.055	0.046	0.041	0.033	0.029
2005	97	0.062	0.057	0.050	0.041	0.036	0.032	0.029
2006	90	0.072	0.061	0.055	0.051	0.040	0.035	0.029
2007	98	0.082	0.070	0.065	0.051	0.045	0.035	0.030
2008	97	0.097	0.059	0.055	0.042	0.039	0.033	0.030

Table 29 Percentiles of daily peak 1-hour O_3 concentrations for NOR01-Northfield (2002 – 2008)

AAQ NEPM Standard 0.10 ppm (1-hr average)

Region Adelaide	Data availability rates (%)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	98	0.080	0.060	0.051	0.045	0.040	0.033	0.029
2003	97	0.068	0.060	0.054	0.047	0.042	0.033	0.028
2004	94	0.081	0.065	0.058	0.045	0.040	0.033	0.028
2005	94	0.060	0.049	0.045	0.040	0.036	0.031	0.028
2006	95	0.067	0.053	0.050	0.043	0.038	0.031	0.027
2007	97	0.069	0.060	0.054	0.047	0.042	0.033	0.029
2008	97	0.074	0.054	0.048	0.042	0.038	0.032	0.028

Table 30 Percentiles of daily peak 1-hour O_3 concentrations for NET01-Netley (2002 – 2008)

AAQ NEPM Standard 0.10 ppm (1-hr average)

Region Adelaide	Data availability rates (%)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	98	0.087	0.056	0.048	0.042	0.037	0.031	0.028
2003	97	0.069	0.059	0.054	0.045	0.039	0.032	0.027
2004	98	0.067	0.056	0.049	0.044	0.037	0.032	0.028
2005	97	0.079	0.054	0.049	0.041	0.037	0.032	0.028
2006	95	0.105	0.058	0.054	0.043	0.038	0.031	0.028
2007	97	0.077	0.055	0.052	0.046	0.040	0.033	0.029
2008	97	0.071	0.056	0.047	0.041	0.037	0.032	0.029

Table 31 Percentiles of daily peak 1-hour O_3 concentrations for KEN01-Kensington Gardens (2002 – 2008)

AAQ NEPM Standard 0.10 ppm (1-hr average)

Region Adelaide	Data availability rates (%)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	96	0.086	0.057	0.053	0.046	0.042	0.035	0.030
2003	97	0.074	0.065	0.058	0.049	0.042	0.034	0.029
2004	97	0.078	0.067	0.062	0.047	0.041	0.033	0.029
2005	98	0.061	0.053	0.051	0.044	0.039	0.034	0.031
2006	96	0.090	0.061	0.057	0.048	0.040	0.033	0.029
2007	96	0.076	0.062	0.058	0.051	0.045	0.034	0.030
2008	95	0.072	0.059	0.053	0.044	0.039	0.033	0.029

Table 32 Percentiles of daily peak 1-hour O_3 concentrations for CHD01-Christie Downs (2006 - 2008)

AAQ NEPM Standard 0.10 ppm (1-hr average)

Region Adelaide	Data availability rates (%)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2006	66	0.055	0.050	0.046	0.040	0.037	0.033	0.030
2007	97	0.074	0.054	0.053	0.046	0.040	0.034	0.030
2008	96	0.068	0.052	0.046	0.041	0.038	0.032	0.029

Table 33 Percentiles of daily peak 4-hour rolling O_3 concentrations for ELI01-Elizabeth Downs (2002 – 2008)

AAQ NEPM Standard 0.08 ppm (4-hr rolling average)

Region Adelaide	Data availability rates (%)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	96	0.057	0.046	0.044	0.039	0.037	0.032	0.029
2003	99	0.063	0.056	0.052	0.045	0.040	0.032	0.028
2004	98	0.079	0.056	0.051	0.042	0.037	0.032	0.027
2005	99	0.056	0.049	0.044	0.038	0.034	0.030	0.028
2006	92	0.065	0.051	0.049	0.045	0.038	0.033	0.028
2007	100	0.078	0.063	0.056	0.048	0.042	0.033	0.029
2008	99	0.086	0.051	0.048	0.041	0.037	0.032	0.028

Table 34 Percentiles of daily peak 4-hour rolling O_3 concentrations for NOR01-Northfield (2002 – 2008)

AAQ NEPM Standard 0.08 ppm (4-hr rolling average)

Region Adelaide	Data availability rates (%)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	99	0.064	0.052	0.046	0.041	0.036	0.031	0.028
2003	100	0.061	0.053	0.047	0.044	0.038	0.031	0.027
2004	96	0.067	0.058	0.049	0.041	0.038	0.032	0.027
2005	96	0.054	0.046	0.041	0.036	0.035	0.030	0.027
2006	97	0.058	0.048	0.045	0.040	0.035	0.030	0.026
2007	100	0.059	0.054	0.052	0.044	0.040	0.032	0.028
2008	100	0.068	0.049	0.045	0.039	0.035	0.031	0.027

Table 35 Percentiles of daily peak 4-hour rolling O_3 concentrations for NET01-Netley (2002 – 2008)

AAQ NEPM Standard 0.08 ppm (4-hr rolling average)

Region Adelaide	Data availability rates (%)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	99	0.071	0.050	0.044	0.038	0.034	0.030	0.027
2003	99	0.060	0.053	0.047	0.042	0.037	0.030	0.027
2004	100	0.059	0.048	0.044	0.040	0.036	0.031	0.027
2005	99	0.072	0.048	0.044	0.038	0.034	0.030	0.027
2006	97	0.094	0.052	0.047	0.041	0.036	0.030	0.027
2007	100	0.070	0.051	0.050	0.044	0.038	0.032	0.028
2008	99	0.061	0.049	0.043	0.039	0.036	0.031	0.027

Table 36 Percentiles of daily peak 4-hour rolling O_3 concentrations for KEN01-Kensington Gardens (2002 – 2008)

AAQ NEPM Standard 0.08 ppm (4-hr rolling average)

Region Adelaide	Data availability rates (%)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	97	0.073	0.051	0.047	0.041	0.038	0.033	0.029
2003	99	0.071	0.054	0.051	0.045	0.040	0.032	0.028
2004	99	0.071	0.059	0.054	0.043	0.038	0.031	0.028
2005	100	0.055	0.050	0.044	0.040	0.037	0.032	0.029
2006	99	0.072	0.055	0.051	0.044	0.039	0.032	0.028
2007	98	0.063	0.058	0.054	0.047	0.043	0.033	0.029
2008	97	0.067	0.055	0.048	0.042	0.037	0.031	0.028

Table 37 Percentiles of daily peak 4-hour rolling O_3 concentrations for CHD01-Christie Downs (2006 - 2008)

AAQ NEPM Standard 0.08 ppm (4-hr rolling average)

Region Adelaide	Data availability rates (%)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2006	66	0.049	0.047	0.042	0.038	0.035	0.032	0.029
2007	98	0.060	0.052	0.050	0.044	0.038	0.033	0.029
2008	98	0.060	0.047	0.044	0.038	0.036	0.031	0.027

Sulfur dioxide

Table 38 Percentiles of daily peak 1-hour SO_2 concentrations for NOR01-Northfield (2002 – 2008)

AAQ NEPM Standard 0.20 ppm (1-hr average)

Region Adelaide	Data availability (% of hours)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	15	0.027	0.024	0.020	0.013	0.010	0.005	0.003
2003	95	0.009	0.007	0.006	0.005	0.004	0.002	0.001
2004	93	0.012	0.007	0.006	0.004	0.003	0.001	0.001
2005	93	0.015	0.008	0.006	0.004	0.003	0.001	0.001
2006	94	0.020	0.005	0.004	0.003	0.002	0.002	0.001
2007	96	0.008	0.006	0.005	0.003	0.002	0.001	0.001
2008	97	0.009	0.006	0.005	0.004	0.002	0.001	0.001

Table 39 Percentiles of daily peak 1-hour SO_2 concentrations for PTP01-Pt Pirie Oliver Street (2003 – 2008)

AAQ NEPM Standard 0.20 ppm (1-hr average)

Region Spencer	Data availability (% of hours)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	51	0.656	0.400	0.302	0.257	0.186	0.095	0.028
2003	96	0.487	0.388	0.309	0.221	0.152	0.070	0.023
2004	97	0.440	0.356	0.335	0.260	0.185	0.078	0.020
2005	94	0.721	0.391	0.362	0.234	0.186	0.105	0.042
2006	96	0.485	0.361	0.311	0.240	0.191	0.092	0.018
2007	97	0.594	0.404	0.312	0.249	0.175	0.101	0.029
2008	97	0.522	0.421	0.330	0.258	0.185	0.108	0.033

Table 40 Percentiles of 24-hour SO_2 concentrations for NOR01-Northfield (2002 – 2008)

AAQ NEPM Standard 0.08 ppm (24-hr average)

Region Adelaide	Data availability (% of days)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	54	0.007	0.006	0.005	0.005	0.004	0.002	0.001
2003	99	0.003	0.002	0.002	0.002	0.001	0.001	0.000
2004	96	0.003	0.002	0.001	0.001	0.001	0.001	0.000
2005	96	0.004	0.002	0.002	0.001	0.000	0.000	0.000
2006	96	0.003	0.002	0.001	0.001	0.001	0.000	0.000
2007	99	0.002	0.001	0.001	0.001	0.000	0.000	0.000
2008	99	0.002	0.001	0.001	0.001	0.000	0.000	0.000

Table 41 Percentiles of 24-hour SO_2 concentrations for PTP01-Pt Pirie Oliver Street (2003 – 2008)

AAQ NEPM Standard 0.08 ppm (24-hr average)

Region Spencer	Data availability (% of days)	Max (ppm)	Percentiles (ppm)					
			99th	98th	95th	90th	75th	50th
2002	52	0.050	0.045	0.040	0.035	0.029	0.013	0.005
2003	97	0.095	0.043	0.037	0.024	0.018	0.011	0.004
2004	100	0.051	0.039	0.037	0.028	0.022	0.011	0.003
2005	95	0.072	0.054	0.049	0.033	0.023	0.014	0.005
2006	98	0.053	0.043	0.040	0.032	0.023	0.013	0.002
2007	99	0.061	0.044	0.042	0.032	0.024	0.014	0.004
2008	99	0.076	0.052	0.048	0.034	0.026	0.014	0.004

Particulate matter as PM_{10}

Table 42 Percentiles of daily 24-hour PM_{10} concentrations for ELI01-Elizabeth Downs (2004 – 2008)

AAQ NEPM Standard 50 µg/m^3 (24-hr average)

Region Adelaide	Data availability rates (%)	Max (µg/m^3)	Percentiles (µg/m^3)					
			99th	98th	95th	90th	75th	50th
2004	55	63.9	39.1	33.5	26.8	22.3	16.1	12.4
2005	95	84.8	58.8	48.5	38.2	30.0	21.7	14.9
2006	92	90.4	49.3	44.8	30.4	23.0	17.3	13.0
2007	97	74.9	47.2	41.9	31.9	25.9	19.5	13.5
2008	94	77.5	47.4	41.8	34.5	28.5	21.5	15.9

Table 43 Percentiles of daily 24-hour PM_{10} concentrations for KEN01-Kensington Gardens (2002 – 2008)

AAQ NEPM Standard 50 µg/m^3 (24-hr average)

Region Adelaide	Data availability rates (%)	Max (µg/m^3)	Percentiles (µg/m^3)					
			99th	98th	95th	90th	75th	50th
2002	47	103.7	34.1	27.5	24.2	22.3	18.0	14.0
2003	89	85.9	44.5	35.2	26.3	21.4	16.7	13.1
2004	94	53.7	34.0	31.4	27.5	23.2	18.2	13.0
2005	98	76.2	39.8	35.2	27.9	24.1	19.0	13.7
2006	95	73.2	41.3	36.7	26.4	22.5	17.0	12.1
2007	92	51.1	43.0	39.4	29.3	25.2	19.0	13.0
2008	97	69.1	44.5	34.0	29.0	25.5	19.3	13.5

The SA EPA uses Section 6 Option 4 (no temperature adjustment of TEOM data) of Peer Review Committee, Technical Paper No 10 Collection and Reporting of TEOM $PM1_0$ Data, May 2001 to report TEOM data. This is as volatiles are not expected to be significant.

Table 44 Percentiles of daily 24-hour PM_{10} concentrations for NET01-Netley (2002 – 2008)

AAQ NEPM Standard 50 µg/m^3 (24-hr average)

Region Adelaide	Data availability rates (%)	Max (µg/m^3)	Percentiles (µg/m^3)					
			99th	98th	95th	90th	75th	50th
2002	100	79.3	43.1	38.1	31.6	27.5	22.8	18.5
2003	97	119.4	54.0	46.0	33.9	29.4	22.1	17.9
2004	99	62.7	42.4	40.3	33.6	29.5	23.1	17.3
2005	90	58.7	54.5	48.1	38.3	32.3	24.3	17.9
2006	91	101.4	85.7	69.2	43.0	33.5	24.6	18.1
2007	95	125.9	80.3	57.6	37.6	31.0	23.3	17.6
2008	99	90.3	50.5	43.8	36.7	30.9	22.9	17.4

Table 45 Percentiles of daily 24-hour PM_{10} concentrations for CHD01-Christie Downs (2006 - 2008)

AAQ NEPM Standard 50 µg/m^3 (24-hr average)

Region Adelaide	Data availability rates (%)	Max (µg/m^3)	Percentiles (µg/m^3)					
			99th	98th	95th	90th	75th	50th
2006	73	52.2	49.6	42.1	31.2	25.8	19.4	14.3
2007	93	70.5	43.8	38.3	31.7	27.3	21.6	15.5
2008	96	89.7	40.5	34.0	30.7	26.9	20.4	15.1

The SA EPA uses Section 6 Option 4 (no temperature adjustment of TEOM data) of Peer Review Committee, Technical Paper No 10 Collection and Reporting of TEOM $PM1_0$ Data, May 2001 to report TEOM data. This is as volatiles are not expected to be significant.

Table 46 Percentiles of daily 24-hour PM_{10} concentrations for WHY07-Whyalla Schulz Park (2007 - 2008)

AAQ NEPM Standard 50 µg/m^3 (24-hr average)

Region Spencer	Data availability rates (%)	Max (µg/m^3)	Percentiles (µg/m^3)					
			99th	98th	95th	90th	75th	50th
2007	67	97.2	62.8	51.2	30.5	27.4	20.5	14.7
2008	98	96.5	57.6	45.3	36.9	32.1	23.7	15.9

Table 47 Percentiles of daily 24-hour PM_{10} concentrations for PTP01-Pt Pirie Oliver Street (2002 – 2008)

AAQ NEPM Standard 50 µg/m^3 (24-hr average)

Region Spencer	Data availability rates (%)	Max (µg/m^3)	Percentiles (µg/m^3)					
			99th	98th	95th	90th	75th	50th
2002#	16	57.0	50.4	45.1	33.4	31.3	27.8	21.2
2003	50	60.5	51.7	47.0	38.9	30.8	21.8	14.1
2004	97	135.8	51.8	43.9	35.7	28.5	22.6	15.7
2005	95	464.3	68.4	45.6	37.6	31.6	23.4	16.6
2006	96	181.8	71.0	59.3	42.9	34.6	25.1	17.4
2007	98	173.8	68.6	60.8	45.2	37.2	25.2	16.8
2008	98	235.1	83.1	64.0	48.9	39.5	25.3	15.5

Monitoring by high-volume sampler (one in six days), otherwise monitoring is by TEOM and reported as TEOM data (NEPM PRC, 2001).

The SA EPA uses Section 6 Option 4 (no temperature adjustment of TEOM data) of Peer Review Committee, Technical Paper No 10 Collection and Reporting of TEOM $PM1_0$ Data, May 2001 to report TEOM data. This is as volatiles are not expected to be significant.

Lead

Table 48 Annual Mean Lead Concentration for PTP05-Pt Pirie Frank Green Park (2002 - 2008)

AAQ NEPM Standard 0.50 µg/m^3 (annual-hr average)

Region Spencer	Data availability rate (% days)	Annual mean (µg/m^3)
2002	100	0.24
2003	100	0.23
2004	95	0.33
2005	98	0.30
2006	100	0.19
2007		0.21
2008	100	0.14

Table 49 Annual Mean Lead Concentration for PTP01-Pt Pirie Oliver Street (2002 - 2008)

AAQ NEPM Standard 0.50 µg/m^3 (annual-hr average)

Region Spencer	Data availability rate (% days)	Annual mean (µg/m^3)
2002	100	0.53
2003	97	0.68
2004	95	0.68
2005	98	0.70
2006	100	0.56
2007	98	0.59
2008	95	0.41

Lead data is reported to ambient conditions and analyses were carried out by NATA accredited facilities at the Queensland Health Scientific Services laboratory.

Particulate matter as $PM_{2.5}$

Table 50 Percentiles of daily 24-hour $PM_{2.5}$ concentrations for NET01-Netley (2004 – 2008)

AAQ NEPM Advisory Reporting Standard 25 µg/m^3 (24-hr average)

Region Adelaide	Data availability rates (%)	Max (µg/m^3)	Percentiles (µg/m^3)					
			99th	98th	95th	90th	75th	50th
^2005	14	14.1	13.7	13.2	11.1	9.9	8.0	6.1
*2005	96	17.3	16.4	15.0	13.2	11.6	9.4	7.3
^2006	30	28.2	25.4	24.8	17.9	11.5	8.5	6.2
*2006	96	61.2	20.4	19.0	14.5	12.0	9.7	7.3
^2007	87	28.6	17.6	12.8	10.5	8.8	7.4	5.9
*2007	99	21.9	14.4	13.5	12.3	11.3	9.3	7.6
^2008	100	14.2	13.2	12.3	11.2	9.3	6.9	4.7
*2008	92	20.2	15.7	14.5	12.5	10.9	9.2	7.2

^Indicates monitoring by one –day-in-three partisol monitoring (maximum data availability is 33%). Monitoring using the Partisol at this site was concluded on the 27th April 2008.

*Indicates monitoring by Tapered Element Oscillating Microbalance (TEOM)

The SA EPA uses Section 6 Option 4 (no temperature adjustment of TEOM data) of Peer Review Committee, Technical Paper No 10 Collection and Reporting of TEOM $PM1_0$ Data, May 2001 to report TEOM data. This is as volatiles are not expected to be significant.

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ERRATUM

As part of quality control measures the South Australian Environment Protection Authority discovered a systematic error in the calculation of lead concentrations from sub-sampled high volume sampler filters. The data have been recalculated and are presented here as the original reported value along with the corrected value.

The correction has not changed trends in data. The correction has not made any difference to compliance with the NEPM goal, which is compliance by 10 years after implementation in 1998. Data for 2007 does not change its compliance status with or without correction and data for 2008 shows compliance at both reported NEPM monitoring sites following years of improvements and work by both the SA EPA and local industry (Table 9).

Lead

Table 51 Summary of corrections for Lead in South Australia (2002 – 2007)

AAQ NEPM Standard 0.50 µg/m3 (1-yr average)

Year	2002		2003		2004		2005		2006		2007	
	Reported (µg/m³)	Corrected (µg/m³)	Reported (µg/m³)	Corrected (µg/m³)	Reported (µg/m³)	Corrected (µg/m³)	Reported (µg/m³)	Corrected (µg/m³)	Reported (µg/m³)	Corrected (µg/m³)	Reported (µg/m³)	Corrected (µg/m³)
Gilles Plains	0.02	0.02*	-	-	-	-	-	-	-	-	-	-
Northfield	0.00	0.00*	-	-	-	-	-	-	-	-	-	-
Kensington	0.00	0.00*	-	-	-	-	-	-	-	-	-	-
Parkside	0.01	0.01*	-	-	-	-	-	-	-	-	-	-
Port Pirie Frank Green Park	0.21	0.24*	0.19	0.23	0.28	0.33	0.25	0.30	0.16	0.19	0.18	0.21
Port Pirie Oliver Street	0.47	0.53*	0.59	0.68	0.59	0.68	0.60	0.70	0.49	0.56	0.51	0.59
Port Pirie West Primary School	0.74	0.83	-	-	-	-	-	-	-	-	-	-

- "*" indicates a correction factor of 1.129
- "-" means not reported