

AMBIENT AIR NEPM

Report to the National Environment Protection Council

Annual Compliance Report for the Northern Territory 1 January – 31 December 2003

BACKGROUND

Clause 18 of the National Environment Protection (Ambient Air Quality) Measure (Ambient Air NEPM) requires jurisdictions to submit a report of their compliance with the Measure for each calendar year. The content of the report is outlined in clause 17 of the Ambient Air NEPM.

This report covers the performance evaluation and assessment under the NEPM for the 2003 reporting year (1 January to 31 December 2003). The report is based on Technical Paper No. 8 (Annual Reports). It is a technical report to the NEPC and supplements the annual summary report provided each year under the NEPC Act on the overall implementation process.

SECTION A – MONITORING SUMMARY

A.1 Monitoring Requirements

The results of campaign monitoring in 2000-2001¹ were used to assess the monitoring requirements for the Northern Territory using the screening criteria in Technical Paper 4 (Screening Procedures). This monitoring identified particulate matter from landscape fires affecting the Darwin region as the primary air pollutant of concern in the Northern Territory. Screening of the 2000-2001 data indicated that nitrogen oxides, sulfur dioxide, carbon monoxide, and lead were not a cause for concern in the Darwin region when assessed against the Ambient Air NEPM national standards.

Although the campaign monitoring for ozone did not provide a full year of data, available information including characteristics of topography and meteorology suggests that ozone was not a cause for concern in the Darwin region. In the Monitoring Plan for the Northern Territory (May 2001) both ozone and nitrogen dioxide were to be further assessed against an appropriate screening criteria to identify any monitoring requirements. It was proposed that a screening analysis would be based on the findings of the CSIRO Phase II study² which derives generic screening criteria for ozone and nitrogen dioxide in small to medium sized cities.

Under the Monitoring Plan for the Northern Territory (May 2001), performance monitoring for PM₁₀ in the Darwin region was to commence from February 2003 with NATA accreditation by December 2004.

¹ *A Pilot Study of Air Quality in Darwin, NT for the Northern Territory Government, Department of Lands Planning and Environment, Final Report CSIRO Atmospheric Research Aspendale, Victoria Australia, 15 March 2001*

² *A Screening Procedure for Monitoring Ozone and Nitrogen Dioxide in "Small-to Medium-sized" Cities: Phase II – application of the procedure, Report CSIRO Atmospheric Research Aspendale, Victoria Australia, October 2002.*

A.2 Current Monitoring Stations

There are currently no monitoring stations established for the purpose of collecting data for the Ambient Air NEPM. Performance monitoring of PM₁₀ and PM_{2.5} to Ambient Air NEPM national standards will commence in the Darwin region by April 2004

A.3 Determination of Exposed Population for Each Performance Monitoring Station

Based on a population of 93,798, the Darwin region is the only area in the Northern Territory requiring a performance monitoring station.

A.4 Monitoring during the Reporting Period

No air quality monitoring data were obtained in the reporting period.

A.5 Changes to the Approved Monitoring Plan

As previously reported there was a delay in establishing a performance monitoring station for PM₁₀ in the Darwin region. Establishment a monitoring station was not initiated in the reporting period due to the developments with the ARC Bushfire Smoke project: a research initiative focusing on ambient air quality and specifically particulate matter pollution from bushfire smoke. In a partnership agreement between the Office of Environment & Heritage and the Charles Darwin University three monitoring stations will now be located in the Darwin region.

The stations to be located at Casuarina and Palmerston will monitor PM₁₀ and PM_{2.5} simultaneously whilst a third station to be located in the Darwin CBD will monitor PM₁₀. All three monitoring stations will be operational by April 2004.

Because of this delay, NATA accreditation of the Darwin region performance monitoring station for PM₁₀ is not expected until July 2005.

A.6 Unresolved Issues

There are no other unresolved issues in the reporting period.

A.7 Status of NATA Accreditation

The NATA accreditation planned for the PM₁₀ monitoring station is expected by July 2005. This will allow adequate time to assess the operation of the station over 12 months and to refine and document procedures.

A.8 Methods Other than Physical Monitoring

No other methods were used in the reporting period.

A.9 Approved Screening

Screening of the 2000-2001 data indicated that nitrogen oxides, sulfur dioxide, carbon monoxide and lead were not a cause for concern in the Darwin region when assessed against the Ambient Air NEPM national standards. Although information available about characteristics of topography and meteorology suggests that ozone is not a cause for concern in the Darwin region, both ozone and nitrogen dioxide were to be further assessed against appropriate screening criteria to identify any monitoring requirements.

An assessment based on the findings of the CSIRO Phase II study², which derives generic screening criteria for ozone and nitrogen dioxide in small to medium sized cities, has been used to determine that concentrations of ozone and nitrogen dioxide in the Darwin region are reasonably expected to be consistently below the national standard.

A.10 Additional Data

No additional data (such as quality assured campaign monitoring) were obtained in the reporting period.

SECTION B – ASSESSMENT OF COMPLIANCE WITH STANDARDS AND GOALS

B.1 Evaluation of Monitoring Data

No monitoring data for PM₁₀ was obtained for the Darwin region in this reporting period. No other monitoring is required under the Monitoring Plan for the Northern Territory (May 2001).

B.2 Evaluation of Performance against the Standards and Goal

Screening of the 2000-2001 data indicated that nitrogen oxides, sulfur dioxide, carbon monoxide, ozone and lead were not a cause for concern for the Darwin region when assessed against the Ambient Air NEPM national standards. Performance against the national standards for sulfur dioxide, carbon monoxide and lead were **met** in the Northern Territory.

The monitoring requirements for ozone and nitrogen dioxide were further assessed against appropriate screening procedures and as a result performance against the national standards for these parameters has now been **met** in the Northern Territory.

Performance against the national standards and goal of the measure for PM₁₀ was **not demonstrated** due to the lack of monitoring data. For this reason, the number of exceedences for PM₁₀, if any, could not be determined.

SECTION C – ANALYSIS OF AIR QUALITY MONITORING

C.1 Analysis of Air Quality Monitoring Data

No air quality data were collected during the reporting period, and the details of exceedences could not be determined.

Previous studies have indicated that elevated levels of particulate matter in Darwin during the dry season are predominantly due to bushfire smoke. There is no other significant source of particulate matter affecting the region and levels of PM₁₀ above the Ambient Air NEPM national standards are almost certainly from the interaction of smoke from landscape fires in the region and the prevailing wind conditions.

C.2 Progress Made Towards Achieving the Goal

The following steps have been taken to move toward achieving the goal of the Ambient Air NEPM.

- Performance monitoring of PM₁₀ and PM_{2.5} will commence in the Darwin region by April 2004, and a full data set is expected to be available for the annual compliance report for the 2005 reporting period. A full data set will be available for the annual summary report under the NEPC Act for 2004-2005.

- The monitoring program will contribute to a collaborative research project assessing the seasonal patterns of landscape fires and bushfire smoke plumes across the Top End, and their impacts on public health and landscape condition. The project will provide information on processes generating the particulate matter affecting the Darwin region and will contribute to the development of appropriate and effective management strategies aimed at meeting the NEPM standards and goal in the future.
- The Department of Infrastructure Planning and Environment is continuing to discuss fire management in the region with the Northern Territory Bushfires Council in an ongoing process to minimise the impacts of particulate matter from smoke on the Darwin region.
- Monitoring activities will be complemented by studies of the health impacts from particulate matter by the Northern Territory University and the Menzies School of Tropical Health. These studies will be carried out over the next three years.

SECTION D – DATA ANALYSIS

No air quality monitoring data were collected during the reporting period.