

*National Environment Protection
(Ambient Air Quality) Measure*

Technical Paper No. 1

Checklist for Monitoring Plans

Prepared by the
Peer Review Committee

May 2001

PREAMBLE

The National Environment Protection Measure (NEPM) for Ambient Air Quality was made in June 1998 with the desired environmental outcome of “ambient air quality that allows for the adequate protection of human health and well-being” across Australia. The NEPM sets national standards against which ambient air quality can be assessed. The NEPM includes a monitoring protocol to determine whether these standards are being met. Each jurisdiction is required to submit to the National Environment Protection Council (NEPC) a monitoring plan consistent with the protocol.

The Peer Review Committee (PRC) was established to assist NEPC in its task of assessing and reporting on the implementation and effectiveness of the NEPM by participating jurisdictions. The PRC includes government experts from all participating jurisdictions, in addition to representatives from industry and community groups. A significant activity of the PRC is the provision of advice to NEPC on the adequacy of jurisdictional monitoring arrangements, to ensure as far as possible that a nationally consistent data set is obtained.

To assure the consistency and transparency of its advisory function, the PRC has developed a set of guidance papers that clarify a number of technical issues in interpretation of the NEPM protocol. These Technical Papers provide the basis for PRC assessment of jurisdictional plans, aimed at assuring the quality and national consistency of NEPM monitoring.

The PRC Technical Papers are advisory for jurisdictions, and they will evolve with time as the science of air quality monitoring and assessment develops and as practical experience with monitoring increases.

A handwritten signature in black ink, appearing to read 'M J Manton', with a long, sweeping vertical stroke extending downwards from the end of the signature.

M J Manton
Chair
Peer Review Committee

1. PURPOSE

The purpose of this paper is to provide guidance to jurisdictions on the preparation of their monitoring plans and to achieve consistency in structure and content amongst all the plans.

2. INTRODUCTION

A key feature of the National Environment Protection (Ambient Air Quality) Measure (AAQ NEPM) is the implementation of a program of nationally-consistent air quality monitoring. The protocol for the monitoring program is set out in the AAQ NEPM. Each jurisdiction provides a monitoring plan to the National Environment Protection Council (NEPC) showing that monitoring will be consistent with the common protocol. One of the functions of the Peer Review Committee (PRC) is to provide advice to the NEPC Committee (NEPCC) on the adequacy of each monitoring plan in following the protocol and on the overall consistency of all the plans.

This checklist will help ensure that the assessment process by the PRC is systematic and transparent, as well as comprehensive in its coverage of the protocol. Because of the complexity of monitoring under the AAQ NEPM, the checklist is more than a simple yes-or-no table. The checklist is mainly descriptive, with allowance for deviations from full compliance with each item under the protocol. In particular, the checklist allows each assessment to note the reason for any non-compliance and the steps that are being taken to ensure full compliance in the future.

3. CHECKLIST

The following checklist consists of items that need to be covered in the monitoring plan of each jurisdiction. The items are ordered according to the structure of monitoring plans, agreed by the PRC and outlined in Attachment 1. In order to support the aim of national consistency, the plans should refer to and be consistent with the series of technical papers prepared by the PRC.

Summary (should include the following)

Table and/or map of regions and compliance/non-compliance with the monitoring protocol

1. Introduction (should include the following)
 - Context for AAQ NEPM monitoring
 - Role of PRC and National Environment Protection (Ambient Air Quality) Measure Technical Papers
2. Selection of regions (should include the following)
 - 2.1 Reference to National Environment Protection (Ambient Air Quality) Measure Technical Paper No. 2 (Selection of Regions)
 - 2.2 Selection of regions consistent with the Technical Paper No. 2
3. Monitoring requirements for regions
 - 3.1 Reference to National Environment Protection (Ambient Air Quality) Measure Technical Paper No. 3 (Monitoring Strategy)
 - 3.2 Reference to Clause 14 of the AAQ NEPM

For each region:

 - 3.3 Appropriate description of region

- 3.4 Appropriate description of air pollution meteorology
- 3.5 Appropriate description of existing data and model results
- 3.6 Evaluation of Clause 14 in relation to the number of Performance Monitoring Stations (PMSs)

For each region, monitoring requirements for each pollutant (O₃, NO₂, PM₁₀, CO, SO₂, Pb) should be specified and discussed including the following:

- 3.7 Whether PMSs are used (Clause 11)
 - 3.8 Trend stations are nominated appropriately, under Clause 15, especially noting reasons for a possible limited life for a PMS
 - 3.9 Where PMSs are used, there is an adequate number of PMSs (Clause 14(2))
 - 3.10 Where PMSs are used, there is an appropriate balance of Generally Representative Upper Bound (GRUB) and population-based sites, consistent with the National Environment Protection (Ambient Air Quality) Measure Technical Paper No. 3 and Clause 14(2)
 - 3.11 Screening is consistent with National Environment Protection (Ambient Air Quality) Measure Technical Paper No. 4 (Screening Procedures) to reduce number of PMSs under Clause 14(3)
 - 3.12 Exposed population is described (Clause 17)
- 4. Siting and instrumentation (should include the following)
 - 4.1 Appropriate table of PMS site compliance against Australian Standards (AS)
 - 4.2 Appropriate tables of instruments at each PMS, against Schedule 3
 - 4.3 Appropriate description and explanation of non-compliance
 - 4.4 Reference to detailed documentation on each PMS and instrument
 - 4.5 Data handling is consistent with National Environment Protection (Ambient Air Quality) Measure Technical Paper No. 5 (Data Collection and Handling)
 - 4.6 Meteorological measurements are consistent with National Environment Protection (Ambient Air Quality) Measure Technical Paper No. 6 (Meteorological Measurements for AAQ NEPM)
 - 4.7 List of other relevant measurements (e.g., PM_{2.5}, 10-minute SO₂, nephelometer, NO_x)
- 5. Accreditation (should include the following)
 - 5.1 Reference to National Environment Protection (Ambient Air Quality) Measure Technical Paper No. 7 (Accreditation for Performance Monitoring)
 - 5.2 Appropriate agent is used (i.e., NATA)
 - 5.3 Appropriate description of process and status
- 6. Reporting (should include the following)
 - 6.1 Reference to National Environment Protection (Ambient Air Quality) Measure Technical Paper No. 8 (Annual Reports for AAQ NEPM)

ATTACHMENT 1

BASIC STRUCTURE FOR AAQ NEPM MONITORING PLANS

Summary

Summarises key issues from body of document

1. Introduction

AAQ NEPM context and history
Role of PRC and technical papers
AAQ NEPM monitoring within overall monitoring context

2. Selection of regions

Refer to technical paper
List of all regions covered by AAQ NEPM, ordered by population (use table and map)

- centres with population > 25,000 (Types 1 and 3)
- regions with significant emissions (Type 2)

3. Monitoring requirements of region

Refer to technical paper
Description of Clause 14

Section on each region:

- overview description of region (as relevant)
- regional boundaries
- map showing region
- population distribution
- topography
- sources and emissions
- air pollution meteorology
- current/past air quality monitoring with map and table
- modelling information
- evaluation of Clause 14 on number (to be reassessed for each pollutant)
- assessment of PMSs for each pollutant:
 - assessment of monitoring requirements based on relevant arguments, e.g. existing monitoring data and trends and/or other items as per above list. This will yield either:
 - confirmation of AAQ NEPM formula
 - identification of need for additional stations as per 14 (2)
 - ability to screen as per 14 (3) and PRC screening paper.

Also ensure balance of GRUB and population-based stations.

- description of exposed population for each PMS (Clause 17), consisting of a qualitative statement on the representativeness of the population near the PMS (Clause 11(b) could be applied here)
- nomination of trend sites in each region (especially noting why some sites might be unsuitable for trends)

4. Siting and instrumentation

Tabulation of station site compliance
Tabulation of sites against instruments and pollutants (including start date)
Description of exceptions

Reference to detailed information on site and instrumentation
Description of exceptions to agreed data handling procedures
Meteorological observations: reference technical paper
Table of relevant other observations at PMSs e.g.:
PM_{2.5}
10 min SO₂
nephelometer
NO_x

5. Accreditation

Refer to technical paper, exception reporting
Agent
Process and outcomes

6. Reporting

Summary of technical paper

Appendix

Glossary