National Environment Protection (Ambient Air Quality) Measure

Technical Paper No. 7

Accreditation of Performance Monitoring

Prepared by the
Peer Review Committee

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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.

M J Manton
Chair
Peer Review Committee

1. PURPOSE

The purpose of this paper is to specify the criteria for accreditation and to recommend the accrediting bodies that meet the requirements of the Ambient Air Quality – National Environment Protection Measure (AAQ NEPM).

2. INTRODUCTION

The AAQ NEPM in Clause 12 specifies that:

1) *"Subject to subclause (2) the operator of a performance monitoring station must be accredited by the National Association of Testing Authorities.*
2) *The operator may apply an equivalent system for ensuring adequate monitoring, quality assurance, and validation procedures".*

The Peer Review Committee (PRC) of the National Environment Protection Council (NEPC) has established a list of essential criteria against which an organisation may be evaluated as a potential accrediting body under the terms of the AAQ NEPM. This provides a transparent mechanism by which the issue of achieving suitable accreditation can be undertaken.

Accreditation for the purposes of the AAQ NEPM covers the activities of sample collection, handling and analysis, data collection, validation, handling, reporting and storage, and instrument operation and calibration. It demonstrates the existence of a functioning quality management system being carried out by competent staff.

Although the AAQ NEPM does not specify that monitoring of meteorological parameters is required for compliance with the Protocol, their influence on ambient concentrations of air pollutants warrants establishment of appropriate meteorological monitoring. Accreditation of the meteorological monitoring programs is therefore also desirable and should be pursued by its practitioners, but it is not considered essential by the PRC for compliance with the AAQ NEPM.

3. ACCREDITING ORGANISATIONS

Since the AAQ NEPM clearly requires the accreditation of jurisdictions, the central elements of the criteria must be the distinction between accreditation and certification. In this respect the definition of accreditation provided in ISO Guide 25 as "formal recognition that a testing laboratory is competent to carry out specific types of test" is pivotal. The European equivalent, EN 45001, has similar requirements.

That is, accreditation ensures that there is a functioning quality management system in place as well as competent staff with appropriate knowledge and qualifications to carry out the testing. On the other hand, certification ensures a quality management system is in place but does not necessarily certify staff competency.

Thus, it is imperative that the accreditation process is able to recognise a laboratory's technical capability (or competence) defined in terms of specific tests, measurements, and calibrations.

In this regard the comments, in April 1992 of the European Organisation for Testing and Certification are particularly relevant:

" The only acceptable stand is to state that Quality Systems (QS) certification cannot be taken as an alternative to accreditation, when assessing the proficiency of testing laboratories. Not trying to underrate the QS Certification procedure, it should nonetheless be underlined that, by being intended as

a systematic approach to the assessment of an extremely broad scope of organisations and fields of activity, it cannot include technical requirements specific to a given domain."

It also needs to be noted that accreditation applies to specific test methods. Thus each of the jurisdictions or laboratories working on their behalf must be accredited for methods for analysing each of the six pollutants specified in the AAQ NEPM.

4. ESSENTIAL CRITERIA

On the basis of the above the PRC agreed upon the following essential criteria.

Any potential accrediting organisation must satisfy the following requirements:

1. Defined and documented test procedures are followed.
2. The test procedures are appropriate to use in the circumstances and produce accurate results.
3. The procedures have been validated to ensure their accuracy and precision.
4. The correct equipment, consumables, and other resources and facilities necessary to perform these procedures are available.
5. Calibration procedures are adequate to ensure all aspects of test procedure are performed accurately.
6. Measurement can be traced back to National and/or International Standards.
7. Effective quality assurance procedures are in place to ensure ongoing accuracy.
8. Internal audit and systems review procedures are in place and operate effectively.
9. There are systems in place to deal with complaints, identify non-conforming work and ensure corrective actions, as necessary.
10. Staff are technically competent to carry out their assigned functions and do so in a scientific and ethical way.
11. The science behind the test procedure and the limitations of the procedure are understood by the staff performing it.
12. Staff can foresee and cope with any technical problems that may arise while using the procedures.
13. Both the quality management systems of the organisation and the attitudes of management support maintenance of quality in the operation of the laboratory.

To ensure that the examination of these aspects is conducted to an appropriate standard, the assessment team provided by the accrediting organisation must have personnel with expert technical knowledge of the test or measurement methodology being evaluated for recognition in a specific laboratory. The accrediting organisation should also have personnel with specific knowledge of the policies and practices of the accreditation body and the general systems applicable to all accredited laboratories.

It should also be noted that:

- the accreditation organisation and its assessors must not have any conflicts of interest; and
- the accreditation organisation must have access to sufficient technical and system assessors to carry out the assessment process for all jurisdictions in the time frame set by the AAQ NEPM.

5. THE CURRENT AUSTRALIAN SITUATION

The Committee of Inquiry into Australia's Standards established under the Chairmanship of Mr Bruce Kean in 1994 examined the issue of laboratory accreditation and concluded that open competition in laboratory accreditation would not be in the national interest. The report of March 1995 recommended that the Commonwealth Government renew its Memorandum of

Understanding with the National Association of Testing Authorities (NATA) recognising and supporting NATA as the peak laboratory accreditation body. The Government supported this recommendation.

Four of the jurisdictions are already either accredited by NATA or are in an advanced stage of the accreditation process.

Since a part of the AAQ NEPM is to achieve national consistency, the PRC is of the view that, logically, the same body using a single methodology should accredit all jurisdictions.

The PRC examined the list of potential accrediting bodies (Attachment 1). While this is not an exhaustive list it is believed to contain all potential bodies within Australia together with some of the more prominent international possibilities.

NATA is the only Australian-based organisation that currently meets all of the criteria. The potential outcome of using a non-Australian accrediting organisation is considered undesirable by the PRC.

Further information relevant to the timing and means by which jurisdictions must proceed to obtain accreditation is included at Attachment 2.

6. RECOMMENDATION

The PRC concluded that, of the Australian organisations, NATA is the only one which currently meets the essential criteria. PRC also concluded that there is little justification or benefit in considering international organisations to conduct accreditation in Australia. Accordingly the Peer Review committee recommends to NEPC Committee that for the purposes of the AAQ NEPM:

- there should be a single accrediting body; and
- that body should, at this time, be NATA.

ATTACHMENT 1

List of Potential Accreditation Organisations

National Association of Testing Authorities (NATA) (Australia)
Bureau Veritas
Det Norske Veritas
ETRS
Lloyd's Register of Shipping
Quality Assurance Services (QAS) (operated by Standards Australia)
Quality Management Systems (QMS) (operated by NATA)

ATTACHMENT 2

ACCREDITATION TIME FRAME

Laboratories that have no accreditation would require a minimum of 12 months to gain accreditation from the time a suitable quality system is in place and operating. Thus jurisdictions will need to commence accreditation as a matter of urgency. The following steps will need to be taken:

- train relevant staff as required for accreditation;.
- ensure that a suitable organisation and management structure is in place;
- develop a quality assurance system and controlled documentation;
- ensure all staff are trained for the functions they carry out;
- ensure accommodation and testing environment is suitable both central laboratory and monitoring stations;
- ensure all equipment and reference materials are suitable;
- ensure measurement traceability and calibration is in order;
- ensure all test methods are available;
- ensure management of test items is correct;
- ensure the record system is suitable including reports and certificates;
- ensure external resources are suitable;
- have a complaints resolution system in place;
- undertake a preliminary assessment to find any faults in systems;
- achieve final accreditation.

COST

There will be costs to laboratories to gain accreditation. These are associated with the:

- development of the quality assurance system;
- development of documentation;
- correction of non-complying conditions within laboratories;
- cost of the accreditation itself.

The cost will vary between laboratories depending on the extent of changes which must be made. There is also a possibility for costs of accreditation to be reduced if the accrediting organisation is approached on the basis of a number of laboratories being assessed in the same manner, and where a proportion of the assessors are staff from the jurisdictions' laboratories.

As the AAQ NEPM is asking for accreditation for the same analyses in every jurisdiction, savings could be made if a consultant were engaged to develop documentation which could be used by all laboratories with perhaps only minor modifications as required. NSW has offered to make available its existing documents to other jurisdictions to maximise use of commonly applicable documents. A consultant could subsequently be engaged to develop the necessary documents in a period of six months for each of the larger networks.

Accreditation fees are dependent on complexity of the network, but include an initial application fee of $1,200 plus assessment fees. Annual assessment fees are likely to be of the order of $5,000 per jurisdiction.

INTERLABORATORY COMPARISONS

Interlaboratory comparisons were once organised by the then Department of Arts Sports Tourism and Territories but the function lapsed when staff moved and has never been resumed. It is a necessary function to assist jurisdictions in ensuring comparable measurements and

NATA would expect interlaboratory comparison to be conducted, as part of the accreditation procedure. The original comparisons took the form of submission of gas samples of concentration unknown to laboratories in a "Round Robin" to test analytical instrument calibration and accuracy.

The PRC is liaising with NATA and CSIRO to develop an appropriate protocol for interlaboratory comparisons under the AAQ NEPM. The outcome of this process will be a costed proposal which will be submitted to the NEPC Committee for consideration.

ACCREDITING ORGANISATION INPUT

The selected accrediting organisation should be formally contacted and informed of requirements for accreditation and the time frame within which it is expected to occur, to enable that organisation to begin the necessary preparations for conducting assessments.

It may be that officers with appropriate qualifications and experience from within jurisdictions will have to be co-opted and trained as assessors. Officers should not be involved in assessment of their own jurisdiction.