



Biological Testing ISO/IEC 17025 Application Document

Annex E: Accreditation of facilities for biological tests on water

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Biological Testing Annex E: Accreditation of facilities for biological tests on water

This document provides additional interpretative criteria and recommendations for the application of ISO/IEC 17025 for both applicant and accredited facilities conducting tests under Aquatic Biology (8.65) and Ecotoxicology (8.66). These criteria do not cover the testing for *Cryptosporidium* and *Giardia*, which are covered in *Biological Testing Annex A: Accreditation of facilities for testing of water samples for Cryptosporidium and Giardia*.

Applicant and accredited facilities must also comply with the ISO/IEC 17025 standard and the Biological Testing field application document and any field annexes, policies and/or technical circulars (refer to *NATA Procedures for Accreditation*).

The clause numbers in this document follow those of ISO/IEC 17025 but since not all clauses require interpretation the numbering may not be consecutive.

Accreditation is available for the detection, identification and enumeration of algae, microinvertebrates, macroinvertebrates, protozoa (other than *Giardia* and *Cryptosporidium*) and cyanobacteria. The scope of accreditation must list potentially toxic cyanobacteria and planktonic algae must be listed to species level, other cyanobacteria and planktonic algae can be identified to the lowest level as determined by the competency of the facilities.

Accreditation is also available for the collection of samples of aquatic organisms (8.65), the detection of toxicity associated with the cyanobacteria and marine phytoplankton, and ecotoxicological bioassays using a range of indicator organisms, including microinvertebrates (8.66).

The system of classification for all determinations under Aquatic Biology, is based on the classification of organisms to a specified level as indicated in the classes of test.

Assessment of algae, microinvertebrate and macroinvertebrate identification and enumeration are undertaken using checklists to ensure consistency of approach in the areas of testing where there are no standard methods for sampling, identifying and enumeration of organisms. The checklists used for the assessment of facilities testing for algae, microinvertebrates and macroinvertebrates are available from the Biological Testing page linked to NATA's website (www.nata.com.au). These checklists detail specific requirements for accreditation and are to be read in conjunction with this Field Application Document.

5.2 Staff competency

Staff approved to release results for Aquatic Biology will be expected to demonstrate an ability to identify and enumerate examples of target organisms to a defined level e.g. family, genus or species.

Facility management are expected to provide opportunities for staff to gain further experience in the field of Aquatic Biology. Provision must be made for staff to attend relevant workshops and conferences to ensure they keep up to date with changes in taxonomy and develop a professional network with other scientists working in the field.

5.3 Accommodation and environmental conditions

The facility must provide a suitable environment for the undertaking of careful observations using microscopic techniques.

Provision for adequate rest periods must be available between samples and for the provision of adequate staff resources to meet peak demand.

5.4 Test and calibration methods and method validation

Whilst standard methods are not available, facilities are expected to follow current industry best practice (e.g. as outlined in the Land & Water Resources publication by G Hotzel and R Croome *A Phytoplankton Methods Manual for Australian Freshwaters*).

5.5 Equipment

Equipment for sampling shall be that as defined in the phycology, microinvertebrate or macroinvertebrate checklist. Optical instruments shall be of a quality to allow accurate measurement/counting of target organisms. Maintenance of optical equipment must be such as to maintain peak performance.

Staff must be trained to correctly set up and operate optical equipment and to be aware when servicing may be required.

5.6 Measurement traceability

5.6.3 Reference materials

The facility is expected to maintain a reference library including text books, photo micrographs and specimens. It is important to maintain a collection of specimens that have not been able to be identified. With advances in taxonomy, such a collection may provide valuable information for the future.

A system must be developed to allow new or unidentifiable specimens to be sent to taxonomic experts for identification. With advances in electronic photo imaging it is desirable that a means of capturing images electronically be developed.

References

This section lists publications referenced in this document. The year of publication is not included as it is expected that only current versions of the references shall be used.

Hotzel G and Croome R *A Phytoplankton Methods Manual for Australian Freshwaters*