

AQUATALK



In this edition

- Assessing Mutagenic Activity
- Research, Development and Innovation Workshop
- Change in preservation of THM samples
- How we monitor Algae and Cyanobacteria

Send to a colleague

Send this email to a colleague you think may be interested.



Improved Nutrient Reporting

The AWQC is committed to providing a high quality, accurate

Dear Aquatalk Subscriber

Welcome Message

Welcome to the August Issue of AquaTalk, Newsletter of the Australian Water Quality Centre. This issue describes some new developments in laboratory methods and tests that are now available at AWQC. In particular how the Ames Mutagenicity Test, that has been used up till now in assessing products and materials, can have other potable water applications. We also have a new procedure for preserving samples for THM analysis, and new improved limits of reporting for nutrient analysis. The issue also describes the annual RDI workshop and how AWQC and SA Water use this to focus research on key operational and strategic topics for the organisation. Finally with winter giving way to spring, the algae and cyanobacteria season is commencing and in this issue we describe how we monitor for these and can assist with monitoring programs.

Karen Simpson, Manager Laboratory Services and Mike Burch, (Acting) RDI Manager.

service and is continually improving. The most recent improvement is implementation of a new instrument for analysis of nutrients and subsequent reduction in the Limit of Reporting (LOR).

Nitrite, nitrate (oxidised nitrogen species) and filterable reactive phosphorus will now be analysed on a Flow Injection Analyser (FIA) and the new LOR will be 0.003mg/L for each of these analytes.



PO Box 1751
Adelaide SA 5001
250 Victoria Square
Adelaide SA 5000

Tel: 1300 653 366
Fax: 1300 883 171

awqc@sawater.com.au
www.awqc.com.au



Assessing Mutagenic Activity

AS/NZS 4020 tests products for their suitability in contact with drinking water, and the AWQC was the first laboratory in Australia to offer testing to this Standard. The first products were submitted in 1992 and since that time, the laboratory has tested over 2500 products. One of the tests in AS/NZS 4020 assesses products or materials ability to leach compounds that give a mutagenic response. This is conducted by the 'Ames Test', a reverse mutation assay. Water extracts that have been in contact with products and materials are mixed with specific bacteria and any measured change in genetic nature of the bacteria is regarded as evidence of mutagenic activity.

AWQC expertise in assessing mutagenic compounds has enabled this test to be used in other potable water applications including the evaluation of disinfection by products in water treatment processes. If you would like to find out more about the use of this assay please [EMAIL HERE](#)



Research, Development and Innovation Workshop

It was great to see 171 people register for sessions at the workshop, with 124 SA Water staff and 47 external representatives including 8 from interstate (QLD, NSW, VIC and WA). The workshop was held at the National Wine Centre and opened by SA Water, Chief Executive, Anne Howe. The 2-day workshop sessions focussed on;

- **Sustainability & Environment** (Adelaide Coastal Waters, Coffin Bay Aquifer Study, Reservoir Modelling, Climate Change Research)
- **Wastewater & Reuse** (Operational Issues, ASR and Reuse, Pathogen Disinfection)
- **Treatment and Distribution** (Treatment, Disinfection by-

products, Desalination)

- **Infrastructure & Asset Management** (Corrosion and Odour, Pipes, Modelling)
- **Cyanobacterial Management** (Taste & Odour, Algal Toxins, Guidance Manuals)
- **Analytical Methods** (Regional Issues, On-line Tools, Rapid Methods, Toxicology)

The program reinforces the need for developing operationally focussed research that is beneficial to SA Water and encourages more bilateral participation and interaction between researchers and operational personnel to identify practical outcomes.

Change in preservation of THM samples

Trihalomethanes (THMs) are disinfection byproducts (DBPs) formed when source water reacts with chemical treating agents during the disinfection process. To maintain the integrity of a sample prior to analysis, a quenching agent is added to the sample bottle to preserve the sample and give a true indication of the amount of THM present. Ascorbic acid, ammonium chloride, sodium thiosulfate and sodium sulfite are commonly used quenching agents.

Ascorbic acid is a recommended quenching agent by *Standard Methods for Examination of Water and Wastewater* to halt reactions between natural organic matters and disinfectants. A recent study by AWQC's Organic Chemistry Laboratory has shown that ammonium chloride is a more suitable quenching agent than ascorbic acid. The samples preserved by ammonium chloride produced the most reliable and repeatable results even when analysis occurred two weeks after sample collection

As a result of the study, all sample bottles supplied by AWQC will now contain the quenching agent ammonium chloride. This is consistent with preservation of samples for Halogenated Acetic Acids and Chloral Hydrate analyses. For customer supplied bottles please ensure sample bottles are dosed with 100mg ammonium chloride per one litre of sample.



How we monitor Algae and Cyanobacteria

Planktonic algae and cyanobacteria are microscopic photosynthetic organisms which are a natural and essential component of all surface water environments. Under favourable environmental conditions, some planktonic species can grow rapidly to form large accumulations called "blooms", which may adversely affect the water quality of sources that are used for drinking, agriculture and recreation. Even at moderately low numbers, certain types can impart tastes and odours and interfere with a range of water treatment processes such as coagulation and filtration.

Cyanobacteria (also known as "blue-green algae") are of most concern in freshwater lakes, reservoirs and rivers, because certain species can produce toxins which are a serious threat to human and animal health.

The implementation of biological monitoring programs allows the assessment of changes in species composition and abundance both spatially and temporally. The results may be applied to investigations of the environmental impacts on aquatic ecosystems as well as the operational management of public water supplies. Monitoring programs should be designed so that significant changes in algal populations are captured in successive sampling events. [READ MORE](#)



Water Quality Solutions

www.awqc.com.au

Having trouble reading this email? [View it in your browser](#). Not interested anymore? [Unsubscribe](#)

[Disclaimer](#) | [Copyright](#) | [Privacy Policy](#)