



**Australian
Water
Quality
Centre**

Expertise at the Australian Water Quality Centre

As a leading provider of research and analytical services, the AWQC is well placed to share its knowledge and expertise with others



KEY RESEARCH FOCUS FOR AWQC

As part of the South Australian Water Corporation the AWQC focuses its research activities on the delivery of operational outcomes in line with the corporation's strategic plan. In this way the corporation and the people of South Australia benefit directly from the applied research.

Drivers for research in South Australia are derived from the need to produce acceptable drinking water quality with low risks to public health and ensure commitments are met to environmental improvement initiatives in the areas of wastewater treatment and re-use. All research can be grouped into 5 broad areas encompassing drinking water treatment, distribution, measurement and monitoring, catchments and reservoirs, public health issues and wastewater.

The AWQC is well renowned for its work in the area of Blue-Green Algae including management, control and removal within the drinking water process from catchments to tap. Publications in this field are numerous and include papers, books, manuals and guidelines adopted nationally and internationally in the field of Blue-Green Algal research.

South Australia sources a large portion of its water from reservoirs. Natural organic matter and its removal is a subject area where the AWQC actively works with global partners to achieve outcomes of value to all water utilities around the world.

ANALYTICAL METHODOLOGIES AT THE LEADING EDGE

Operating as an analytical laboratory for the South Australian Water Corporation and the global water industry, the AWQC has developed world leading methodologies for the low level detection of a range of taste and odour compounds and algal toxins.

Geosmin and MIB, often responsible for musty tastes and odours in drinking water can now be measured to nanogram levels.

Methods for the detection of Cryptosporidium and Giardia are second to none, developed directly for SA Water and offered across Australia. A methodology to detect viability of Cryptosporidium developed at AWQC is to be trialed internationally this year.

The development of a cell culture facility followed the need to test toxicity of various algal species and is now available as a service to global clients.

The rapid detection of microorganisms using molecular biology based techniques is also a major thrust and has won international acclaim, attracting significant overseas research funding.


**AUSTRALIAN WATER
QUALITY CENTRE**
250 Victoria Square
Adelaide SA 5000
Telephone 1300 653 366
Facsimile 1300 883 171
GPO Box 1751
Adelaide SA 5001
awqc@sawater.com.au
www.awqc.com.au

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APPLYING RESEARCH OUTCOMES

The AWQC's greatest strength is in its ability to respond to the needs of water utilities and their ongoing challenges to produce safe drinking water to cost effective standards. Able to quickly mobilize and develop new methodologies for various chemical and microbial contaminants to low levels of detection the AWQC has demonstrated this ability through providing *Phormidium* analysis, atrazine and its metabolites and faecal sterols.

The results of algal research have contributed directly to better methods of reservoir management. South Australian reservoirs would be at high risk of contamination with toxic forms of Blue-Green algae were it not for the application of management techniques developed by the AWQC.

Applying research outcomes, AWQC has provided assistance to a number of Australian water authorities; examples include assessing the feasibility of implementing chloramination in various distribution systems, determining the effectiveness of ozonation for odour and algal toxin removal and evaluation of treatment plant design to assess likelihood of proposed performance.

LINKS TO THE GLOBAL WATER INDUSTRY

The AWQC, through its international research efforts, has established strong links with international granting bodies and organizations. For instance the centre is a founder member of the Cooperative Research Centre for Water Quality and Treatment through which many of its research programs are funded. Through the CRC the centre also has access to organizations such as the Global Water Research Coalition. Several million dollars in R&D funding have also come from the American Water Works Research Foundation in recent years.

Many members of scientific staff are internationally recognized scientists in their own right and invitations are often received to present keynote addresses at international conferences. We also have several joint international research projects with active collaborations in countries such as: USA, UK, Canada, Germany, France, South Africa and Brazil.

SHARING THE KNOWLEDGE

Research and analytical experience places the AWQC in the enviable position of being able to offer tailored programs of education to water utilities and clients. Recent accomplishments include the provision of workshops on Blue-Green Algae management, seminars on analytical techniques and interferences, manuals and lectures on sampling for water quality testing purposes. Water Quality Fundamentals is a 3 day course developed for SA Water which is also currently being considered for application by other clients.

The Australian Water Quality Centre also provides ongoing support and supervision for many post graduate students conducting research into water quality related fields. Several members of staff hold joint academic positions in the University of South Australia and University of Adelaide.

The combination of all these abilities well places the AWQC to deliver comprehensive and focused training sessions to water utilities and all who are involved in managing water quality.



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