Submission to the

House of Representatives Standing Committee on Agriculture, Fisheries and Forestry

Concerning its

Inquiry into Future Water Supplies for Australia's Rural Industries and Communities

Submitted by

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The Secretary
House of Representatives Standing Committee on Agriculture, Fisheries and Forestry
Parliament House
Canberra ACT 2600

Dear Secretary,

Inquiry into Australia's urban water management

I wish to make this submission to the House of Representatives Standing Committee on Agriculture, Fisheries and Forestry in relation to its current inquiry into future water supplies for Australia's rural industries and communities.

The submission is made in my capacity as Chief Executive Officer of the Cooperative Research Centre (CRC) for Water Quality and Treatment, Australia's national drinking water research centre.

I have been working in the Australian water industry for more than 30 years and since 1990 have been Chief Scientist for the South Australian Water Corporation. I also chair the NHMRC Drinking Water Review Coordinating Group reviewing the *Australian Drinking Water Guidelines*, one of the documents making up the National Water Quality Management Strategy.

In this submission, I shall outline the activities of the CRC for Water Quality and Treatment, then discuss the *Australian Drinking Water Guidelines* and the involvement of the NHMRC in the *Australian Drinking Water Guidelines*, then describe the CRC's Regional and Rural Water Supplies Program, and finally comment on some issues affecting the provision of good quality drinking water to Australian communities no matter where they live.

Let me indicate at the outset my willingness to appear before the Committee to discuss the matters raised in this submission and to answer questions that might arise. In appearing before the Committee, I would wish to be accompanied by the CRC's Regional and Rural Water Supplies Program Leader, Mr Darryl Day, General Manager Water Services, Power and Water Corporation (located in the Northern Territory).

CRC for Water Quality and Treatment

The CRC for Water Quality and Treatment was formed in 1995 as an unincorporated joint venture involving seventeen parties under the Commonwealth Government's Cooperative Research Centres Program. It is currently one year into a new seven-year agreement with the Commonwealth for the period up until June 2008 and now involves 29 parties from industry, the research community and government. These parties are listed in the attachment. Also listed are the other organisations that have formed links to the CRC through its Associates Program.

The CRC for Water Quality and Treatment's activities focus on potable water, the highest value use of water extracted from the environment.

Since 1995, the CRC for Water Quality and Treatment has been providing an essential research and knowledge management capability to support the Australian urban water industry in its role of providing safe and aesthetically pleasing water supplies to Australian communities at an affordable price.

Research Activities

As a result of climate, the pattern of settlement and other local factors, providing quality water supplies to Australian communities can involve considerable and sometimes unique challenges. These can arise from such factors as the natural processes occurring in rivers and storages, the elevated levels of organic material in the water derived from vegetation in the catchment and the need to pipe the water over long distances and sometimes at elevated temperatures. For the last seven years, collaborative research within the CRC has been meeting these challenges and providing the information upon which to base sound decisions about the quality and treatment of Australian water supplies.

Under its new agreement with the Commonwealth, the CRC is continuing research on drinking water quality and treatment issues, from the catchment to the tap. In this, it continues research in some previous areas of activity but has also moved into new areas of concern to the industry and public health authorities. As previously, the CRC is developing and sharing knowledge that will help improve drinking water quality and reduce risks to public health.

Under its new agreement with the Commonwealth, the CRC's research activities have been organised into three new Programs:

(1) Health and Aesthetics

This Program aims to understand the link between human health and drinking water quality.

The research focuses on microbiological and chemical risks relevant to Australian water supplies, integrating toxicological and epidemiological research methods. The Health and Aesthetics program is also investigating the factors that affect community perceptions of drinking water quality and safety.

(2) Catchment to Customer

This Program focuses on the contaminants that have the greatest implications for urban water supply systems, including suspended particles, natural organic matter, pathogens, nutrients, cyanobacteria, micropollutants and salinity.

By identifying the processes that lead to poor water quality, the Catchment to Customer program is developing integrated management and treatment options to ensure high quality water from the catchment through the treatment process to the consumer.

Of particular interest to the Committee would be the CRC's Sustainable Water Sources Program under Mr Howard Gibson, Water Sector Specialist with Brisbane City Enterprises (a company owned by Brisbane City Council). The Sustainable Water Sources Program aims to develop drinking water systems based on alternative water sources that are sustainable from the economic, environmental, health and social points of view. Whilst useful activities have been undertaken in various jurisdictions around the country, this Program is bringing these contributions together and taking a national approach to some of the issues involved.

(3) Policy, Regulation and Stakeholder Involvement

The supply of high quality water to a community involves not only the technical and engineering facilities of a collection, treatment and delivery system, but also requires consideration of a broad range of policy and regulatory issues.

The Policy, Regulation and Stakeholder Involvement Program aims to address water quality guidelines, standards, and codes of practice; the needs of small community systems; indigenous issues relating to water quality and health; and water quality management in tropical regions.

International Links

The CRC has strong collaborative links with the world's leading drinking water research agencies.

These international links give Australian water authorities and businesses increased access to international expertise, and strengthen Australia's ability to compete in the international consultancy market.

The CRC is also contributing to the activities of the World Health Organization (WHO) in revising its guidelines for drinking water quality. In May 2001 the CRC jointly hosted with the National Health and Medical Research Council (NHMRC) a meeting in Adelaide of the WHO Drinking Water Quality Committee's Microbiology Working Group.

Education and Training

The CRC's education and training program provides specialist undergraduate and postgraduate experience in water science and technology. Students work closely with university and industry researchers, adding advanced technical skills and experience to a strong academic foundation.

The CRC also provides ongoing training and professional development for students and water industry professionals, conducting workshops, conferences, seminars and short courses on key water quality issues.

Australian Drinking Water Guidelines

The key Australian reference on good quality drinking water is *Australian Drinking Water Guidelines* (the Guidelines). The Guidelines were jointly prepared by the NHMRC and the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ). To a considerable extent, the Guidelines reflect the content of the international guidelines on drinking water quality developed under the auspices of the World Health Organization. However, the guidelines developed for broad application internationally are not always appropriate for Australian circumstances.

When published in 1996, *Australian Drinking Water Guidelines* was intended to be subject to ongoing review.

> "The *Australian Drinking Water Guidelines* guidelines will be subject to ongoing review. The review process will be undertaken by a joint committee with representatives from national health, water, environmental and community organisations, and supported by specialist panels."

This review process commenced in late 1997 and continues today under the auspices of the NHMRC and the Natural Resource Management Ministerial Council.

Outcomes from the CRC's research and development activities are being used to keep *Australian Drinking Water Guidelines* up to date and appropriate to Australian circumstances.

Although the current version of the *Australian Drinking Water Guidelines* is an excellent document, work has been done to upgrade some of the advisory text. The *Australian Drinking Water Guidelines* incorporates many elements of a preventive approach to drinking water quality management. Supplemented and supported by the use of quality management principles, the insights already contained within the Guidelines have been used to develop a framework for drinking water quality management that emphasises prevention and risk management. The initial developmental work on such a strategy was done within the CRC. The move to an approach that emphasises preventive quality management of drinking water from the catchment to the tap received support at the highest health and resource management policy levels. Subsequently it became part of the NHMRC Drinking Water Review as the *Framework for Management of Drinking Water Quality* and will be incorporated into a new version of the Guidelines, about to be released by the NHMRC for public consultation.

The Framework proposes a new paradigm for ensuring the safety and quality of public drinking water supplies. It emphasises proactive risk management, from catchment (or aquifer) to consumer, rather than the traditional focus on monitoring of the end product. The approach is not novel in the context of public safety; this is the basis for much of the quality assurance undertaken for food production. However, the Framework is unique in that it will be the first document developed at a national level that provides a methodology of this sort, specifically designed for comprehensive management of public drinking water supplies.

Following this total system risk management approach should ensure good water quality outcomes and reduce the undue emphasis that seems to be currently placed on the guideline values (that is, the numbers) in the *Australian Drinking Water Guidelines*.

The quality management approach of the Framework has been developed to be as relevant to rural and regional water supply systems as to those supplying large cities and to apply across various regions, source water types, treatment types, and organisational and institutional arrangements.

Further information on the Framework is available on the NHMRC web site at http://www.health.gov.au/nhmrc/publications/synopses/eh19syn.htm

NHMRC and the Guidelines

In my view, the Australian water industry needs to have the knowledge, skills and the authority of the NHMRC to continue to support the industry in its crucial public health protection role, ensuring safe water supplies for Australians. It can do this through its continued involvement in maintaining an excellent set of water quality guidelines.

The NHMRC is not involved in setting the regulations or standards – it is involved in deriving the Guidelines that are the key reference point for subsequent standard setting, as explained above.

The Guidelines are there to ensure that Australians know what good quality, safe water is and that there is an authoritative source of information on how it might be provided and its quality assured. Political processes should operate in the downstream regulation setting processes.

Guidelines and Regulations - A Difference

An important issue, and one upon which I comment whenever I can, is the confusion in some quarters as to the role of guidelines and of regulations (for example see the Productivity Commission report of April 2000 "Arrangements for setting drinking water standards: International Benchmarking").

In my view, there is a need to separate the process of guidelines derivation from the process of regulation – at least when it comes to water quality.

It is a very challenging and complex process to assess the scientific, toxicological, epidemiological and other health-related information available in order to derive guideline values that define good quality water. It is my view that it would be entirely counterproductive to attempt to introduce social, cultural, political economic and other factors in to the *Australian Drinking Water Guidelines*.

There is an essential, legitimate, and in my view, entirely separate process involved in deriving water quality regulations (that is, standards) in the various jurisdictions in Australia. It is this latter activity where cost-benefit trade-offs are made. Consequently, this needs to be transparent to the communities affected by the eventual decisions.

In some other countries, such as the United States, the above two processes are really combined into one. The result is often neither a good guideline nor a good standard. There is

usually no flexibility for regional or local factors to be taken into account in the regulations and the situation is ripe for controversy between those seeking extreme margins of safety and those looking to make reductions in costs.

One needs only to have followed the saga of proposed changes to the arsenic regulations under the Safe Drinking Water Act in the US last year to see an excellent example of a water regulatory process that is not working (for further details, see www.epa.gov/safewater/arsenic.html). I trust we will never see a regulatory system like that in Australia.

Regional and Rural Water Supplies

While most parties to the CRC represent the major urban population centres in Australia, the CRC has recognised the clear need for research to provide better, more affordable solutions to water supply problems in regional, remote and rural Australia. The CRC sees a responsibility to address issues that are impacting on the provision of good quality, safe drinking water to these communities within Australia.

It is recognised by the CRC that many of the water providers in these communities do not have the resources to effectively initiate and undertake research into water quality issues that may impact on the health of the community. It is also recognised that many of these communities throughout Australia experience water quality problems and, to date, there has been no established mechanism by which this area of the industry has effective access to research resources or information. They also have little representation into industry policy and regulation (including the rolling revision of the Australian Drinking Water Guidelines) and the future strategic directions of the industry.

The CRC's Regional and Rural Water Supplies Program got underway in the second half of last year with the main objective being to offer to providers and stakeholders in Australia's regional, remote and rural water industry a mechanism that facilitates: representation of their research needs into CRC programs; technology transfer from CRC research projects; and the exchange of information on technical, scientific, policy, regulatory, managerial, strategic and social issues and solutions that impact on the provision of safe drinking water to these communities.

The Program intends establishing a communication medium that facilitates communication processes into and out of the CRC and also to support a network among program participants. It is hoped the development of synergistic relationships through this mechanism will result in the promotion of research into innovative, leading edge and cost-effective solutions and technologies for regional, remote and rural water supplies.

Specific objectives of the Program include:

- Establishment and maintenance of effective communication media that will facilitate collaboration across the CRC's industry and research parties and other stakeholders in health and water related activities in regional and rural communities.
- Identification of water issues for research that will provide better, appropriate and more affordable solutions to the challenge of supplying safe and efficient water services to indigenous communities in regional and rural Australia.
- Development and maintenance of an Australia wide network of key representative stakeholders involved in regional and rural water supplies, for the purpose of

communicating research issues and potential solutions as well as providing informal representation into industry policy, regulation and strategic planning activities.

The intended outputs and outcomes of the Program include:

- Important issues for the regional and rural water supply industry will be clearly identified.
- An appropriate portfolio of research will provide the regional and rural water industry with the information and tools to address these issues.
- Improved public health through facilitating the provision of safe water supplies in regional and rural Australia.
- Better investment decisions on public infrastructure projects and treatment technologies in regional and rural communities that may have limited resources, be disadvantaged through lack of economies of scale, have access to only poor quality raw water, be impacted by distance/isolation and have a wide distribution of consumers.

One recent activity in this Program has been a joint CRC/NHMRC conference on "Water and Public Health in Regional and Rural Australia" held in Alice Springs on 27 and 28 August 2002. This joint workshop arose out of the recognition within both the CRC and the NHMRC of a need to identify key water issues which impact on public health in regional and rural Australia. The workshop was an attempt to identify the main research questions and to inform and enlighten current policy and practice.

A write-up of the workshop outcomes could be forwarded to the Committee at a later date.

Issues to Consider

Beyond the Cooperative Research Centres Program

Several cooperative research centres, established and supported under the Commonwealth's Cooperative Research Centres Program, are providing the knowledge to inform decisions affecting adequate and sustainable water supplies for Australia's rural industries and communities now and in the future. The Cooperative Research Centres Program supports not only this CRC with its focus on drinking water quality and public health outcomes but others in such areas as freshwater ecology and catchment hydrology. Whilst funding has been for a fixed period, it has enabled successful collaboration of research users and research providers, and across jurisdictions, in a manner that would previously have been impossible. As the need for knowledge to support wise management of our water resources is ongoing, a mechanism should be developed to enable this important research effort to continue independent of the Cooperative Research Centres Program.

Involving the NHMRC

The continued involvement of the NHMRC in the development of the *Australian Drinking Water Guidelines* is essential to maintain the status and independence of the advice.

Regulating Drinking Water Quality in Australia

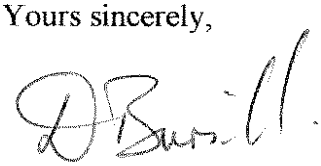
There is a need to separate the process of guidelines derivation from the process of regulation – at least when it comes to water quality. The water industry and public health authorities

have worked well together in developing the proposed changes to the *Australian Drinking Water Guidelines*. Once these changes are in place, the next challenge will be to look at how to improve the way that the *Australian Drinking Water Guidelines* is applied in the subsequent regulatory process. The CRC would wish to assist with that process.

The CRC's Regional and Rural Water Supplies Program

This relatively new Program in the CRC, under Mr Darryl Day, General Manager Water Services, Power and Water Corporation (Northern Territory) aims to offer to providers and stakeholders in Australia's regional, remote and rural water industry a mechanism that facilitates: representation of their research needs into CRC programs; technology transfer from CRC research projects; and the exchange of information on technical, scientific, policy, regulatory, managerial, strategic and social issues and solutions that impact on the provision of safe drinking water to these communities.

Yours sincerely,



DON BURSILL
CHIEF EXECUTIVE OFFICER

ATTACHMENT

Parties to the Cooperative Research Centre for Water Quality and Treatment as at July 2002

- ACTEW Corporation
- Australian Water Quality Centre
- Australian Water Services Pty Ltd
- Brisbane City Council
- Centre for Appropriate Technology
- CSIRO Molecular Science
- Curtin University of Technology Inc
- Department of Human Services Victoria
- Egis Consulting Australia Pty Ltd
- Environmental Protection Agency Queensland
- Griffith University
- Melbourne Water Corporation
- Monash University
- Orica Australia Pty Ltd
- Power and Water Authority
- Queensland Health Pathology & Scientific Services
- RMIT University
- South Australian Water Corporation
- South East Water Ltd
- Sydney Catchment Authority
- Sydney Water Corporation
- The University of Adelaide
- The University of New South Wales
- The University of Queensland
- United Water International Pty Ltd
- University of South Australia
- Water Corporation
- Water Services Association of Australia Inc
- Yarra Valley Water Ltd

Associates of the Cooperative Research Centre for Water Quality and Treatment as at July 2002

- Central Highlands Region Water Authority
- Gippsland Region Water Authority
- Goulburn Valley Region Water Authority
- Gold Coast City Council
- Grampians Region Water Authority
- Hunter Water Corporation
- Lower Murray Region Water Authority
- NSW Department of Public Works and Services
- South East Queensland Water Corporation Ltd
- Townsville Thuringowa Water Supply Board
- Victorian Department of Natural Resources and Environment