

Newsletter of Water Quality Research Australia Limited

Issue 10 – 2 February 2009

Welcome to the tenth issue of Water Quality Research Australia News, the newsletter of Water Quality Research Australia Limited (WQRA Limited). WQRA Limited is a not-for-profit scientific research institution, established to provide strategic knowledge for the Australian urban water industry. Incorporated in October 2007, its registered office is at Level 3, 250 Victoria Square, Adelaide.

Issues 1 - 9 of Water Quality Research Australia News can be downloaded from the website of WQRA Limited www.wqra.com.au

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CEO's Report

Greetings to all, and can you believe that January has flown by already? There is much news in this issue to bring you up to date with what has been happening in recent weeks.

This newsletter includes a list of proposed research projects that have been selected for full submissions, and a short description of the next steps in the process. Needless to say, it will be exciting to see WQRA's new research projects commence. These will complement the projects that are currently underway.

In the meantime, there is much to do including assisting in the development of the project proposals and review the proposals as they are submitted, forming of the Project Review Team and most importantly ensuring that the Australian Water industry needs are being addressed through the R&D that is being undertaken by WQRA. To help in making sure, during the next few months David, Michele and I will be travelling to meet with as many of our industry and research members as is possible.

February's visit schedule is:

- Perth (4th – 6th Feb)
- Melbourne (16th – 18th Feb)
- Darwin and Alice Springs (23rd – 27th Feb)

In addition, to assist WQRA in communicating with our members we will be developing a new website over the coming months and will be sending out a quick survey to see what members would like to see in terms of feel and content. The steering team for the website development is Angela Gackle (WQRA), Simon Newbold (WQRA) and Martha Sinclair (Monash Uni).

At the next Members meeting (16th February, Melbourne) there will be three presentations on a selection of our current projects. The Members Meeting is followed by the Summer Student Scholarship reporting seminar on the 17th – 18th February and I hope that many members and other readers, particularly those in Melbourne, are able to stay for the presentation of what are some

excellent undergraduate projects. If you are interested please register through the link below and on the WQRA website: http://www.wqra.com.au/temp/WQRA_Registration_Form_Delegates2.pdf.

Lastly, this year WQRA will be participating in OzWater '09 with a booth in the Trade Exhibition. Please drop by and say hello to the WQRA staff and pickup some WQRA goodies. Also look out for our articles in upcoming issues of *WATER* detailing the formation and start-up of WQRA.

Jodieann

Research Project Development

The following project teams have been invited to submit detailed proposals. There is no due date for full project proposal submission. When received, they will be assessed by the respective Program Managers and the Project Steering Team, before being submitted to the Board for a funding decision.

If projects require external peer review, that will potentially add more time to the assessment process. We anticipate the whole process (i.e. including a Board funding decision) taking approximately 6 - 8 weeks, assuming no external peer review.

Priority One Issues	
Project Title	Researchers
Characterisation and management of taste and odours from coal tar enamel lined mains	Felicity Roddick – RMIT, City West Water, South East Water, YV Water, Melbourne Water
Real time integrity monitoring for RO membrane systems	Eddy Ostarcevic - Victoria Uni, GWM Water, Coliban Water
Chlorine disinfection of human pathogenic viruses in recycled waters	Alex Keegan - AWQC, DHS Victoria, Water Futures, DHSA, Sydney Water
Epidemiology of <i>Cryptosporidium</i> and <i>Giardia</i> species and genotypes in animals in drinking water catchments using molecular tools	Paul Monis/Una Ryan – AWQC/ Murdoch Uni, SCA, Water Corporation
Development of predictive tools for membrane ageing	Pierre Le Clech - UNSW
Treating wastewater for potable reuse: removal of chemicals of concern using advanced oxidation processes	Anna Heitz - CWQRC, Water Corporation, EAWAG, GHD
Use of on-line surrogate parameters for rapid hazard detection and improved system performance	Chris Chow - AWQC, SA Water, Water Corporation, Curtin Uni, Sydney Water, Uni SA, Adel Uni
Characterisation of THM formation for water quality management	Mary Drikas - AWQC, United Water, SA Water, Melbourne Water, Water Corporation
Nitrosamines, including <i>N</i> -nitrosodimethylamine (NDMA), and other nitrogenous disinfection by-products in Australian drinking waters	Anna Heitz - CWQRC, Water Corporation, AWQC
Physico-chemical controls on growth, toxicity and succession of <i>Microcystis</i> and <i>Anabaena</i> species in Sydney Water supply reservoirs (ARC)	David Waite - UNSW, Sydney Catchment Authority, Sydney Water
Priority Two Issues	
POE/POU Management and costing study	Peter Sancio - Victoria Uni, GWM Water, Coliban, CH Water, YVW, DHS Victoria
Capacitive deionisation for high recovery and low energy desalination of brackish water supplies	Linda Zou – Uni SA, SA Water
Scale formation and prevention in indigenous community water supplies	David Waite - UNSW, NT Power & Water, CAT
Public perception of source protection and its relationship to recreation and water treatment	TBA - Water Corporation
Optimum control of chloramines in water distribution systems	Graeme Dandy – Uni Adelaide

NOTE: The WQRA Board has ratified these project concepts and the proponents will now be invited to submit detailed proposals. This does not guarantee that they will receive funding. Funding is contingent on the project proposal meeting the specified criteria followed by Board sign-off.

Project Development Process – Next Steps

The Project Review Team (PRT) comprises the WQRA CEO and Program Managers, and selected Industry and Research Representatives. Their role is to review each project and make a recommendation to the Board. The critical objectives of the PRT are to ensure that:

- each project addresses at least one of WQRA Research Priority Issues
- WQRA has a balanced Research Portfolio
- R&D is not being duplicated elsewhere
- potential for collaborative projects is identified
- projects fulfil the Project Selection Criteria

The PRT will review the project for technical rigour and organisational capability and the project schedule to ensure that milestones are achievable within the time and budget allocations.

If you have any queries regarding the project proposal process, please contact either Michele Akeroyd (Drinking Water) or David Halliwell (Wastewater & Recycled Water).

Forthcoming Dates

Important Dates for your diaries for the first few months of 2009:

16 February	Melbourne	Board Meeting 10am – 12noon
16 February	Melbourne	Members Meeting incl Program Update 1 – 4.30pm
17-18 February	Melbourne	Summer Scholarships Reporting Seminar, 9am – 4pm
16 March	Teleconference	Board Meeting 9 – 11am (ACDT)
20 April	Teleconference	Board Meeting 9 – 11am (ACDT)
28 May	Sydney	Board Meeting 3 – 5pm
29 May	Sydney	Members Meeting incl Program Update 10am – 4pm
19 June	Teleconference	Board Meeting 9 – 11am (ACDT)
17 July	Teleconference	Board Meeting 9 – 11am
20 August	venue tba	Board Meeting 3 – 5pm
21 August	venue tba	Members Meeting 10am – 4pm
18 September	Teleconference	Board Meeting 9 – 11am
16 October	Teleconference	Board Meeting 9 – 11am
26 November	venue tba	Board Meeting 3 – 5pm
27 November	AGM	Board and Members 10am – 12noon

New publications

Recent publications that will shortly be available on the CRC website include:

Research Report 66: Optimisation of Cylindrospermopsin Screening Assays

Research Report 72: Impacts of De-stratification on Reservoir NOM and its Removal by Water Treatment

WQRA Education Program

Please circulate relevant information to colleagues and students.

Summer Scholarships

Student projects are well underway and so is planning for the Seminar in February. Don't forget to register. This is a great opportunity to see these young scientists in action. Contact Carolyn.Bellamy@unisa.edu.au today!

Summer Scholarship Project Title	Student	Supervisors	Student Location
Analysis of Contaminants of Concern in Wastewater Treatment Processes	Yasmine van Leur	Dr Heather Coleman, Dr Stuart Khan, Assoc Prof Richard Stuetz (UNSW)	UNSW
Modelling a Digital Ecosystem for Maximising the Utilisation of Harvested Rainwater	Jack Toke	A/Prof Nalin Sharda (Vic Uni)	Victoria Uni
Demonstration of Industry Water Recovery using Membranes and Waste Heat	Tom Reilly	A/Prof Mikel Duke (Vic Uni, Nigel Corby (City West Water)	Victoria Uni
Pesticide Residuals within a Drinking Water Catchment	Andrew Dinh	Dr Nichola Porter (RMIT)	RMIT
On the Regulation of Cyanobacterial Alkaloid Toxins in Drinking Water Supplies	Ivan Wong	Prof Brett Neilan (UNSW)	UNSW
Managing Water Demand in Remote Aboriginal Communities for Improved Livelihoods	Bonnie Marshall	Helen Salvestrin, James Newman (CAT)	CAT Alice Springs
Use of Mouse Embryonic Stem Cells and Sheep Reproductive Cells to Detect Endocrine Disrupting Compounds (EDC) Bioactivity in Environmental Water Samples	Allan Bond	Dr Fiona Young, Dr Ken Lang (Flinders Uni)	Flinders Medical Centre, SA
Contaminants of Concern in Recycled Water - Alternate Sources of Exposure	Jane-Louise Lampard	A/Prof Heather Chapman, Dr Frederic Leusch (Griffith)	Smart Water Res Facility Griffith Uni
Using Modified Zeolite to Prevent Biological Clogging of Artificial Recharge Structures Relating Fluorescence and Size Fractionation for Water Analysis	Dylan Irvine Yi Zhu	Dr Huade Guan, Dr John Hutson, Prof Craig Simmons (Flinders Uni) Dr Rita Henderson, Dr Stuart Khan, Assoc Prof Richard Stuetz (UNSW)	Flinders Uni UNSW

Summer Scholarship Reporting Seminar

To be held at the Hotel Ibis, Melbourne on **17 & 18 February 2009**. The electronic Seminar Registration Form is attached to this email for you to complete and submit as soon as possible. Should you have any difficulties with the electronic form, print off and fax through to Carolyn on **08 8302 3386**. The Seminar Program consists of student presentations on 17th February followed by a Technical Tour to the Yan Yean Treatment Plant and a tour of the Wallaby Creek Catchment. The Seminar Program is now on the WQRA website.

WQRA Top-Up Scholarships commencing 2009 / Nancy Millis Top-Up Scholarship <http://www.waterquality.org.au/index.htm>

Three projects will be selected for top-up scholarships to the value of \$5,000 x 3.5 years. In addition there will be a consumables budget of up to \$15,000 overall. Information regarding the prestigious Nancy Millis Top-Up Scholarship is on the website. Please direct students to the website for all relevant information. A Sub-committee of the Education Committee will assess the applications. Should you require further clarification, please contact Carolyn Bellamy on 08 8302 5771 or carolyn.bellamy@unisa.edu.au

\$30m for National Groundwater Research and Training Centre

WQRA Member Flinders University is the lead agency in this new Centre, announced last week by the Minister for Climate Change and Water, Senator Penny Wong. Major industry partners in the Centre include CSIRO, Geoscience Australia, SA Department of Water, Land and Biodiversity Conservation, NSW Department of Primary Industries, United Water, SA Water, Sinclair Knight Merz and Aquaterra Consulting Pty Ltd. 12 Australian universities are also partners.

The Centre brings together 30 Australian and more than 20 internationally renowned groundwater researchers to build a high quality, integrated program of groundwater research.

Professor Craig Simmons who has been appointed the Centre's Director, is a co-supervisor of Dylan Irvine, one of this year's WQRA Summer Scholarship Students.

Small grant success for Victoria University

A joint Victoria University/WQRA project – **Investigations of techniques for maximising the utilisation of harvested rain water using a digital ecosystem** – has been awarded \$14,746 from Victoria University's Collaborative Research Grants Scheme. Harvesting rainwater can reduce the need for fresh water, as well as minimising stormwater outflows. A household that uses only

harvested rain water for its gardens can save 60 to 120 kL of water per year. These savings will be enhanced if the rainwater is used judiciously inside the house as well.

This project aims to investigate techniques for developing a digital ecosystem to maximise the utilisation of the available tank water, by considering factors such as current water level in the tank, predicted rainfall, soil moisture, and water usage of various appliances.

This study will build on the WQRA Summer Research Scholarship project being conducted by Jack Toke and supervised by Associate Professor Nalin Sharda.

WateReuse Foundation Expert Panel Workshop Report

In November last year, Andrew Humpage (AWQC), David Cunliffe (SA DHS), and Tony Priestley (CSIRO) were invited members of a project review panel convened by the US-based WateReuse Foundation. The following is an extract from Andrew's summary report (available on request):

One of the key questions facing the water industry and health regulators is "what concentration of each of the hundreds of potential contaminants of wastewater should we be concerned about?" We need to ensure that the concentrations identified are protective of public health. However, they are also needed to provide target detection limits for analytical monitoring so that effort is not wasted developing detection methods for minute quantities that are of no health relevance. Due to the rapid implementation of reuse and the vast array of potential contaminants, these judgements are being made without the detailed toxicological data that support the traditional risk assessment process. Therefore, alternative approaches are being sought for the derivation of guideline concentrations from the data that is available.

The aim of the project we reviewed was to compare a number of these methods by applying them to a database of known chemicals. The outcome is the recommendation of a tiered approach to method selection based on data availability. This is consistent with the approach that was adopted for derivation of the Australian Water Recycling Guidelines (Augmentation of Drinking Water Supplies), and is a step towards international agreement on a consistent and transparent methodology that protects public health in a way that is manageable by health regulators and the water industry.

Community Wastewater PhD project – candidates sought

Flinders University is investing in a research project that seeks to compare the wastewater treatment performance of a community wastewater management system lagoon and a high rate algal pond, based at Kingston-on-Murray in the SA Riverland. The project is co-funded by the District Council of Loxton Waikerie in conjunction with the Local Government Association of South Australia.

The research project will engage a PhD candidate over 3 years and be supervised by Professor Howard Fallowfield and Associate Professor Nancy Cromar, leading researchers in wastewater treatment and reuse. This research is highly significant, as the expected outcomes are criteria for the design and operation of smaller, more efficient treatment systems that produce large volumes of better quality water (treated effluent) for reuse purposes. This comparative exercise is unique worldwide, and offers the potential of international collaboration.

Applicants should have an Honours degree in environmental engineering, microbiology, analytical chemistry, biology, environmental health or other relevant disciplines. The scholarship will provide an indexed, tax-free stipend of \$26669 pa for full-time study for up to three years, subject to satisfactory progress. The successful applicant may also be eligible for a Water Quality Research Australia top up scholarship (of up to \$5000).

Contact Prof. Howard Fallowfield on (08) 7221 8581.

Contributing to WQRA News

This issue of Water Quality Research Australia News is sent to all nominated people associated with the members of WQRA Limited. If you would like to be added to the mailing list or submit a newsworthy item for the next newsletter, send an email to Angela.Gackle@wqra.com.au

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