

WATER DESALINATION REPORT

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AMTA conference MEMBER AWARDS

Stuart McClellan (Successfully Applied Membranes) is an AMTA director emeritus and chairman of its award committee. Working with other AMTA directors and staff, he organized an awards program that included recognizing distinguished membranologists, members and students. Recipients of the awards were:

Julius "Bud" Glater, Hall of Fame — Eighty-six year old UCLA adjunct professor emeritus Bud Glater traveled to Texas to receive an award for his 46-year career in the membrane industry. Professor Glater, a chemist, worked in the laboratory alongside Sidney Loeb as he commercialized the RO membrane in the 1960s. He continues to encourage and advise another generation of students.

In a 1994 interview, Professor Glater said, "I think probably my greatest contribution to this department [at UCLA] was to keep the membrane project alive from its inception in the late 1950s to the present time. There has always been some reverse osmosis work going on here and some laboratory units that have been fired up and students working on them. And if I take pride in anything I've done here, more than any of the publications that I've written, I take more pride in that activity and that I tried to do a good job in the classroom than in any other thing."



Bud Glater



Dave Furukawa

David Furukawa, Hall of Fame — Dave's career in the membrane industry began when he headed the US Bureau of Reclamation's saline water and demineralization section in the 1960s. He has always promoted new technology and was involved in the development of tubular RO technology

for Havens Industries. He continued his involvement in the membrane industry with UOP Fluid Systems, Boyle Engineering, RCC/Ionics and Dow/Filmtec. He remains engaged in the membrane community as president of San Diego-based Separation Consultants.

Throughout his career, Dave has been actively involved in industry organizations, serving as director and president director of the IDA and ADA, and has been a member of MEDRC's research advisory council and two National Academies' committees. He is the current chair of NWRI's research advisory board.

Other AMTA awards —

Recognition and Service Award

- *Bob Castle*, Marin Municipal Water District
- *Michael Gabaldon*, US Bureau of Reclamation

Water Quality Person of the Year

- *Claude "Bud" Lewis*, Mayor, City of Carlsbad

Outstanding Member Award

- *Water Engineering Corporation*

Membrane Facility of the Year

- *Palm Coast WTP*, Florida

Outstanding Operator Award

- *Harley Slater*, Yucaipa Valley Water District

Presidential Award

- *Clara Ogren-Rubalacba*, Watek Corp
- *Vincent Tursi*, Victaulic Corp

Fellowship Award

- *Evan Hatakeyama*, University of Colorado–Boulder
- *William Shane Walker*, University of Texas–Austin

Best Poster Award

- *Stefani Harrison*, MWH Americas

Global Desal Forecast Presentation

WDR subscribers are invited to attend a Webinar on Tuesday, 28 July during which *Global Water Intelligence* publisher Christopher Gasson will present the new global forecast for the desalination sector that is being uploaded this month to our desalination business development database DesalData.com.

Space is limited, so reserve your Webinar seat now at: <https://www2.gotomeeting.com/register/249092330>.

The password is: DesalData.com

Publications

NEW EDITORIAL TEAM ANNOUNCED

Elsevier has appointed a new, three-member editorial team for the *Desalination* journal. The team is made up of:



- *Professor Nidal Hilal*, Editor-in-Chief — Professor Hilal holds a chair in chemical and process engineering at the University of Nottingham. He is an expert in desalination, membrane technology and the application of Atomic Force Microscopy in process engineering. He is the author of over 300 refereed publications, including four textbooks and 16 invited chapters in handbooks.



- *Professor Raphael Semiat*, Co-Editor — Professor Semiat has been involved with desalination for more than 35 years. He holds the Yitzhak Rabin Memorial Chair in Water Resources and is head of the GWRI Rabin Desalination Laboratory in the chemical engineering department at the Technion–Israel Institute of Technology.



- *Professor Eric M.V. Hoek*, Co-Editor — Professor Hoek has over 15 years of experience in desalination and environmental engineering. He is an Associate Professor in the Department of Civil & Environmental Engineering and a California Nano-Systems Institute and Water Technology Research (WaTeR) Center faculty member at the University of California, Los Angeles.

The journal's new management includes 54 distinguished academics and industrial experts in desalination as editorial board members.

Upon his appointment, Professor Nidal acknowledged Miriam Balaban's "enormous contribution and 44 years of service as Editor of the Journal," and Professor Hoek told *WDR*, "We are all are tremendously grateful for Miriam Balaban's service to the desal industry as editor of *Desalination* journal. We hope to continue and extend her great legacy in the history of desalination publishing through our service."

California

ZERO DISCHARGE MUNI RO COMMISSIONED

A 2003 study identified a brackish groundwater supply as the only available option for use when upgrading the water system at the Deuel Vocational Institution (DVI), a prison located in Tracy, California, 50 miles east of San Francisco. As part of the same study, RO was selected as the most appropriate treatment technology, and a survey of concentrate disposal options found zero liquid discharge (ZLD) to be the only acceptable solution.

Carollo Engineers was selected to design the 0.8 MGD (3,028 m³/d) desalination facility, and Overaa & Company was awarded the contract to construct the \$26.5 million plant. The plant is one of the first municipal potable water facilities to achieve ZLD.

The system obtains 2.3 MGD (8,705 m³/d) of feedwater having a total dissolved solids (TDS) concentration of 1,150 to 2,200 mg/L from four wells that draw from the lower Tulare formation. The water has a low suspended solids concentration, and the RO pretreatment consists of wedgewire sand separators, 5-micron bag filters and 1-micron cartridge filters. Acid and sodium bisulfite is added to control iron and manganese precipitation, and a scale inhibitor is used for carbonate, sulfate and silica scale control.

A two-train, two-stage RO system operating at 72.5 percent recovery produces 584,640 GPD (2,213 m³/d) of permeate with a 22 mg/L TDS.

Although the plant is located in an arid environment with an evaporation rate of 1 gpm/acre (1.5 L/min/ha), space constraints on the 783 acre (317 ha) prison necessitated an intermediate concentration step prior to discharging RO reject to a 4-acre (1.6 ha) evaporation pond. That step employs a vertical tube, falling film evaporator known as a brine concentrator, to reduce the wastewater volume by 97 to 98 percent and concentrate solids up to 25 percent.

A brine concentrator operates with an excess calcium sulfate concentration to prevent evaporator tube scaling. Calcium



Tracy RO & ZLD Project, brine concentrator on right



Brine Concentrator

sulfate seed crystals are recirculated through the unit, serving as preferential sites for additional scale formation.

To eliminate the need for an auxiliary boiler or alternative steam source, the brine concentrator uses heat generated by a mechanical compressor to evaporate 150 gpm (9.5 L/s) of RO reject. The vapor is then recompressed and reintroduced as heating steam at approximately 220°F (104°C). The 4-gpm (0.25 L/s) brine stream is then discharged into the solar evaporation pond, while 0.22 MGD (818 m³/d) of evaporator distillate is cooled in a heat exchanger and blended with the RO permeate.

The combination of low TDS RO permeate and evaporator distillate produces an ultrasoft water with low alkalinity that is aggressive to iron, lead and copper. Adding caustic soda and calcium chloride before being pumped to DVI's ground storage tank stabilizes it.

According to Brandon Yallaly, Carollo's project manager/engineer, two operators and one stationary engineer operate the entire system during the day, while one operator and one engineer operate the system overnight.

Yallaly told *WDR*, "While it's always a great feeling to see a facility constructed and operating successfully – especially one as complicated and impressive as this one – the most rewarding part of this project has been watching the development of the operations staff. They started out apprehensive, but are now fully in command of a very complex system – all within six months."

California

WATER PLANT TO GET BWRO FACELIFT

CDM is understood to be in the initial stages of responding to a request to furnish a 6,000 GPM (32,700 m³/d) blended, brackish water RO system for the Camp Pendleton Marine Corps base in Southern California. The project, which will

include desalting water from existing well fields, is an upgrade to an existing water treatment facility.

The specifications were prepared by Brown & Caldwell, and CDM will execute the project as a Task Order under an existing indefinite delivery/indefinite quantity (IDIQ) contract. The plant is expected to be operational in late 2010.

Company News

HELP NAVIGATING TROUBLED WATERS

A new service company has begun offering technical support for membrane-based water treatment applications to consultants, membrane manufacturers and end users. OrangeBoat, the Minnesota-based company, does not sell equipment, chemicals or membranes; it provides specific project and application expertise that can help close short-term staffing needs or act as an independent advisor.

Company founder Jantje Johnson told *WDR* that the increasing use of membranes in water and wastewater applications has resulted in a shortage of membrane specialists. "OrangeBoat provides 'Membrane Support On Demand' that ranges from unbiased help during a project's design and bidding stages, through its training, trouble-shooting and optimization stages," she said.

Johnson is a chemical engineer with 26 years of water treatment experience with membranes (Dow), membrane chemicals (Genesys, PermaCare/Nalco) and systems (NIVIBA). She said the company's expertise includes the entire membrane spectrum, from MF, UF and MBR, to NF and RO.

More information is available at www.orangeboatsupport.com.

Company News

NEW BWRO ELEMENTS INTRODUCED

Hydranautics used last week's AMTA conference as an opportunity to launch its new, low differential pressure, LD technology. According to Hydranautics vice president Bhasker Davé, the technology consists of a more robust polyamide chemistry and an innovative spacer geometry. "The LD technology is the culmination of advancements that reduce both biofouling and colloidal fouling while improving the cleanability of our spiral elements."

The new HYDRAblock antimicrobial technology reduces bacteria's ability to populate the spiral-wound element, while the new spacer reduces the possibility of colloid entrapment. In one recent 250-day test, an element with LD technology had a differential pressure almost 2 bar (29

psi) lower than a conventional element. It was also able to operate with no CIP cleanings, compared to the five required with the conventional element.

Craig Bartels, the company's vice president of R&D, told *WDR* that the improved membrane chemistry also allows for a more aggressive cleaning. "Both new membranes can be cleaned over a pH range of 1 to 13 to ensure that the best possible membrane performance can be restored," he said.

OpEd

FANCY TITLE HIDES LAZINESS, LACK OF SUBSTANCE

Canadian fear-monger Maude Barlow is continuing her globe-trotting onslaught on desalination. Her inflammatory rhetoric hasn't changed, but she is carrying a new title that implies legitimacy: Senior Advisor on Water to the President of the UN General Assembly.

After touring Australia, she was reported to have said, "Desalination plants generate a poisonous by-product, a lethal combination of concentrated salt brine, the chemicals needed for the reverse osmosis process, and the aquatic life and pollutants sucked into the process."

She apparently did not visit the Perth Desalination Plant or inspect the environmental reports that preceded and followed its construction, nor does it appear she has reviewed the results of the ongoing environmental monitoring program since the plant began operations two years ago.

IN BRIEF

Although it will stay in San Marcos, California, **Avista Technologies** has completed a move into a new and larger facility with an advanced R&D laboratory. The move coincides with the company's tenth anniversary. The new address is 140 Bosstick Boulevard, San Marcos, CA 92069. The phone and fax numbers have not changed.

An \$80 million package to finance a 73,972 m³/d (19.5 MGD) expansion to Israel's 273,970 m³/d (72.3 MGD) **Hadera SWRO plant** has been signed. H2ID – a consortium between IDE and Shikun & Binui (Housing and Construction) are currently constructing the BOOT project, and the original plant capacity will be available by the end of this year. The additional capacity should be available by April 2010, with the balance online by the end of 2010. The total investment in the project is valued at NIS 1.5 billion (\$381 million).

Southern SeaWater Alliance – a consortium that includes Tecnicas Reunidas, Valoriza Agua, A J Lucas and Worley Parsons – has signed a contract to build the A\$955 million

(\$745 million) **Southern Seawater Desalination Plant (SSDP)** in Binningup, south of Perth, Australia. Work on the 50 GL/yr (36.2 MGD) SWRO plant will begin within two weeks and the Water Corporation says that the plant will be commissioned in 2011.

King Abdullah University of Science and Technology (KAUST) in Thuwal (Jeddah), Saudi Arabia will hold its inaugural ceremony opening its 36 million m² (8,900 acre) campus on 23 September. The campus will include the **KAUST Water Desalination Research Center**, whose director is Dr Gary Amy.

PEOPLE

NRS Befesa WaterBuild has announced the appointment of **Shirley Ross** as deputy director of business development. She was formerly a vice president of MWH Constructors in Denver and will relocate to Austin, Texas. Her e-mail address is ross13@comcast.net.

Pump Engineering, Inc (PEI) has announced the appointment of **Lindsay Reau** as International Sales Manager. He has been at PEI for 13 years where he began as a purchasing manager before becoming a sales engineer. He can be contacted at lreau@pumpengineering.com. The company also announced the appointment of **Ying Ma** as chief hydraulic design engineer. During his studies at Michigan State University, Dr Ma had undertaken a research project on PEI's hydraulic TurboCharger design. He can be contacted at yyma@pumpengineering.com.

Dr Jim Gill, former CEO of Water Corp, has been appointed Chancellor of Curtin University of Technology in Western Australia. His appointment will be effective early next year, and he can be contacted at jimgillperth@gmail.com.

H2O Innovation has announced the appointment of **Philippe Gervais** as the chairman of its board of directors. He has been a company director since 2001 and replaces Guy Goulet, who has resigned.

JOBS

Fedco (www.fedco-usa.com) seeks a SALES ENGINEER to assist customers with product configurations, prepare technical quotations, negotiate/close orders and provide customer support. Bachelors degree in engineering or related technical field preferred. Familiarity with MS Office sales and presentation tools and prior sales experience is required, preferably in RO or pump applications. Applicants must be willing to relocate and undertake domestic and international travel. Email resume to lreachman@fedco-usa.com.