

# WATER DESALINATION REPORT

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## Barcelona

### 2007 GLOBAL WATER AWARDS

This year's Global Water Awards were presented in conjunction with GWI 2007 Barcelona last week. Award winners were chosen by subscribers to *Water Desalination Report*, *Global Water Intelligence* and members of the IDA, AMTA and IWPA. The two day conference, subtitled "Where Water Meets Money," was attended by more than 240 delegates who heard international speakers discuss the international water and desalination sector.

More information on the projects remains posted on the website at [www.globalwaterawards.com](http://www.globalwaterawards.com)

This year's award winners were:

#### Desalination Plant of the Year

- Winner Kwinana (Perth) Australia
- Distinction New Cartagena Canal, Spain
- Highly Commended Wadi Ma'in Water Plant, Jordan
- Highly Commended Ad Dur rehabilitation, Bahrain
- Highly Commended Huangdao RO & MED pilot

#### Desalination Company of the Year

- Winner Acciona Agua, Spain
- Distinction Sidem, France
- Highly Commended CH2MHill, USA
- Highly Commended IDE, Israel

#### Developer of the Year

- Winner Befesa CTA, Spain
- Distinction ACWA Power, Saudi Arabia
- Highly Commended Poseidon Resources, USA
- Highly Commended Suez, France

#### Public Water Agency of the Year

- Winner Ministry of Water & Electricity, Saudi Arabia
- Distinction Acuamed, Spain
- Highly Commended Western Australia Water
- Highly Commended West Basin Municipal Water District, California USA

#### Desalination Deal of the Year

- Winner Beni Saf, Algeria
- Distinction Torre Vieja, Spain
- Highly Commended Chennai Minjur, India
- Highly Commended Hadera, Israel

#### Power and Water Deal of the Year

- Winner Hidd IWPP, Bahrain
- Distinction Fujairah I IWPP
- Highly Commended Jubail IWPP, Saudi Arabia
- Highly Commended Barka 2 / Al Rusail, Oman

#### Water Reuse Project of the Year

- Winner Baix Llobregat Reuse Plant
- Distinction Palm Juemeirah MBR, Dubai
- Highly Commended Jiaying City Water Treatment Plant, China
- Highly Commended Reliance Jamnagar Refinery, Gujarat, India

#### Innovation of the Year

- Winner NF pretreatment for thermal desalination; SWCC & LET
- Distinction Nanocomposite membrane; UCLA & NanoH<sub>2</sub>O
- Highly Commended Seawater conversion vessels, Water Standards Group
- Highly Commended Airlift MBR; Norit X-Flow
- Highly Commended Intermediate distillate removal for MSF desal; Sommariva

#### Environmental Contribution of the Year

- Winner Energy Recovery Inc, USA
- Distinction GE Water and Dupont Dordrecht
- Highly Commended Tirupur Effluent Treatment Project, India
- Highly Commended Shanghai Chemical Industry Park
- Sino French Water Development

#### Water Company of the Year

- Winner Aqualia, Spain
- Distinction Black & Veatch, USA
- Highly Commended Societe des Eaux et d'Assainissement d'Algiers
- Highly Commended Shanghai Pudong, China

#### Water Deal of the Year

- Winner Kemble Water's acquisition of Thames Water, UK
- Distinction Ajman Wastewater Plant, UAE
- Highly Commended Project Alpha, Northern Ireland
- Highly Commended Aque SpA Financing, Italy

## Tools

### DESAL COST ESTIMATING SIMPLIFIED

Desalination projects are notoriously site specific, and the ability to quickly and accurately determine their economic feasibility is an important first step in any project's development. Unfortunately, the enormous range of options available can complicate the preparation of a reasonable cost estimate. The intake and outfall arrangements, pre- and post-treatment processes, desal process and process configuration, materials of construction and local construction costs can vary wildly from one project to another.

Estimating operations and maintenance (O&M) costs can be equally daunting when considering the chemical cost options, energy costs, local labor costs and membrane replacement costs.

The means to more easily and accurately estimate project costs and determine a project's total water cost (TWC) has taken a giant leap forward with the introduction of WTCost II<sup>®</sup>, a CD ROM-based program developed by the US Bureau of Reclamation and I. Moch & Associates, in conjunction with W. R. Querns & Associates and Boulder Research Enterprises. The tool is a greatly enhanced and expanded version of the original version released in 2003.

According to Irving Moch, "This new program is extremely flexible and allows the user to vary everything from the cost indices to interest and amortization rates to the monetary units. We've added new modules to permit evaluation and comparison of all membrane, thermal, electrodialysis and ion exchange processes, as well as their use in hybrid, parallel or series configurations. Specific water chemistries can be inserted or users can choose from several brackish or seawater suggestions and a variety of conventional and membrane pretreatment and intake and concentrate disposal options."

The peer-reviewed program was developed to have an accuracy of  $\pm 20$  percent, and Dr Moch – who has been elected to AMTA's Hall of Fame – said feedback he received from the WTCost's first version indicated they were successful. "We've had people tell us the results ranged from being 10 percent low to 15 percent high," he said. "An accompanying manual provides step-by-step instructions, and once a user is familiar with the program,

they should be able to develop a reasonable, consistent estimation for plant costs in less than an hour."

The program is available for \$1,250 and a sizeable discount is available to the more than 100 users who purchased the original version, and to universities who plan to use it in an educational environment. For more information or to order copies, contact [imoch@aol.com](mailto:imoch@aol.com)

## Texas

### TEXAS TWO-STEP: QUALITY & VALUE

When the \$12 billion, 17-mile (28km) diameter superconducting super collider laboratory project was cancelled by US Congress in 1993, the area around the proposed site in Waxahachie slumped into a recession. As that project's memory continues to fade, the area south of Dallas is undergoing a remarkable comeback, more than doubling its population. A joint effort between the city of Waxahachie and the Rocket Water Supply District has begun work on a new, 20.5 MGD (77,592 m<sup>3</sup>/d) surface water treatment plant that will use low-pressure membrane technology to supply water to the fast growing community.

The City recently awarded a \$4.3 million equipment supply contract to Siemens Water Technologies for the supply of a Memcor CS membrane filtration system for Phase 1 of the new Robert W. Sokoll Water Treatment Plant. Siemens/Memcor technical sales manager Russ Swerdfeger, said the system will consist of four individual trains and will employ submerged PVDF membranes with a 0.04-micron pore size.

Swerdfeger told *WDR*, "The plant will treat water from the Tarrant Regional pipeline in North Central Texas and the Memcor system will be preceded by alum coagulation, mechanical flocculation, and sedimentation. If required, an optional GAC system can be used to remove taste and odor. This will be one of the largest membrane plants in Texas and there are plans to increase its capacity to 80 MGD (302,800 m<sup>3</sup>/d) in the future."

The selection follows a yearlong pilot test conducted according to Texas Commission on Environmental Quality (TCEQ) requirements, and conducted in conjunction with several neighboring communities.

According to David Gudall, a principal with Alan Plummer Associates, the city's engineer, the Siemens/Memcor offer had the lowest evaluated price of the three bids received.

A general contractor is expected to be selected by late summer and the membrane plant startup is planned for April 2009.

### **Middle East**

#### **RED-DEAD EOI FINALLY ISSUED**

An expression of interest (EOI) for the long-delayed Red Sea-Dead Sea Water Conveyance (RSDSC) study program was issued by the World Bank Trust Funds last week. Based on the submittals, a short list of qualified applicants will be established from which successful consultants/consortia will be selected to conduct two separate but interrelated studies; a feasibility study and an environmental and social assessment study.

The project is currently envisioned as a 180 km (112 mi) tunnel and channel transferring 1,890 million m<sup>3</sup> (MCM) per year (1,368 MGD) of seawater from the Red Sea to the Dead Sea following the border between Jordan and Israel. Initially, the entire flow would be used to raise the Dead Sea water level, which has been falling at a rate of 1m (3.28 ft) per year. A seawater desalination and hydropower component could be added to produce 840 MCM/yr (608 MGD) of potable water and a peak power production of 800 MW.

Each of the studies is to be completed within 24 months at a total estimated cost of \$15.5 million and EOI submittals are due on 23 May. The project was summarized in *WDR* volume 43, number 4, dated 29 January 2007. More information is available at [www.worldbank.org/rds](http://www.worldbank.org/rds) or by contacting [amcphail@worldbank.org](mailto:amcphail@worldbank.org)

### **Florida**

#### **RULE PROTECTS EVERGLADES, BOOSTS DESAL**

Water suppliers in Miami-Dade and several other south Florida counties can no longer count on 500 MGD (1.9 million m<sup>3</sup>/d) of water from the Everglades to recharge and sustain the Biscayne Aquifer, their primary drinking water source. South Florida Water Management District (SFWMD) formalized a legally binding rule that prevents new users from tapping the River of Grass.

Cities requiring additional water supplies must seek sources that are not dependent on the Everglades for recharge. The sources may include recycling water, using reclaimed water to recharge the Biscayne Aquifer or desalinating water from the deeper, more saline Floridan Aquifer.

Existing water supply permits are not being revoked, but the rule will affect new applicants and those seeking existing permit renewals.

### **Comment**

#### **SNOWJOB: WATER AND RELIGION**

A 9<sup>th</sup> US Circuit Court of Appeals has ruled against using reclaimed water for snowmaking at the Snowbowl Ski Resort located on federal land near Flagstaff, Arizona. In the ruling of *Navajo Nation v US Forest Service*, Judge W.A. Fletcher says "treated sewage effluent is often euphemistically called 'reclaimed water'." Fletcher doesn't make that mistake, and refers to reclaimed water as 'treated sewage' 78 times in the ruling.

One of the principal reasons for his ruling is that the Native American tribes consider the surrounding mountains to be of religious importance, never mind that the land in question has been set aside for a commercial ski resort and an earlier court ruling found that the resort did not burden the tribes' exercise of religion. To establish some sense of equivalence, the judge went on to say, "Imagine the effect on Christian beliefs and practices if the government were to require that baptisms be carried out with 'reclaimed water'."

The question of reuse has been considered by religious scholars before, particularly in areas of acute water shortages like the Middle East, and it has been determined that using modern technology to recycle water after treatment is in keeping with the spirit and letter of Islamic teachings. And, at least one company has developed a seven-step treatment process to kosher water.

One solution may be to have a clergyman bless the reclaimed water before it is made into snow.

An article in this month's issue of a water industry publication tells a story of how one company is

using (abusing?) religion to market bottled water. The president and CEO of a company that recently registered the trademark 'Holy Drinking Water' wrote the story.

On first glance, the story could be mistaken for an April Fool's joke as the author brags that he has never been in the water business and doesn't even know much about it. But he knows a good marketing strategy when he sees one, noting, "I found a local bottling company and created a label so I could pitch my idea to them...my plan is to get a clergyman from every religion to bless the water so that ultimately every faith is represented."

Each bottle will carry a disclaimer: "Warning to sinners: If you are a sinner or evil in nature, this product may cause burning, intense heat, sweating, skin irritations, rashes, itchiness, vomiting, bloodshot and watery eyes, pale skin color and oral irritations." One wonders if the sinners to whom he refers might include charlatans, hypocrites and the insincere?

His strategy seems to be working. Within three weeks, news of the product has traveled around the world and he was invited to appear on radio and TV shows. "We haven't paid for one lick of advertising yet," he said. Sooner or later, he might have to pay for more than just advertising.

## IN BRIEF

Sidem's Gerard Canton told *WDR* that five of the 6.6 MIGD MED units have been delivered to the **Hidd IWPP** project site in Bahrain. Two units are expected to be started-up by the end of this month, and the five remaining units will be delivered and started up before the end of the year.

**Calder AG** president Beat Schneider announced that the company has received orders for its DWEER energy recovery devices for two new projects. The Veolia Water/John Holland/SKM consortium has purchased 36 units for the 125,000 m<sup>3</sup>/d (33 MGD) Gold Coast SWRO project in Australia, and Acciona Agua has ordered DWEER units for its Ciutadella Project in Spain.

Australia Prime Minister John Howard said the National Water Commission is considering the South Australian government's application to fund a seawater desalination plant to supply water to **BHP Billiton's** Olympic Dam and residents of the Upper Spencer Gulf and the Eyre Peninsula. A pre-feasibility study is currently evaluating the best location for the 120 ML/d (32 MGD) plant.

Government officials and academics from Universidad San Ignacio de Loyola are reportedly considering two seawater desalination facilities to supply potable water to **Lima, Peru**. The projects are estimated to cost \$120 million each.

## PEOPLE

Kuwait's emir has appointed a new cabinet under the prime minister and has separated the water and electricity ministries from the oil ministry, naming **Mohammad Abdullah Al-Olaim** as the new minister of electricity and water.

KPMG has appointed **Bastien Simeon** as manager of Global Infrastructure and Projects Group. He was formerly with Seureca, a Veolia Water subsidiary and will remain based in Paris. He can be contacted at [bsimeon@kpmg.com](mailto:bsimeon@kpmg.com)

## JOBS

**Vaperma**, a company engaged in the development of membrane separation solutions for gas and vapor, is seeking an R&D Director based in St-Romuald (Québec), Canada. Interested candidates should have relevant experience and a PhD in chemical engineering or chemistry. Contact Pierre Côté at [pcote@vaperma.com](mailto:pcote@vaperma.com)

**Doosan**, a global desalination industry leader, is looking for experienced professionals to lead the MED Development on its newly established Desalination R&D Center in Dubai. Proven experience is required. Please send your CV with proper references to [Youngjin.Baek@doosan.com](mailto:Youngjin.Baek@doosan.com)