

Australia's Bundamba Plant First Step in Large Water Recycling Scheme

The Bundamba Advanced Water Treatment Plant near Brisbane, Australia, has produced its first purified recycled water, achieving a significant milestone for one of Australia's largest water schemes, the \$2.4 billion Western Corridor Recycled Water project. The

needs of the southeastern portion of the state of Queensland in the midst of severe water shortages.

The Bundamba plant is the first stage of the Western Corridor Recycled Water project, which will include a network of 200 km of underground pipelines and three

new advanced water treatment plants. The Western Corridor project will help secure drinking water supplies in Queensland into the future while minimizing the environmental impact the project will have on the state. The plant's main treatment steps—ultrafiltration membranes, reverse osmosis membranes, and advanced oxidation using ultraviolet irradiation and hydrogen peroxide—represent some of the latest technologies used in water reclamation.



PHOTO: THIESS/BLACK & VEATCH

The Bundamba Advanced Water Treatment Plant near Brisbane, Australia, is providing purified recycled water to a power station via a 7.3-km pipeline. Water from Bundamba will reduce the power station's reliance on a drought-affected reservoir and help secure drinking water supplies for the future in the state of Queensland.

A WORLD-CLASS WATER ASSET

In a statement issued jointly, Peter Beattie, Queensland's state premier, and Anna Bligh,

Bundamba plant, a joint venture delivered by **Thiess Pty. Ltd./Black & Veatch**, produced recycled water only 10 months after construction of the project began. The purified recycled water produced at Bundamba was piped from the plant via a 7.3-km pipeline to a lake at the CS Energy Swanbank Power Station near the city of Ipswich. The continual water flow will reduce the power station's reliance on the drought-affected Wivenhoe Dam and will ensure that the power station remains available to support the growing electricity

Queensland's deputy premier and minister for infrastructure, said that the project team had delivered a world-class recycled water asset in record time and had set a new benchmark in the construction industry. "The Bundamba Advanced Water Treatment Plant is evidence of world's best practice and is a key part of the government's plan to accept wastewater from Goodna and Bundamba wastewater treatment plants and convert it into purified recycled water," Beattie said in the statement. "While many said it couldn't be

done, purified recycled water was delivered to Swanbank Power Station as promised.”

In a visit to the Bundamba plant, Bligh said commissioning of the microfiltration, reverse osmosis, and advanced oxidation units had undergone a stringent commissioning process. “Consistent with the high level of treatment provided, the plant has floor-to-ceiling specialist piping equipment, chemical storage tanks, transmission and storage systems, databanks, and a control room where the entire process is continuously monitored,” she said. Bligh later presented the first bottle of water produced from the plant to the Queensland state parliament.

The Thiess/Black & Veatch joint venture achieved ambitious targets in delivering the Bundamba plant in such a short period of time. What might have been a logistical challenge was instead a meticulously planned, managed, and executed project. One accomplishment included completing one of the largest movements in southeast Queensland with the delivery and installation of two clarified tanks measuring more than 12 m in length and 8.3 m in width and weighing more than 20 metric tons each. Those working on the Bundamba plant excavated more than 103,000 m³ of earth and replaced it with engineering fill. They also poured 18,000 m³ of concrete, connected 90 km of electrical cables, used 3,900 metric tons of reinforcement steel, and transported and installed six control and switch rooms.

Black & Veatch made use of its global technology experts and industry specialists on the consultancy and strategic stages of the Bundamba project. “As part of our integrated global workforce deployed on this project, we have some 60 professionals representing about 20 nationalities. These professionals are located on site in Bundamba and at Black & Veatch’s global design and resource centers in Singapore, Hong Kong, India, the United Kingdom, and the United States,” said Ralph Eberts, managing director for Black & Veatch’s water business in the Asia Pacific region. “Our global approach to local project execution is a key part of getting this advanced technology project delivered on time.” For more information, visit www.bv.com.

AwwaRF Issues Key Reports on the Removal of EDCs and Pharmaceuticals in Treatment Processes

The **Awwa Research Foundation (AwwaRF)** has announced the publication of two reports on the ability of advanced oxidation process (AOP) methods to remove endocrine-disrupting compounds (EDCs), pharmaceuticals, and personal care products from drinking water. These contaminants have been detected at low concentrations in streams around the world. One report, titled *Removal of EDCs and Pharmaceuticals in Drinking and Reuse Treatment Processes* (order number 91188),

describes a study that comprehensively and systematically investigates how well these contaminants are removed by different treatment processes used by water utilities. The second AwwaRF report shows that ultraviolet



(UV) technology, in combination with low levels of hydrogen peroxide (H₂O₂) to achieve advanced oxidation conditions, can be an effective treatment to break down several EDCs in drinking water (*Impact of UV and UV/H₂O₂ AOP on EDC Activity in Water*; order number 91175). “One of the goals of AwwaRF research is to anticipate issues that the water supply community may have to deal with in the future,” said Robert C. Renner, executive director of AwwaRF. “By proactively sponsoring research on emerging issues, AwwaRF helps to develop solutions for the continued delivery of safe drinking water to consumers.” For more information, visit www.awwarf.org.

AWWA and Mexico's ANEAS to Collaborate

AWWA and the **Asociación Nacional de Empresas de Agua y Saneamiento de México (ANEAS)** have arranged to share expertise and resources through an agreement of collaboration. Andrés Ruiz Morcillo, president of ANEAS, and Roberto Olivares, director of ANEAS, met with AWWA representatives Luis Aguiar, AWWA vice-president, and Emilio Rangel Woodyard, director



Luis Aguiar (left) of ANEAS and AWWA's Andrés Ruiz Morcillo sign the agreement of collaboration.

of AWWA's Mexico Section, to sign the agreement at the recent ANEAS annual conference and exposition.

Areas in which ANEAS and AWWA will collaborate include the following:

- examining existing programs and other resources for potential cooperative efforts and exchange of comparative industry information,
- developing cooperative arrangements for promoting each other's programs and materials,
- maintaining regular communication between leaders of the associations and developing avenues to promote dialogue among the associations' members with similar expertise, and
- looking for new programs to develop cooperatively and share expertise, results, and program benefits.

"ANEAS has developed significant programs for Mexican water utilities that address and improve public health in Mexico," said Aguiar. "We are pleased and excited to see our organizations' ties strengthened by the execution of our agreement of collaboration."

Founded in 1981, ANEAS has the primary objective of bringing together water and wastewater utilities as well as improving water quality in Mexico. The organization of more than 700 members offers training courses and management workshops, and its fields of expertise include water supply and sanitation, research and assessment, water resources management, environmental regulation and governance, and ecosystems.

BUSINESS BRIEFS

Laboratory instrumentation manufacturer **Fluid Imaging Technologies** has opened a new corporate headquarters in Yarmouth, Maine. The new facility features a product research and development center, an in-house sample testing laboratory, and enough manufacturing and office space to accommodate plans that call for a 100% increase in staff. "To meet the current level of demand and continue expanding into new markets with new products and new employees, we need substantially more room to operate," said Kent Peterson, chief executive officer of the company.

Fluid Imaging Technologies manufactures the patented FlowCAM® particle imaging and analysis system and plans to unveil several new models to boost penetration in key markets. A number of software-based enhancements for measuring and analyzing particles and biological cells are also in development. For more information, visit www.fluidimaging.com.

The **Saigon Water Supply Corp.** in Vietnam has selected a reverse osmosis (RO) system from **Severn Trent Services** as the membrane filtration technology for a new plant that will

treat brackish water. The facility, which is one of the largest build–operate–transfer RO projects in Vietnam, is being constructed in Can Gio, an outlying coastal district of Ho Chi Min City. It will help reduce a water shortage in the region by producing 1.3 mgd of potable water for the 66,000 residents of Can Gio. Severn Trent's UAT™ Series BW brackish water RO membrane filtration system will be used in the treatment plant to reduce levels of total dissolved solids and suspended matter. For more information, visit www.severntrentservices.com.

Siemens Water Technologies has been awarded an \$8.45 million contract by **Archer Western Contractors** to expand the drinking water treatment plant portion of the **Scottsdale Water Campus**. Archer Western is a general contractor working for the city of **Scottsdale, Ariz.** Siemens will supply a 30-mgd system that uses the company's latest Memcor CP membrane technology. The 50-mgd drinking water plant currently in use has been using media clarification to treat surface water from a canal, and it needed to be expanded because of Scottsdale's significant population growth. The Scottsdale Water Campus considered several membrane technologies for the expansion, and after a successful 100-day pilot test, the Siemens Memcor CP system was selected because of its effluent quality, low installation cost, and the ease with which it can be expanded. The expansion at the Scottsdale Water Campus will initially consist of seven Memcor CP units, with each containing 324 modules. However, the building housing the expansion has been designed to accommodate 10 units, which would bring the total design capacity of the expansion to 45 mgd. For more information, visit www.water.siemens.com.

Empresa de Acueducto y Alcantarillado de Bogota (EAAB), the water and sewer utility of Bogota, Colombia, has selected SewerGEMS, the urban sewer modeling solution from **Bentley Systems Inc.**, to support the utility's sewer master plan. The plan's key goals include extending wastewater and stormwater services coverage to the entire metropolitan area of Bogota. The SewerGEMS sewer modeling solution includes interoperability across four modeling environments—stand-alone, ArcGIS,

AutoCAD, and MicroStation. This feature allows users to work in the environment in which they have experience while also allowing them to share models and files regardless of the environment they have chosen to use. "The integration of our sewer models with our GIS [geographic information systems] is extremely important to us," said Orlando Guzmán, EAAB's director of engineering services. "Our GIS specialists are already leveraging SewerGEMS' integration with ArcGIS to quickly build and load our models with data from our GIS. But not everyone on our team is a GIS specialist, and that's why we value so much the flexibility of Bentley's technology that allows hydraulic engineers, urban planners, and everyone else on our team to contribute using the straightforward stand-alone interface." For more information, visit www.bentley.com/en-US/Products/SewerGEMS.

AdEdge Technologies Inc. has announced the successful results of its AD92 uranium adsorption treatment system designed and installed by the company to treat high levels of naturally occurring groundwater uranium in the village of **Marshfield, Vt.** The system installed in Marshfield featured a twin AD92-80 adsorption treatment system rated for up to 160 gpm using AdEdge AD92 IX anion exchange media, a specialty anion exchange resin for uranium removal. Initial testing conducted by the Village of Marshfield showed nondetectable levels, far below the US Environmental Protection Agency's (USEPA's) maximum contaminant level (MCL) for uranium of 30 µg/L. "AD92 technology is ideal for use in potable water applications such as the Village of Marshfield, as well as non-potable and environmental remediation applications for removal of

naturally occurring uranium," said Greg Gilles, vice-president at AdEdge. "The high-efficiency AD92 can selectively remove the negatively charged uranium anion in contaminated water supplies to effectively achieve the USEPA MCL of 30 µg/L. The village of Marshfield residents are now able to use water from this source after being served bottled water for the past four years." For more information, visit www.adedgetechnologies.com.

WorldWater & Solar Technologies Corp. has announced that it will build a photovoltaic system of up to 1.2 MW to provide electricity and water pumping power for the **Valley Center Municipal Water District (VCMWD)** in Valley Center, Calif. The system will be owned by **Solar Power Partners** of Mill Valley, Calif., which will operate it for VCMWD under a 20-year power purchase agreement. The actual size of the system will be determined by the results of environmental and site engineering work. The system will use WorldWater's proprietary AquaMax™ drives to provide pumping power for drinking water and irrigation. AquaMax is a solar technology capable of powering electric pumps up to 1,000 hp, and it operates automatically in combination with grid, battery, and diesel power. In 2006, WorldWater worked with VCMWD's board of directors on a project feasibility study and later procured rebates on the utility's behalf from the California Public Utility Commission through the California Solar Initiative Program. WorldWater will engineer, supply, and construct the system and will maintain it for Solar Power Partners. For more information, visit www.worldwater.com.

Datamatic Ltd. has been chosen to supply its new MOSAIC™ hybrid automated meter reading system for

the city of **Tybee Island, Ga., Water and Sewer Department**. Datamatic will supply and install 3,000 MOSAIC-class FIREFLY automatic meter-reading (AMR) units to improve water conservation and quality control among residences and businesses in the tourist community. MOSAIC is a universally compatible AMR system capable of reading water, gas, and electric meters via handheld, mobile, and full-mesh network collection platforms from the same endpoint. Datamatic will start the installation process by testing 500 FIREFLY units in strategic locations throughout Tybee Island; the remaining 2,500 units will then be installed. “By using our MOSAIC AMR technology,” said Ken Kercher, chief executive offi-

cer of Datamatic, “the city will receive the water conservation results they are seeking, streamline billing, and limit physical labor, which saves time and money.” For more information, visit www.datamatic.com.

The Los Angeles, Calif., office of the engineering firm **CDM** has received the 2007 Partner in Community Award from **TreePeople**, a group that has planted more than two million trees throughout Los Angeles since 1973. CDM was honored for its leadership work in sustainable design and engineering—the engineering firm was cited for its vision for ecologically balanced and sustainable cities, which extends to water, environmen-

tal, transportation, and facilities projects. TreePeople is an organization that supports residents, students, government agencies, businesses, and neighborhood groups by providing the tools to make positive change in their communities. For more information, visit www.cdm.com and www.treepeople.org.

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