Membrane sewage system helps the Great Barrier Reef

TOPIC:
Membrane sewage system

LOCATION:
Queensland, Australia

COMPANY:
Citiwater

QUEENSLAND, AUSTRALIA: Grundfos pumps help operate Australia's first-ever membrane bio-reactor wastewater treatment plant. Located on Magnetic Island in Queensland, Australia, this treatment plant has been praised by environmentalists for its contribution to the preservation of the Great Barrier Reef.

THE SITUATION

Magnetic Island is located off the coast from Townsville in Queensland and is part of the Great Barrier Reef Marine Park. The island is home to some 2,000 residents and is also a popular tourist destination. With Magnetic Island being part of the unique eco-system of the Great Barrier Reef, the community was obviously concerned about the dangers posed by increasing nutrient levels. High nutrient levels cause recurring algae blooms, and scientists also worry that they may be responsible for new outbreaks of coral-eating starfish.

In short, there was a need for a safe and environmentally sustainable sewage solution to safeguard the fragile Reef.

THE GRUNDFOS SOLUTION

The Townsville Council's sewage and water authority, Citiwater, carried out extensive investigations to find a suitable solution. After careful deliberation, a membrane bio-reactor (MBR) - the first of its kind in Australia - was chosen. This solution ensures that nutrient levels are as low as possible. Grundfos pumps are used throughout this state-ofthe- art system.

The MBR system is located at Picnic Bay and treats all sewage and wastewater from the island. This includes wastewater from the nearby Nelly Bay pumping sub-station. The Nelly Bay site features three Grundfos 50 kW submersible wastewater pumps,

two of which are installed side by side, while the third is on standby as part of the back-up system.

The pumps installed at Nelly Bay work on a demand basis, pumping raw sewage to the main Picnic Bay plant located one kilometre away. The pumps have a 50 metre head and operate at 50 litres per second. Safety is ensured by an overflow system connected to an emergency holding area.

GRUNDFOS AT THE MAIN PLANT

The main Picnic Bay station services 2,000 people and treats half a million litres of water every day. The plant uses 12 Grundfos pumps to carry out its day-to-day operations.

Four Grundfos submersible single channel impeller pumps are used to assist in removing nitrogen from the sewage, each of them handling water containing 1.5 percent solids.

Two Grundfos submersible SuperVortex pumps are used with balancing tanks, lifting pre-treated sewage to a storage tank before pumping it back for further treatment.

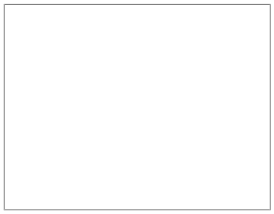
With water being a valuable resource, the membrane bio-rector treats the wastewater to such high standards that it can be recycled for irrigation purposes. After the sewage has been treated, two Grundfos submersible wastewater transfer pumps move the water to the nearby Picnic Bay Golf Course for irrigation.

THE OUTCOME

The MBR solution means that the wastewater produced on Magnetic Island is treated to the highest standards. Recycling this water for irrigation of the local golf course has many advantages:

it enhances the golf course in terms of use and presentation
it conserves fresh treated water delivered to Magnetic Island from the mainland it avoids an ocean outfall discharge, thus maintaining the health of the Great Barrier Reef Marine Park
The Grundfos products have provided efficient and reliable service, doing their part to ensure the success of the total solution.

Related Products



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