

Wedeco Ozone Generators Enhance Water Clarity at the Georgia Aquarium

Ozone generators disinfect millions of gallons of water daily, keeping the water clean and clear for optimal viewing

The Georgia Aquarium, located in the heart of Atlanta, Georgia, opened its doors in 2005 as the world's largest aquarium, with 100,000 fresh water and saltwater aquatic residents in 10 million gallons of water. The aquarium houses 60-plus exhibits spread over six distinct galleries, with each gallery corresponding to a specific environment and theme.

Scope

The Aquarium system operates as a closed loop and is able to recapture and reuse over 99% of the water in its exhibits. In order to reuse the majority of the tank water, the aquarium must ensure that waste from its aquatic residents is removed. This entails an elaborate water purification system that pumps and filters the entire 10 million gallons for a complete turnover of the tank water roughly every 1.5 hours.

The entire treatment process is controlled by a specially designed computer system which monitors temperature, tank levels and the flow of water through the system. A team of Life Support Staff works in rotating shifts to provide additional around the clock support, conducting tests and assisting with interpreting the water quality data collected. Although oxidation with ozone appears straight forward, the reality is far more complex. For Eric Hall and his team of Life Support staff, the biggest challenge is balancing water quality with water clarity, which, as he stated emphatically, are not the same thing.

“Healthy water is not always clear and clear water is not always healthy,” stated Eric.

The health of the aquatic species actually requires a much lower level of water clarity than the clarity required for the optimal viewing experience for the public. However, public engagement and education is a vital part of the Aquarium's mission, and viewing clarity is central to that goal. Balancing these two oft-opposing goals, clarity for public viewing and water quality for species health, requires frequent adjustment.



A Georgia Aquarium resident and young boy share a moment of mutual discovery. Wedeco's ozone process enhances the water clarity, making moments of connection possible.

END USER: Georgia Aquarium
CLIENT: Georgia Aquarium
ORDER DATE: 2005
COMPLETION: 2005

Solution

When choosing a partner to provide ozone expertise and equipment, Eric needed someone who understands the industry and this delicate balance between water quality and water clarity. Wedeco had excellent experience serving all the SeaWorld parks worldwide for years, and were familiar with the special needs of aquatic species, both marine and fresh water.

With an established record for reliability and care of the client during the design, through construction and after startup, Wedeco had the expertise and experience that provided the needed trust and comfort level.

Wedeco enters the Aquarium water treatment process in the final stage, which involves the use of ozone to both disinfect the water as well as to assist with maintaining the clarity needed for optimal viewing of the aquatic life through the tank's thick acrylic windows. Liquid oxygen generated on-site is passed through eight Wedeco ozone generators. Two Wedeco SMO 40 generators provide ozone to treat water for the main exhibits while smaller SMO 10 and GSO 30 ozone generators provide disinfection for the other galleries. Further along in the treatment stage, any leftover ozone from the contact tanks is passed through Wedeco catalytic destructors (Model's VOD 400 & VOD 200) to ensure that ozone does not escape to the environment. Disinfected water is pumped through a deaeration tower which agitates the water to remove excess gases and is then returned to the exhibit tanks before the cleaning cycle is repeated.

Result

Ozone has proven its ability to meet multiple treatment objectives and provide crystal-clear water quality to meet the goals of the aquarium, safeguarding the health of the residents and providing a connection with the public. Alan Grosse, Life Support Systems technician who oversees the operation and service of the ozone systems sums up the benefits of using ozone for water reuse at the Aquarium. The ozone provides "the needed disinfection for the tank water to protect the animals in our care and helps in keeping the water as clear as possible, giving visitors the clear view that makes all the difference."



The Ocean Voyager Exhibit's 6.3 million gallons of salt water, the world's largest indoor habitat, is disinfected and maintained crystal clear by a Wedeco SMO-40. The SMO-40 is rated for 150 pounds per day (ppd), at 6% weight of ozone production.



Sized for disinfection and clarity, the Wedeco SMO-10 processes the chilled salt water for the Cold Water Quest exhibit, home to the beluga whales and African penguins.

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