



Atlantis Resort Upgrades to Precise Chlorine Solution for Dolphin Habitat

Three words best describe the guest experience at the world-famous Atlantis Resort on Paradise Island in the Bahamas: service, sunshine, and water.

Of the latter, the resort is not only surrounded by it, but also built around it—a unique, 141-acre waterscape, called Aquaventure. It features fresh and

saltwater lagoons, water slides and river rides, marine habitats, swimming pools, and even a lap pool.

Among those features is Dolphin Cay (pronounced “key”), a 14-acre expanse of crystal-clear seawater, which is home to 40 dolphins. Designed as one of the most sophisticated marine habitats and animal rescue-rehabilitation facilities in the world, Dolphin Cay offers resort guests an interactive, once-in-a-lifetime experience of swimming with a number of the ocean’s most intelligent creatures. A full veterinary staff ensures the health of all the resort’s aquatic marine animals.

But keeping Dolphin Cay’s six-plus million gallons of seawater sparkling clean and free of pathogens isn’t easy, and, until not long ago, was extremely difficult to do using liquid chlorine (i.e., sodium hypochlorite) as the



Pulsar® System sanitizes the world-famous Bahama resort’s water, including the 14-Acre Dolphin Cay Attraction

continued on Page 2

primary disinfectant. The person in charge of this vital task is Brian Oblisk, Executive Director of Water Features. He and his team trust Pulsar® Feeders across the resort's entire Aquaventure waterscape, as well as all of its fountains and other water features that are part of the landscape. "We take care of everything but drinking and wastewater," he says.

Variability, the core issue

According to Oblisk, the core issue in keeping Dolphin Cay's water clean is variability in the water quality. First, the seawater is refreshed with up to 2,000 gallons per minute of seawater from the surrounding Caribbean. Depending on the ocean's wave conditions, turbidity can pose problems. Inside the tank, each dolphin consumes an average of 50 pounds of fish a day, contributing varying levels of organic loads to the water throughout each day.

"Not only do we have the varying organic loads just by the nature of the animals and how much they feel like eating on that particular day," Oblisk explains, "but we also have constant weather changes, with heavy sun one day, and not so heavy the next. With such an extremely large pool surface area exposed to the sun, that also creates another variable load that challenges us to keep our chlorine levels consistent where we want them."

For years, Oblisk and his team had used liquid chlorine as Dolphin Cay's primary disinfectant, in conjunction with ozone. But, given all the variables they faced, the liquid chlorine fell short for two reasons.

First, the shelf life of liquid chlorine was a problem because it cannot be produced on the island, and has to be shipped to the island from the U.S. This resulted in the product's potency diminishing during the time required to ship it to the island, making disinfection inconsistent and less effective.

Second, 55-gallon drums were not easy to move to the points of application due to physical constraints of the mechanical area.



Precise FAC dosing needed

Another issue was the dosing of such a large body of water with free available chlorine (FAC). The disinfection of water used in aquatic mammal enclosures requires very precise dosing to keep the animals safe from pathogens, while at the same time minimizing their exposure to high FAC levels. Oblisk's team monitors the water from different places each hour, and keeping the FAC consistent was always a challenge.

In addition, the quality and availability of the liquid chlorine was a constant concern. Oblisk would order it shipped from Florida, during which time the quality would degrade. Other times, he says, it was simply hard to get, so his staff would have to contact backup sources and often pay a premium. In addition, the liquid chlorine system was not easy to operate. Forklifts were used to move the 55-gallon drums close to the pumping stations, and technicians had to wrestle



a large drum close to the pumping stations in personal protective equipment (PPE). And they were averaging about eight drums per day.

Tackling the intolerable

When the situation had grown intolerable, Oblisk turned to Prestige Technology, a water treatment products supplier and consultant, for advice. Prestige recommended a custom-engineered solution built around the **Pulsar®** System chlorinator technology from Lonza, a Switzerland-based, global life sciences company.

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Oblisk was already familiar with the **Pulsar®** System as a solution to liquid chlorine issues, as he had successfully deployed the technology in all of the swimming pools at the Atlantis resort. “We found the **Pulsar®** Systems to be easy to install and use, as well as extremely cost-effective for safeguarding the water quality of our swimming



Prestige Technology installed three **Pulsar®** 500 Feeders in the Dolphin Cay attraction.



Pulsar® Systems had already been used successfully in all of the swimming pools at the Atlantis resort. Using **Pulsar®** Systems in the Dolphin Cay attraction was the obvious solution.

pools,” he says. “It was an obvious solution for Dolphin Cay, but required us to work with Lonza to tailor it to address the issues associated with much larger water volume with many more variable conditions.”

The Dolphin Cay’s **Pulsar®** System is comprised of three **Pulsar®** 500 Feeders, two in service and one on standby. **Pulsar®** Plus Calcium Hypochlorite Briquettes provide 65 percent available chlorine (AvCl) by weight. In each feeder, water enters through an inlet port. A spray manifold then distributes the water onto a briquette grid creating the chlorinated solution, which falls into a discharge tank to be sent back to the Dolphin Cay via a Venturi-valve evacuation system. Water flow within the unit removes residue from the base. The unit then washes down nozzles and the well agitator nozzle spray after the unit is done feeding.

From concept through engineering, to final commissioning, the project took just three months. Today, the **Pulsar®** System

helps Oblisk and his team maintain the FAC in the Dolphin Cay’s six-plus million gallons of seawater at a steady 0.5 ppm average. The Venturi injector allows consistent chlorine dosing while reducing damage to dosing pumps because the chlorinated solution does not actually pass through the pump. This extends the service life of the pumps, reducing the frequency of pump replacement, and saving time and money. “The time savings lets my team focus on maintaining and upgrading the many other systems that support our vast Atlantis Resort’s Aquaventure waterscape,” he says.

Reliability, ease of use and cost-savings

According to Oblisk, reliability has improved substantially. “Before we installed the **Pulsar®** Systems, we were using another brand of dry chlorine feeders on our pools,” he says. “But their pumps did not last, and we had to replace approximately one each month,

continued on Page 4

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***Pulsar®** Systems now sanitizes the Atlantis resort's entire Aquaventure waterscape including water lagoons, water slides and river rides, marine habitats, swimming pools, a lap pool, as well as all of its fountains and other water features.*

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Oblisk adds that the **Pulsar®** Control Panel was easy to learn and is easy to operate with its touchscreen interface. Personnel also don't have to deal with the physical effort of moving eight 55-gallon drums of liquid chlorine each

day, nearly 5,000 pounds in all. "Now we use about 500 pounds of the **Pulsar®** Plus Briquettes instead," he says. "And it's much easier for them to haul around 50-pound [pails] of those."

Cost savings have been significant, too. Atlantis has reduced its annual expenses associated with liquid chlorine by approximately \$200,000.



That doesn't count the savings from having to replace pumps each month. On top of that, Oblisk likes the clean look of the compact **Pulsar®** Feeders. "We give a lot of tours of our mechanicals to people from around the world interested in seeing them," he says. "Before, the corroded pump stations always looked shoddy, but the **Pulsar®** units are always clean and look like new."

Oblisk praises the support he continues to get from Prestige Technology and Lonza's engineering and sales teams. He can't recall ever getting anywhere near such support levels from his previous suppliers. Would he recommend the **Pulsar®** System to others in his industry? "Absolutely," he says. "And the improved performance and reliability we've gotten with the **Pulsar®** solution, plus first-class support, are the reasons why."

Photos of Atlantis are courtesy of Atlantis, Paradise Island resort

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