NEW PULSAR® SYSTEMS BRING ENHANCED PERFORMANCE TO CITY POOLS

Last year, the City of Fullerton, California, switched from using sodium hypochlorite (bleach) to a new, fifth generation Pulsar® calcium hypochlorite feed system for providing chlorination at its indoor pool, and also upgraded one of its outside pools with a new Pulsar® system. The fifth generation Pulsar® systems, introduced in early 2014, have brought a number of new innovations that have proved beneficial to Fullerton’s aquatic facilities.

An Olympic Training Ground

The City of Fullerton maintains three pools at two locations for its residents, and maintaining water of excellent quality at these facilities is of paramount importance to the city – the two pools at the Janet Evans Swim Complex at Independence Park and the Fullerton Community Center pool.

In 1997, the city’s Independence Park Swim Complex was renamed to honor its most famous swimmer, Olympic gold medalist Janet Evans. Evans, born in Fullerton, trained in the 50-meter outdoor park pool for eight years.

The park swim complex named in Evan’s honor includes a heated, outdoor 50-meter pool with 10 racing lanes, a separate warm-up area, plus a smaller adjacent unheated summer pool.

Maintaining excellent quality pool water is of paramount importance to the City of Fullerton.

Replacing & Updating Chlorination Systems

The city’s aquatic facilities are managed by the Fullerton Aquatics Sports Team (FAST), and all systems and equipment are maintained by the City of Fullerton Facilities Maintenance Department.

While hundreds of swimmers are using the city’s aquatic facilities every day, it’s Bryan Trapp, City of Fullerton Aquatics Senior Maintenance Technician’s job to run and maintain the equipment to ensure that the

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water in these pools remain sanitary, clean and sparkling. Trapp has worked with the city’s aquatic facilities for the past 15 years, and helped oversee the addition of the new Pulsar® calcium hypochlorite feed systems in 2014.

“We’ve been using Pulsar® cal hypo systems at our outdoor park pools for quite awhile,” Trapp says. “I was told they had it on bromine when they first opened the park pool in 1976, then went to ozone. About nine years ago, that was taken out and replaced with Pulsar® feed systems,” he says. “We’ve been using Pulsar® systems exclusively for our outdoor pool chlorination ever since.”

Quickly Moving Away From Bleach

The indoor Fullerton Community Center Pool, however, had used a sodium hypochlorite chlorination system that came as part of the new construction of the pool. But in 2014, after only two years of service, it was removed. In its place, the city installed a new Pulsar® 140 calcium hypochlorite feed system.

“The major reason for the switch was because sodium hypochlorite was adding too much total dissolved solids (TDS) to the water,” says Karl Schultz, a representative of Knorr Systems, Inc., Fullerton’s switching from a bleach system to a Pulsar® 140 calcium hypochlorite system has brought improved water quality to Fullerton’s Janet Evans Swim Complex.

Liquid sodium hypochlorite contains sodium hydroxide (caustic soda), which is added by manufacturers to help stabilize the bleach solution. High sodium hydroxide levels in pool water can produce high TDS levels, which can adversely affect water clarity, feel and balance. The elevated level of TDS at Fullerton’s indoor pool was leading to cloudy, hazy water, and difficulty in maintaining proper water balance. The fact that it is a shallower pool (no deeper than 5 feet), exacerbated the problem.

**Easy Installation**

The indoor pool facility’s original 360-gallon bulk sodium hypochlorite storage tank and feed system was replaced with a new Pulsar® 140 feed system. TDS buildup with Pulsar® Plus Calcium Hypochlorite Briquettes for Commercial Swimming Pool Use is less than half that of bleach. The new feed system holds up to 100 lbs. of briquettes (equivalent to 68 lbs. available chlorine) and provides a feed rate of 5-140 lbs. of available chlorine (AvCl) per day.

“Since its installation, there’s been no problems or issues with the cal hypo system,” says Trapp. “It's working great, and keeping up with demand excellently.”

Since Pulsar® cal hypo adds much less TDS to the water than sodium hypochlorite, the indoor pool is now much clearer. Calcium hypochlorite does add some level of solids to the water, mostly in the form of calcium, but the calcium is typically removed through a pool’s filtration system.

Multiple operational convenience and safety features are provided with the new system, and its compact space-saving design allowed for easy installation.

Recent improvements have further optimized the performance and reliability of the Pulsar® system line, ensuring clear, sanitary pool water quality for the patrons of Fullerton’s aquatic facilities.

Ensuring Capacity

Up until mid 2014, the city had two Pulsar® 4 systems chlorinating its 867,000-gallon outdoor pool at the Janet Evans complex. However, due to increasing chlorine demand during times of very heavy usage, the city decided to change out one of the P4 units with a new Pulsar® 500 system to provide additional capacity. The new system provides 25-486 lbs. AvCl – nearly 40 percent more than the older system it replaced. Not only does this ensure chlorination capacity, it also means fewer loadings and longer run times perfill.

“Our new Pulsar® 500 works very well,” Trapp says. “And it’s much easier to maintain than the older P4. I like the way it cleans, especially the basin and the top parts of it. And it’s really simple to take the spray grid out, clean it and put it right back in again.” Plus, all internal components are easily accessible. The feeder is equipped with a removable solenoid assembly and quick disconnect fittings for easier serviceability.

“Another thing I like with the P-500 is its touchscreen,” Trapp says. “It’s very simple to use, and the system automatically washes down after every feed cycle, which works well for us.”

Optimizing Performance

The new Pulsar® line includes larger capacities, less energy usage, and reduced maintenance requirements.

Fullerton’s Independence Park Swim Complex was renamed in 1997 to honor its most famous swimmer, Olympic gold medalist Janet Evans, who trained in the 50-meter outdoor park pool for eight years.


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*Pulsar Plus Calcium Hypochlorite Briquettes for Commercial Swimming Pool Use* will be referred to as “Pulsar Plus briquettes” in this document.
Cryptosporidium (Crypto) is a serious issue in the operation of any commercial or public recreational water facility. Crypto can be transmitted by swallowing water from contaminated pools, waterparks, water rides, spas/hot tubs, and interactive fountains.

Although a good sanitizer is generally the first defense against fighting most recreational water illnesses, Crypto is highly chlorine resistant, requiring many days of treatment at maximum health department dosage standards (or many hours of hyperchlorination with the facility closed) to effectively kill it.

Ultraviolet (UV) disinfection systems can be effective against Crypto, but this effectiveness can be significantly hindered in the presence of high turbidity in the pool water because the UV light waves can be absorbed or refracted by the suspended particles.

Filtration Enhancement
Sand filters and cartridge filters will only reduce Crypto by about 25-50% per pass. However, filtration enhancement using Pulsar® CRS™ technology, the Crypto Removal System, has been proven to provide a 99% removal rate in a single pass. This high performance was confirmed in an independent full-scale cationic polymer trial conducted by University of North Carolina (UNC) and the Center for Disease Control (CDC).

The Pulsar® CRS™ feed station works via coagulation/flocculation, processes by which the specially formulated CRS™ cationic polymer interacts with negatively charged Cryptosporidium oocysts to form a larger agglomerated mass (flocs) that greatly increases the filtration system’s capacity to capture Crypto oocysts.

Improved Water Clarity
The Pulsar® CRS™ feed station also effectively flocs oils and other debris from pool water, reducing the chlorine demand of the water and protecting instrument probes from fouling.

Always follow health department guidelines for proper chlorine residuals, water balance and equipment maintenance.

The Benefits of Pulsar® CRS™ Technology
• Achieves Up To 99% Crypto Removal
• Improves Efficacy Of UV Systems
• Improves Water Clarity
• Reduces Fouling Of Controller Probes
• Affordable Crypto Treatment
• Available In 5-Gallon & 55-Gallon Kits

Cryptosporidiosis prevention and remediation in recreational water is of major importance to public health. The Pulsar® CRS™ Feed Station can provide an additional layer of protection in a total risk management program.
Throughout the close of the 1970s and into 1980s, Knorr Systems, Inc. (KSI) almost single-handedly brought chemical automation to the commercial pool market throughout the west. KSI is a dealer of Lonza products and its offerings include everything it takes to operate a commercial pool – on the deck, in the equipment room, chemicals – everything but the water. And this includes Pulsar® calcium hypochlorite briquettes feed systems.

“I can think of very few situations where Pulsar® cal hypo is not the best option for our customers,” says Mike Smith, Sales Director for Knorr Systems. “We truly understand the many benefits of Pulsar® cal hypo. We are very strong promoters of not just the Langelier Saturation Index but also the Ryznar Stability Index,” Smith says. “Calcium is the key to making those work. Some in our industry have an inappropriate fear of calcium, but calcium is our friend, as long as one also has good pH control.”

**Complete Turn-Key Systems**

Over the years, KSI has provided complete turn-key systems for many high profile aquatic facilities, including many of the most famous water features and fountains in Las Vegas. Depending upon the scope of the project, KSI can provides training, operation maintenance, and equipment sales for a complete turn-key project.

**A Total Water Maintenance Solution**

“The Pulsar® System delivers a total water maintenance solution to our customers,” Smith says. “Besides providing the ability to accurately maintain the cleanest, clearest, most balanced water possible, Pulsar® cal hypo eliminates the hazards of chlorine gas and liquid bleach.

“Every gallon of bleach used in a pool has a couple pounds of salt in it, so it raises the TDS,” Smith says. “We’ve had several customers who converted from bleach to Pulsar® cal hypo solely for the reason of not having their TDS so high as to affect the warranties on other pieces of equipment. Plus, bleach has a much higher pH in pool water than what cal hypo has, so you use a lot more acid,” he says. “If you’re using more acid, you’re using far more bi-carb to control alkalinity to raise your total alkalinity.”

**Do It Right**

The people at KSI are true to their company’s slogan: “Do it Once, Do it Right, Do it the Knorr Way!” KSI has offices located throughout the western United States, California, Oregon, Washington, and in Texas.