

Wedeco Ozone system in Cary, NC

North Carolina treatment plant eliminates taste and odor issues with ozonation

Scope

Enactment of the Long Term 2 Enhanced Surface Water Treatment Rule and the Stage 2 Disinfectant-Disinfection Byproduct Rule (D/DBPR) will require both large and small drinking water utilities to reduce total organic carbon (TOC), Cryptosporidium, and disinfection byproducts (DBPs) in the treated drinking water distributed to the public. Ozonation has helped prepare a North Carolina Water Treatment Plant (WTP) to comply with these federal drinking water regulations and overcome long standing taste and odor problems of its raw water drawn from the B. Everett Jordan Lake, a nearly 14,000-acre flood control reservoir.

Solution

An ozone system was an important building block in the expansion of the Cary/Apex Water Treatment Plant. The primary purpose of using ozone technology is to oxidize the high levels of iron, manganese, sulfur and organic compounds found in B. Everett Jordan Lake. The city selected the proven, state-of-the-art technology of a two-stage PDO ozone system from Wedeco.

“We took the full leap into ozone as part of our raw water pretreatment after successfully pilot testing the Wedeco system,” said Kelvin Creech, plant manager. “We had full confidence in the technology before our shovels ever turned the ground.”

The Wedeco ozone system rated at a minimum 300 lbs/day to 3,000 lbs/day maximum consists of: two 9000-gal. liquid oxygen (LOX) tanks, three 1500 lbs/day ozone generators, two 200,000-gal.



The installed Wedeco ozone system helped the North Carolina treatment plant overcome taste and odor problems.

END USER: Jointly owned by the towns of Cary, NC and Apex, NC
MANAGED BY: Town of Cary Public Works & Utilities Department
ORDER DATE: 2001
COMPLETION: 2004

pre-ozone contactors, four 158,000-gal. settled water ozone contactors, a nitrogen boost system (NBS), dissolution system, off-gas treatment, cooling water system, calcium thiosulfate system, and a gas leak detection system. In addressing claims that ozone systems are complex and difficult to operate Creech noted, "Our plant has a highly automated system with a lot of instrumentation and control. We didn't have any experience with ozone but didn't require any exotic, fast-track training. Based on our experience here, I would not think ozone treatment presents any negatives."

Result

One of the most powerful benefits to using ozone as a treatment option is its "green" component. Ozone treats viruses and bacteria without producing the chlorinated disinfection byproducts (DBPs) associated with chemical disinfection such as chlorine, making it a popular treatment option for districts that are environmentally aware.

"Ozone has microflocculation benefits that make the pretreatment stage more efficient and makes the plant easier to operate in the sedimentation and filtration stage," said Creech.

The ozone system allowed the Cary/Apex treatment plant to operate more efficiently in terms of chemical usage.

The plant previously used a substantial amount of powdered activated carbon for odor control which is no longer required with ozonation. The plant now typically needs 5 mg/L versus 30 mg/L to 40 mg/L in the years before the addition of ozone. Because of ozone's disinfection power, the plant has been able to reduce its chlorine use before releasing the finished water into the distribution system.

Another important benefit to using ozone is that the award winning plant is now in a solid position to be able to successfully meet future regulatory changes.



The ozone system makes the plant more efficient and easier to operate.

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