

AWOIS FOUNDER TOUTS BENEFITS OF OZONE SYSTEM AT TECH CONFERENCE

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AUBURN, N.H. - "If North Carolina implemented 85 percent cold-water washing using ozone at laundry facilities in colleges, universities, hotels and nursing homes statewide, the savings in water and natural gas could provide enough energy to run a city of 45,000 people for one year," said Ralph Daniels, founder of Aqua Wing Ozone Injection Systems (AWOIS) LLC. Daniels was an invited speaker at the recent North Carolina State Energy Office Strategic Water Technology Conference, a meeting held in response to the state's severe drought.

Gov. Michael Easley tasked the North Carolina State Energy Office with investigating and recommending strategic measures for public facilities, including universities, community colleges, public schools, correctional facilities, state agencies and local counties and municipal governments, to manage and reduce water consumption. Organization of the one-day Strategic Water Technology Conference resulted. The event offered presentations by multiple experts in the field of water conservation to more than 250 North Carolina public employees.

The conference "was billed as a discussion of long-term solutions, but it also underscored the urgency of the state's worsening drought," said a follow-up article in *The Charlotte Observer*. "Exceptional drought conditions—the worst category described by the U.S. Drought Monitor—now cover 66 percent of the state," the article went on to report.

Conference presenters shared ideas on water conservation, capturing rainwater, the use of drought-tolerant plants, and the use of ozone technology in state facility laundries, among others.

Substantial Potential Savings

Using numbers provided by North Carolina Public Service, Daniels presented data on how ozone use at laundry facilities could drastically save water and natural

gas. He said that by using ozone as part of a facility's wash process, colleges and universities statewide would save 33 million gallons of water and 521,000 gas therms per year; nursing homes would save 197 million gallons of water and nearly 5 million gas therms annually; and the hospitality industry would save 218 million gallons of water and 6 million gas therms each year. All told, the savings in water and gas were projected to be able to support 45,430 people, according to Daniels.

For the state of North Carolina, Daniels said, the total water savings would equate to as much as 35 percent, along with an expected reduction in wastewater of approximately 30 percent.

North Carolina, said Daniels, was intrigued by what has occurred in Missouri, where every correctional facility laundry statewide is equipped with AWOIS Aqua-Fusion ozone systems. This was one of the reasons that Daniels was asked to speak at the conference, he said.

"Missouri is expected to save \$1.2 million per year in natural gas, water and sewer costs simply by adding these ozone systems to 15 correctional facility laundries statewide," Daniels said.

As part of the Strategic Water Technology Conference, Daniels explained how ozone works and saves water in the process.

Ozone Creation Process Explained

"Ozone gas (O₃) results from a high electrical voltage or ultraviolet light being passed through oxygen (O₂) molecules," he said. "It's the addition of the third oxygen atom in ozone that produces a powerful cleaning agent. During a wash cycle, that third oxygen atom attaches to and breaks down organic materials like soils, bacteria, molds and greases. Once broken down, these materials are easily removed from fabric by detergent in the wash cycle."

Ozone, he said, works best in cold water and can completely eliminate a laundry's need for hot water—reducing the workload and gas consumption of water heaters. Since ozone leaves only oxygen behind, it is also environmentally friendly. Ozone use in laundry processes decreases the time it takes to complete laundry by eliminating and shortening rinses and baths.

"The most effective way to create ozone for laundry applications is to use corona discharge, a method that passes dried, oxygen-containing gas through an electrical field," Daniels said. "The electrical current causes the oxygen molecules to disassociate into O₁. The free atomic oxygen atom recombines with stable oxygen (O₂) to create ozone (O₃)."

A side benefit of using ozone as part of the laundry process is its disinfecting capability, Daniels said. The Aqua-Fusion System eliminates 99 percent of super bugs in the wash. Super bugs are bacteria/viruses that are resistant to the antibiotics used to treat them, and include *Hepatitis*, *C.diff*, *aspergillus Niger*, *HIV* and *MRSA*.

Another benefit of laundry ozone, in addition to the system's microbial kill capabilities and quick return on investment, is that it is environmentally friendly, according to Daniels. "Ozone is the Earth's strongest oxidizer. It is generated on-site, leaves only a residual of oxygen, and reduces the carbon footprint of traditional laundry systems by up to 75 percent."

By utilizing ozone, according to Daniels, laundry facilities will not only enjoy faster dry times and more productivity, they will consume fewer chemicals, use less water, use less electricity, consume less natural gas (use primarily cold water, fewer rinses, less dry time), and produce less wastewater (the wastewater that is produced is non-toxic with a higher O₂ content).