

Cummins saves big with new water system

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Cummins Inc. has installed a revolutionary new water system at its Corporate Office Building and Fuel Systems Plant that the company expects to significantly cut expenses along with the company's use of water and hazardous chemicals.

Annual water consumption by the building's cooling system has declined by more than 6 million gallons — about as much water as 40 families of four use in a year.

The system at the headquarters cost Cummins \$28,000 and is producing annual savings of \$85,000. And it has largely eliminated the use of hazardous chemicals.

This weekend, Cummins plans to get a \$150,000 system online at the Fuel Systems Plant, which has a chiller system 10 times larger than the one at the corporate office. The Fuel Systems Plant now uses about 18 million gallons of water a year. Cummins expects the new system to cut consumption to less than 6 million. Annual savings are expected to be near \$150,000.

Created seven years ago by Water Conservation Technology International, a small company based in Temecula, Calif., the patented technology has proven especially popular in water-scarce areas out West with companies including Boeing, Microsoft and Yahoo, but the system is gaining traction across the country because of its cost advantages. Schneck Medical Center in Seymour launched the system last fall, after inspecting the system Cummins has at its headquarters.

Dan Duke, president of Water Conservation Technology International and a 40-year veteran of the water industry, said traditional water conditioning systems pose some significant and expensive problems: Over time, small particles in water stick to pipes, pumps and other parts of the system, reducing system efficiency. To prevent that from happening, chemicals such as sulfuric acid are added to the water. However, those chemicals cause corrosion, which also can damage pipes and equipment.

Duke's system uses silica, which is naturally found in water, to create a silicate-based corrosion inhibitor in the water. In essence, the new technology prevents water quality from deteriorating quickly to the point that it damages pipes and equipment.

In traditional water conditioning systems, the water quality quickly deteriorates to the point that it must be exchanged with fresh water. Water in the old system at the Cummins headquarters cycled through the system between one and three times.

The new system allows the water to cycle 180 times, said Phil S. DeVinney, facility manager at the Fuel Systems Plant.

As DeVinney stood in the mechanical chiller room, he said temperature and humidity control at the plant are critical for the machining of parts, which have tolerances at the micron level. A micron is 0.000039 inches. The plant's temperature is kept at a steady 69 degrees, with 58 percent humidity.

In the chiller room, two 8-foot-high silo-like tanks made of green fiberglass press against the northern wall. Two black electronic boxes above the tanks control the system. The system is dwarfed by the rest of the equipment in the room, in which 8-inch pipes surrounded by 3 to 4 inches of green insulation snake from floor to ceiling.

DeVinney said he initially reacted skeptically when he heard about the projected savings of the new technology.

But then, he said, he realized that water treatment had remained essentially unchanged since the 1940s, and that it would make sense for someone to figure out a better way.

"This guy seems to have done it," DeVinney said.

Andy Hagedorn, director of facilities at Schneck Medical Center in Seymour, said the hospital, which has had the water technology since fall, is on course to recoup its investment of \$25,000 in the first year of operation.

Schneck expects annual water use to fall by about 2.8 million gallons.

“So far, we’re very happy with it,” Hagedorn said.

DeVinney was part of a Columbus team that won a 2011 Cummins Chairman’s Award in the environment category.

DeVinney said he hopes Cummins installs the system at facilities across the globe.

“This should save Cummins billions — not millions,” he said.