HPF Closed Loop Filter Solves Problem in New Chilled Water Loop

Background
Chem-Aqua treated the HVAC system at a new middle school in Central Florida. The building’s chilled water system was designed to connect to the chilled water system for an elementary school being built 2,000 feet away. The elementary school was under the care of a competing water treatment company during the construction and one year after.

Problem
The HVAC system for the middle school came online first. The chilled water piping was properly cleaned and flushed. Chill water iron levels were less than 1.0 ppm. When the chilled water piping between the two schools was connected, the chilled water became visibly dirty and the iron level increased to above 5.0 ppm. The elementary school contractor and water treatment company did not clean and flush the chill water piping properly.

Clean water with a low suspended solids level is required for closed loop systems. Suspended particles can damage mechanical pump seals and deposit in system piping, including critical heat transfer surfaces. Re-cleaning and flushing the 30,000 gallon chilled water system was not practical. However, the owner would not accept the chilled water loop in its current condition.

Solution
Low maintenance and labor requirements were important to the Mechanical Contractor and personnel would not be available to change filter cartridges or bags. Chem-Aqua Engineering recommended installing a High Performance Filter (HPF) Closed Loop Filter. This self-cleaning filter uses a unique HPF media that allows particulate matter to penetrate deeply into the filter bed, but still be easily released on backwash. This allows HPF Closed Loop Filters to remove smaller suspended matter than conventional media filters, while operating at higher flow rates with greater time between backwashes. Furthermore, the unit has very low maintenance and labor requirements.

The Mechanical Contractor purchased and installed a HPF Closed Loop Filter at the middle school with outstanding results. The chilled water iron levels dropped from over 5.0 ppm to 1.5 ppm within two weeks of installation. Another week later the iron was 0.47 ppm. The iron has since dropped to less than 0.20 ppm. The chilled water turbidity has been reduced from 125 NTU to 10 NTU.

The contractor was thrilled with the results. He told Chem-Aqua he will include a HPF Closed Loop Filter in every new construction job with a chilled water system.