Success Stories

mini Sulfite Analyzer Continuously Monitors De-Chlorination Residual

Customer Profile

The 11 billion-gallon Occoquan Reservoir is the principal drinking water supply for northern Virginia. State-of-the-art treatment for all wastewater generated in the watershed is provided at two treatment plants operated by the Upper Occoquan Service Authority (UOSA), both of which utilize ChemScan analyzers to help manage their treatment process. The Regional Water Reclamation Plant in western Fairfax County is a 54 MGD Advanced Wastewater Treatment facility.

Featured Product

ChemScan mini Sulfite Analyzer

Overview

The UOSA Water Reclamation Plant uses Sodium Hypochlorite for disinfection but is required to de-Chlorinate prior to discharging or reusing the wastewater. Sodium bi-Sulfite is used for de-Chlorination. The plant operates three 52 gph chlorine pumps for disinfection and three 52 gph bisulfite pumps for de-chlorination.

Challenge

The Sodium bi-Sulfite is an Oxygen-demanding chemical, so it is preferable to minimize any excess amount in the plant effluent by preforming an on-line analysis to continuously monitor the residual concentration. A prior Sulfite analyzer in use at the plant had issues with drift and excessive maintenance. Readings from the analyzer were suspect because the values did not correspond to stoichiometric calculations based on the amounts of chemicals being applied. Sulfite in a process sample is unstable and can degrade within minutes of collecting a sample, making it difficult to calibrate and verify an analyzer.

Solution

The plant had already been successfully operating a ChemScan mini oP analyzer. When they learned that ChemScan also manufactured a mini Sulfite analyzer, ChemScan was invited to perform a side-by-side test with the existing Sulfite analyzer at the plant. A 90-day demonstration was conducted at the plant in late 2018. Prior research at ChemScan developed reliable methods for field verification of Sulfite residuals and were used during the demo on samples from both analyzers.

Amanda Fromer, the UOSA Instrument specialist assigned to supervise the evaluation, said, “We really like the way it has performed. It continues to be completely hands-off.” As a result of the successful demo, the plant decided to install the mini Sulfite analyzer, which is now the main tool for monitoring de-Chlorination residual. They credit the analyzer’s built-in cleaning system for the success of the installation. “It is the only instrument monitoring our effluent that does not have fouling issues,” stated Fromer.

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Amanda Fromer, UOSA Instrument specialist

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