Pilot Project at Windsor (Canada) Wastewater Treatment Plant to Optimize Nutrient Control

In recent years, both governmental agencies and wastewater treatment plants worldwide have intensified their efforts to reduce nutrient discharges — mainly nitrogen and phosphorus — into natural water bodies. This commitment stems from increasing regulatory and environmental pressure to limit eutrophication in rivers, lakes, and coastal areas, as well as from the broader goal of advancing sustainable water management. Within this context, the Windsor wastewater treatment facilities in Canada have launched a pilot project aimed at improving the control and efficiency of nitrogen removal.

The pilot focuses on evaluating different continuous analyzers for ammonium and nitrate installed directly in the aeration tanks. The goal is to determine which technologies provide the most stable and representative measurements, enabling optimized oxygen dosing during aeration. Real-time data allows the plants to enhance energy efficiency and ensure effective nitrogen removal throughout the year.

Among the instruments being evaluated are analyzers from Instran, supplied in collaboration with the Canadian distributor Avensys. For this project, Instran has implemented several specific upgrades to meet the operational needs of the facilities: optimized reagent consumption, adjustments in measurement frequency, and improvements in analytical precision to deliver more reliable and sustainable data under demanding aeration conditions. In addition to Instran, the plant is assessing two other alternatives in order to compare the performance of each solution under the same operational conditions.

The pilot project will run for six months, covering both winter and warmer periods to assess the analyzers' performance under a wide range of temperatures and loading conditions. Once the evaluation phase is complete, the City of Windsor will install a total of seven ammonium analyzers at different sampling points across the two wastewater treatment plants it operates, establishing a more robust, automated, and energy-efficient nutrient control strategy.

Manufactured by:
Instru
Calle Penedés 46, 08820, El Prat de Llobregat
+34 93 478 71 61 | instran@instran.net