Case study
Brisbane & Queensland, Australia.

Redland City Council

Cleveland WWTP Operational Improvement & Data Management Project with Xylem Vue platform

The Cleveland Wastewater Treatment Plant (WWTP) is located on Weippin Street in Cleveland, Queensland (Australia). It services a significant portion of the Redland Local Government area, treating wastewater from residential, commercial, and selected industrial sources.

The facility is situated within the Hilliards Creek catchment, a predominantly urbanised drainage area with environmental sensitivity. The Cleveland WWTP forms a key component of Redland City Council's wastewater treatment network.

The Cleveland WWTP relies on conventional municipal wastewater treatment processes, including physical, biological, and chemical treatment stages to ensure safe discharge. Wastewater is processed through an oxidation ditch system, where surface aerators provide oxygenation and mixing as part of the biological nutrient removal process. The flow then moves to clarifiers, where solids settle and treated effluent undergoes disinfection before final discharge.

To ensure compliance with regulatory requirements, the Cleveland WWTP continuously monitors key environmental parameters. These include biochemical oxygen demand (BOD), nutrient concentrations such as nitrogen and phosphorus, suspended solids, pH levels, dissolved oxygen, and bacterial indicators. Monitoring these parameters is essential, as they are mandated under environmental licences and serve to verify that the treated water is safe for release into the surrounding environment.

The Cleveland WWTP operates two primary discharge pathways. Treated effluent is released into Hilliards Creek through a controlled outfall system, contributing to the local waterway flow. In addition, a portion of the treated water is stored in lagoons and later reused for irrigation applications, supporting water reuse initiatives within the region.

Given the environmentally sensitive nature of the surrounding wetlands and ecosystems, strict controls are applied to manage nutrient loads and pollutant levels. Compliance with regulatory standards set by Queensland's environmental authorities is essential.

Challenges

As with many complex wastewater treatment process systems, one of the central challenges lies in the current limitations related to data accessibility and system integration. Disparate existing technology platforms often operate in silos, making it difficult to obtain a comprehensive and timely view of plant operations. The proposed solution seeks to overcome these limitations by consolidating data

Program highlights:

- Unified operational and laboratory data into a single platform, eliminating information silos.
- Continuous tracking of key environmental parameters to support regulatory compliance and early issue detection.
- Interactive dashboards provide real-time insights into plant performance and treatment processes.
- Faster analysis and informed responses through consolidated, accessible operational data.
- Customisable dashboards, visualisations, and data exports support proactive plant management and optimisation.

from multiple sources into a centralised platform. This approach enables more efficient analysis, enhances visibility across operations, and supports better-informed and faster decision-making.

Solutions

Maintaining long-term compliance with environmental regulations requires reliable and consistent monitoring of operational and laboratory data. The project facilitates continuous tracking of effluent quality by integrating laboratory test results from various sources into a unified and structured dataset. This allows for improved trend analysis over time, ensuring that compliance requirements are consistently met and potential issues are identified early.

Another key focus of the initiative is improving visibility into plant performance and operational efficiency. By providing clear, interactive visualisations of critical assets and treatment processes, the solution enables decision-makers to easily identify inefficiencies, anomalies, and performance deviations. This enhanced visibility supports a more informed and proactive approach to plant management, helping teams better understand system behaviour and make data-driven decisions to improve overall performance.

The project also places strong emphasis on user flexibility and data usability. The interface is designed to be highly configurable, enabling users to tailor dashboards, select relevant data points, and create customised visualisations aligned with their specific roles and responsibilities. Information is presented in intuitive formats such as tables, charts, and interactive dashboards, ensuring that insights are easy to interpret, actionable, and accessible to a wide range of users.

Finally, the solution incorporates robust data export and sharing capabilities. Users are able to extract and share relevant information directly from the platform for monitoring purposes, proactive decision-making, or further analysis. This functionality ensures alignment with reporting requirements and enhances the overall usability and value of the system as a comprehensive operational data management tool.

Results

The implementation of Xylem Vue Smart Water Engine and Plant Management has significantly enhanced operational visibility and data-driven decision-making at the Cleveland WWTP. By centralising previously fragmented data sources into a unified and accessible environment, the platform has improved the efficiency of data analysis and enabled faster, more informed responses to operational challenges. In addition, the solution has strengthened compliance monitoring by providing consistent, long-term tracking of key environmental parameters, allowing early detection of deviations and reducing associated risks. The introduction of intuitive dashboards and configurable visualisation tools has also empowered plant personnel to better understand performance trends, identify optimisation opportunities, and support continuous improvement initiatives.

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