Case study
Aljarafe, Seville, Spain

ALJARAFESA

Advanced water cycle asset and work order management

ALJARAFESA (Empresa Mancomunada del Aljarafe, S.A.) is the public utility responsible for the water cycle in the Aljarafe area of Seville. It serves 31 municipalities, with a population of approximately 350,000, and provides over 120,000 drinking water connections, centrally managing water supply, sanitation and wastewater treatment across a large, diverse part of the Seville metropolitan area.

The utility operates a large-scale, highly complex water system, which includes over 2,000 km of drinking water distribution networks, over 2,000 km of sewer networks, a regulation capacity exceeding 185,000 m³, pumping stations with flow rates of up to 3 m³/s, and five wastewater treatment plants with a combined capacity exceeding 60,000 m³/day. This scale of infrastructure and assets makes operational management and maintenance a critical challenge for service continuity and sustainability.

Challenges

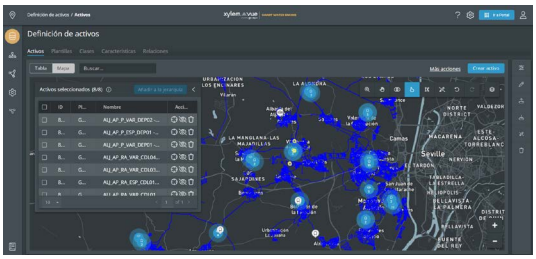
ALJARAFESA had to manage thousands of widely distributed assets, with varying levels of criticality, age, and operational performance, in a context of intense pressure on water resources as well as ever more stringent regulatory and environmental demands. The sheer size of the system made management based on isolated tools and manual processes unfeasible, especially in terms of detecting leaks, monitoring real-time operations, and planning maintenance.

One of the key challenges in a semi-arid environment such as this was to reduce water losses in a network extending over thousands of kilometers, where early leak detection and prioritizing field work have a direct impact on efficiency and sustainability. This was compounded by the need to coordinate operations, incidents, and maintenance across dozens of municipalities, with hundreds of daily work orders and a vast amount of field data, all under a public governance framework that requires traceability, transparency, and performance monitoring.

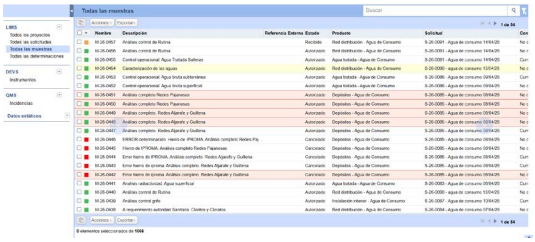
These operational challenges were also part of a strategic digital transformation agenda driven by ALJARAFESA through the GAIA Project, aimed at bringing smart management to the entire water cycle. Securing funding through the Strategic Project for Economic Recovery and Transformation (PERTE) for Water Cycle Digital Transformation underscored the importance of platforms capable of integrating large volumes of operational data from networks, facilities and large-scale deployment of smart meters.

Project highlights

- Control and optimization of over 4,000 km of networks
- Reduction of losses and improvement of operational efficiency
- Digital transformation of maintenance and full traceability
- Foundation for incorporating new digital transformation capabilities in the future



Asset management



Laboratory management

xylem vue

Solution

ALJARAFESA responded to these challenges by launching the GAM (Asset and Mobility Management) project through the advanced implementation of Cloud GAM on the **Xylem Vue platform.** The solution was designed as a single digital environment capable of supporting the daily operations of the entire area's system, integrating operational monitoring, maintenance, and leak control within a scalable cloud architecture.

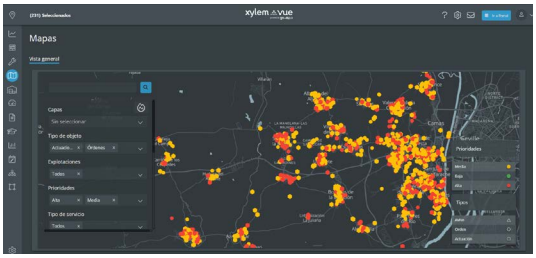
The project delivers centralized integration of the Smart SCADA module (IoT Core + Unified Network Management) with Xylem Vue's Work Orders and Leak Detection applications to manage thousands of operational signals, digitalize and trace work orders related to networks and facilities, and systematically detect leaks across a vast network extending over thousands of kilometers. The platform is complemented by a water quality information system in a third-party LIMS (ICSA NEVIS LIMS) and sets out a clear roadmap to add capabilities such as Smart Water Engine (SWE), Operational Intelligence, and the Sewer Tracker and CCTV applications, progressively expanding the scope of operational and asset management.

Results

The implementation of Cloud GAM has provided ALJARAFESA with large-scale management capabilities, aligned with the volume of infrastructure and assets it operates. The consolidation of operational and maintenance data has reduced response times, improved team coordination, and enabled field work to be prioritized based on impact and risk, rather than taking a reactive approach. Furthermore, the project has laid a solid foundation for reducing water losses, improving maintenance efficiency, and enabling continuous monitoring through operational and strategic KPIs, tailored to a system that supplies water to hundreds of thousands of people.

The project has become a key part of the GAIA digital ecosystem, providing the operational layer needed to capitalize on investments related to the PERTE and the deployment of smart meters. The platform integrates asset management, operational monitoring, work orders, and leak detection, connecting consumption data with the physical reality of the networks and closing the loop between metering, operations, and maintenance. As a result, ALJARAFESA has not only become more efficient, but has also built a robust, scalable digital architecture, ready to handle data growth, boost transparency, and maximize the impact of its digital transformation strategy for the benefit of the region and its residents.

Level sensor management



Field work management


Monitoring of water supplied to municipalities

> "The GAIA project brings more efficient water management, reduces network losses, and improves service quality (...). In addition, the implementation of technologies such as remote meter reading opens up new services for users and promotes responsible water use."

Antonio Valverde, Executive Vice President of Aljarafesa

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