RTC4Water Case Study: Wastewater Distribution Optimization

OPTIMIZE THE RESOURCES YOU HAVE

Syndicat Intercommunal de Dépollution des Eaux résiduaires du Nord

"RTC4Water's innovative GPC system has upgraded our operation system to a higher level of efficiency while reducing the environmental impact of wastewater overflows." Mr. Roland Schaack, Director SIDEN

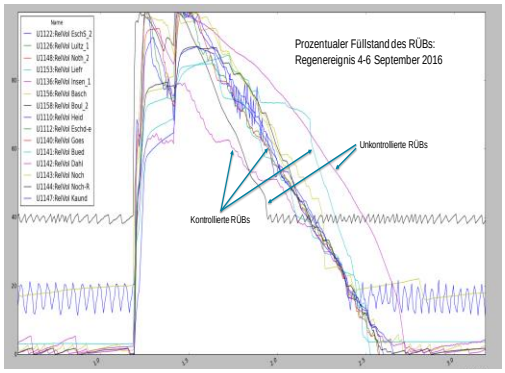
Executive Summary

SIDEN is a wastewater treatment operator servicing the Northern region of Luxembourg. It manages over 300 wastewater collection stations and serves over 90,000 customers. As part of a new wastewater treatment plant construction project, they commissioned RTC4Water to help them analyze and improve the efficiency of their wastewater distribution network. As the plant's location was situated in a very sensitive water abstraction and bathing area, reducing CSO overflows was a key concern. RTC4Water's Global Predictive Controller™ solution significantly reduced average overflow volumes and optimized the volume of sewage entering the WWTP.

Challenges

Building a new wastewater treatment plant next to a source that provides up to 35% of a country's water supply is a sensitive job. Add tourism concerns and you can be sure that local stakeholders will be watching your project closely. For these reasons SIDEN wanted to take a more holistic approach to managing wastewater and reduce as many operational risks as possible. SIDEN also wanted to demonstrate their openness to innovation and their desire to provide their customers with new, cost effective solutions.

Our Solution: The Global Predictive Controller™



After performing an analysis of our partner's network, processing capabilities and optimization goals, a customized version of RTC4Water's Global Predictive Controller™ or GPC was installed within their local IT infrastructure. The GPC uses real-time volume data to autonomously and continuously optimize the use of all network resources - without the need for monitoring or manual adjustments. As the GPC also provides predictive capabilities, SIDEN's administrators could be confident that their network would respond to rapid or unplanned changes regardless of the time of day. The result: overflow into receiving water sources was reduced and the flow of wastewater into the treatment plant was more uniform. Finally, because the GPC uses standard OPC and PLC control technologies, our partner did not have to purchase additional sensors or rely on inaccurate rain prediction models to optimize the volume of sewage entering the plant.

Looking Forward: *our experience is that while wastewater treatment plants are important, they are only one part of a complex system whose goal is to optimize the quality of water returned to the environment.*

Results and Return on Investment

Since implementation in 2015, our partner has reported the following:

- 25% average reduction of CSO overflow events
- Increased performance of under-dimensioned CSO
- More efficient use of over-sized CSOs
- Protection of the WWTP through reduced overloading and stress (pump & valve utilization)
- No serious issues with bathing water quality

Bringing Innovation to Life

Adopting new ideas and technologies is never easy. The team at RTC4Water greatly appreciates the vision and long-term support of our partners at SIDEN and the Luxembourg Administration de la gestion de l'eau. With their leadership and support we have been able to bring a new level of efficiency to the wastewater industry as well as the experience needed to help bring innovation to communities of all sizes.

Our Technology – in Simple Terms

While we love to discuss model predictive control, mathematical optimization of complex systems, artificial intelligence and fallback strategies, we understand that our customers just need tools to make their environments run efficiently and without problems. Therefore, we will simply say that our Global Predictive Controller™ (or GPC) is the result of over 10 years of research and development work. The software runs locally at your site and you have full control over its use. The application runs independently 24 hours a day / 7 days a week and continuously analyzes your network. It uses special algorithms to assess CSO utilization and then automatically determines the most efficient waste water distribution solution based on current conditions. The GPC is designed to always calculate the most efficient use of your existing infrastructure and then provide your control systems with instructions to maintain a level performance based on your operational goals – without the need for operator surveillance or actions.

RTC4Water
Real Time Control of Water Infrastructure

Phone: +352 545 580 362
Email: info@rtc4water.com
Please visit us at: www.rtc4water.com