

Intellitect's Water Network Management System and Sensors successfully tested in Zürich



Due to high quality pipework, heavy investment and a lack of water chlorination, Zurich is a city tackling specific challenges when it comes to monitoring water quality variation in the distribution network. Drinking water is the most controlled food in Switzerland and utilities are expected to comply with some of the highest hygiene and safety guidelines in the world.

Maintaining this high level is a challenge, especially in Zurich (Switzerland's largest city) which supplies approx. 900'000 people in the city and nearby municipalities.

The Zurich Water Supply (WVZ) works closely with UK-based Intellitect to detect changes to water quality parameters in the distribution network using their cloud-based water management system including the installation of a range of Intellitect's direct insertion sensors across 130km of its network following a successful two-year trial. The use of Intellitect's sensors assists WVZ to gather detailed information about the hydraulic conditions, the mixing of water from different sources and the water quality.

"Most of the 'easy' early event detection mechanisms don't work for our distribution system because we invest a lot in maintaining our network and it is in excellent condition," said Jakob Helbing, project manager at Zurich Water Supply. "In effect our water is 'too clean' and the gravity fed system is in such good shape that it is challenging to set and monitor parameters as we do not experience turbidity events, pressure drops, or use chlorine in our water. From useability, reliability, support and range of parameters you can measure it is Intellitect which offers the most suitable technology to tackle these challenges."

Utilising Intellitect's cloud based water management system and sensors supports WVZ drive to monitor the networks overall performance, allowing an increased ability to control and manage issues. For example, monitoring temperature fluctuations is crucial, as chlorine is not used in Zurich's water supply. If water gets too warm, bacteria levels are likely to rise. Intellitect sensors identified areas where the temperature was higher than expected and as a result WVZ has started a project to identify when, where and why the temperature is being affected.

Intellitect's Water Network Management System and Sensors successfully tested in Zürich



WVZ first started working with Intellitect in 2011, when a single Intellitect sensor was compared against several other sensors under test conditions to determine which was most suitable for further application.

The Intellitect sensor performed the strongest under these testing parameters and as a result in 2013 Intellitect joined the European SAFEWATER project, whereby five multi parameter probes from Intellitect were installed on a 150m test network located at a WVZ premises in Zurich. The network was used to simulate a real water distribution network with several distinct flow conditions. As a result of the project SAFEWATER developed a comprehensive event detection and event management solution for drinking water security management and mitigation against major deliberate, accidental or natural contamination events in drinking water supply systems.

Since then WVZ have collaborated with Intellitect on several projects, as Helbing explains. "One of the challenges we have in Zurich is that we have very high standards for the quality of our pipework - so inserting a sensor into a pipe is always a cost balancing issue, as the sensor costs a fraction of the

pipes themselves. Instead we wanted to find new access points into our network," explained Helbing.

Zurich has 1,200 fountains, two thirds of which are connected to the drinking water network. It was determined the pipes feeding the fountains could be used as access points but there was no suitable existing technology, so WVZ worked with Intellitect to develop sensors that would allow monitoring at these locations.

"This project was a great example of a successful collaboration, whereby we had a problem, and Intellitect technology identified the issue and delivered a solution."

Intellitect's sensors are now used alongside other data and instrumentation to deliver better management of operational events throughout the water supply network, added Helbing.

Previous collaborations with Intellitect have proved so successful, WVZ said it hopes to use the data from these systems to validate its hydraulic model and is investigating the use of new Intellitect sensors for a temperature-tracking project.