WATER NETWORK MANAGEMENT

Real-time monitoring and proactive decision making

CUSTOMER CASE

7T is becoming Schneider Electric

AQUIS

Intuitive Understanding of Network in Real-time

Customer
Shantou Water Supply Company (SWSC)
Country China
System Integrator Best Control
Applications AQUIS Operation 3.1
Data
Number of plants in the city 4
Number of pump stations 9
Number of inhabitants ~ 1,400,000
Number of meters ~ 266,946
Pipes ~ 643.3 km / 400 miles
Maximum pipe diameter 2400 mm
Daily capacity ~ 920,000 m³ / ~ 243 million gallons
Non Revenue Water (NRW) ~ 17.6%

The SWSC project is the first AQUIS Operation system that has been installed in China.

The project is also the first installation made by the 7-Technologies (7T) partner Best Control located in Guangzhou. The project has been made possible as a combination of investments from SWSC, Best Control, 7T and the Danish government.

The Challenge

Better overview of the network and reduction of NRW

In order to save energy, SWSC would like a better overview of the network. Another focus area is Leakage Management, which a key environmental factor. The South Area of Shantou is experiencing an increase in water consumption and meter renewal. The consumption doubled in 2009, and the existing large meters in villages were split into small meters of single consumers. The result was an increase in NRW.

The Solution

First phase succesfully completed

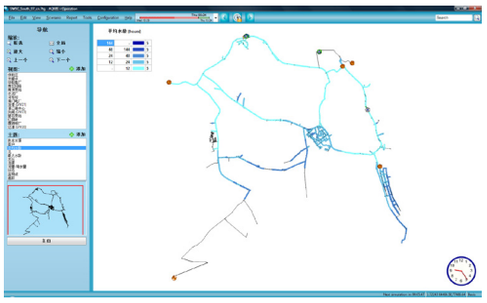
The SWSC project is divided into two phases. Initially, AQUIS Operation was installed on the South Area of Shantou, that covers 40,000 consumers. The project will later expand to the entire Shantou and cover over 1 million people.

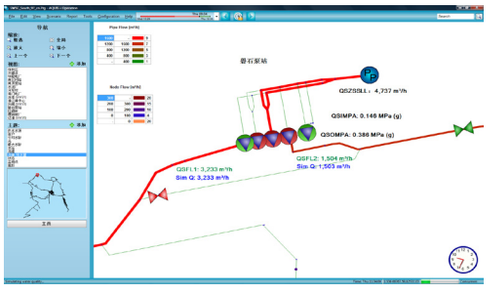
The Result

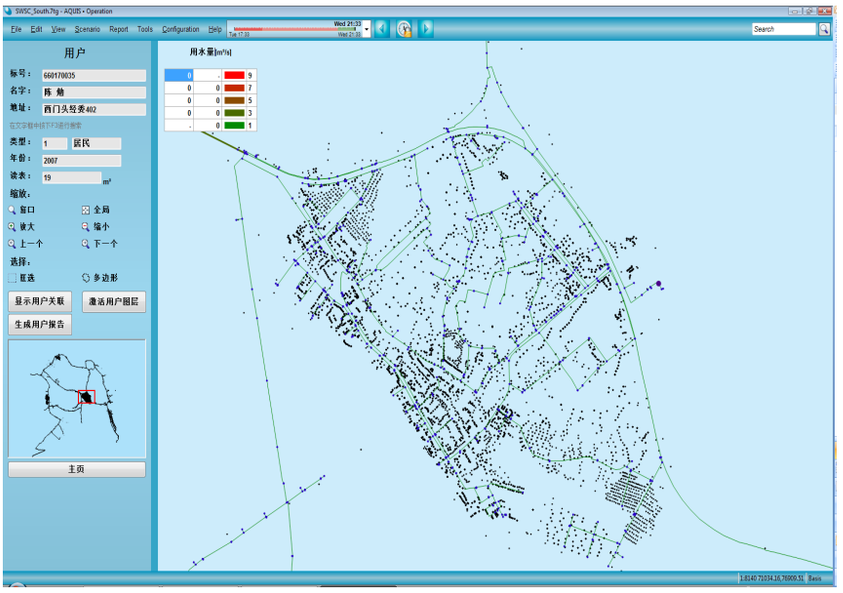
Control room benefits

Phase 1 has provided SWSC with an intuitive way to understand their network in real-time. To optimize the production planning the tool Load Forecaster has been utilized. Simulation results such as flow, flow direction, and pressure in key locations has improved the service quality. There is ongoing work to do with respect to the accuracy of the model, which will improve decision making in the control room.

CUSTOMER CASE







„The ambition with AQUIS Operation is to get a better overview of the operation, and thereby obtain knowledge that enable us to reduce the pumping pressure. This will save us a lot of energy and costs."

Ke Qingcai, Director & Vice General, Best Control Technology Co., Ltd

AQUIS Operation helps SWSC acknowledge the existence of a leakage and gives an idea of how much of the NRW comes from theft of water and how much from background leakage. It also enables SWSC to better locate the leaks. This has eased the task of field detection.

Benefits for the Engineers

The Engineering room uses AQUIS Operation to plan and for verify the scenarios of two-pump operation, which is the operation required for handling the increasing demand in the South area. Scenarios simulations showed different output pressure from new and old pump stations, different demand and different valve opening settings. Given the results for output flow and pressure difference, it was easy to estimate and compare the power consumption for each scenario. In the future this approach enables the engineers to determine the most power efficient operation.

This has environmental impact. SWSC is seeing results – not in reduction of energy – but in a more effective operation of the new and bigger pumping scheme.

A direct benefit for SWSC was to take part in the model building and model calibration processes. The actual flow in the main pipes was quite different than the operators expected. Three valves that the operators assumed to be open were in fact closed.

Through the use of AQUIS Operation, SWSC is now able to make a correct evaluation of the pressure drop across these valves and thereby increase the overall efficiency. This has a direct impact on the environmental factors in that there is a reduction in consumption and pressure that eventually leads to fewer leakages.

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