

WATER NETWORK MANAGEMENT  
Real-time monitoring and proactive decision making  
**CUSTOMER CASE**



# Cutting water loss in half at Rødovre Waterworks



With present Danish environmental technology, operations can quickly and efficiently be optimized, and at the same time the customer experience is improved.

Rødovre Waterworks, a county utility placed at the outskirts of the Danish capital of Copenhagen, steals the spotlight. Here, because of a concentrated effort with AQUIS Operation, water resource waste has been cut in half in only five years.

<b>Customer</b>
Rødovre Waterworks, Denmark
<b>Application</b>
AQUIS Operation
<b>System Integrator</b>
Rambøll A/S
<b>Data</b>
<b>Area</b>
12 km <sup>2</sup> / 4.6 square miles
<b>Number of consumers</b>
~ 36,000
<b>Main Pipes</b>
~ 110 km / 68 miles
<b>Number of service pipes</b>
~ 6,800
<b>Number of water meters</b>
~ 6,800
<b>Maximum Pipe diameter</b>
315 mm / 12.4 inches
<b>Distributed water annually</b>
~ 2,100,000 m <sup>3</sup> / 555 mio. gallons (US)
<b>Maximum daily capacity</b>
10,000 m <sup>3</sup> / 2.6 mio. gallons (US)
<b>Sold water</b>
~ 1,900,000 m <sup>3</sup> / 502 mio. gallons (US)
<b>Non Revenue Water</b>
~ 9%

## The Challenge

### Too much water wasted

As in many other water utilities Rødovre was struggling with loss of water due to leakages from the network.

## The Solution

### New online and user-friendly network model for daily operation of water utilities

The future operation of waterworks will be based on the daily use of the network model. This will become an indispensable tool in operations planning and delivery. The model works as the waterworks' "GPS" and helps the waterworks provide better water quality and customer service as well as introducing significant savings for operation.

### New functionalities

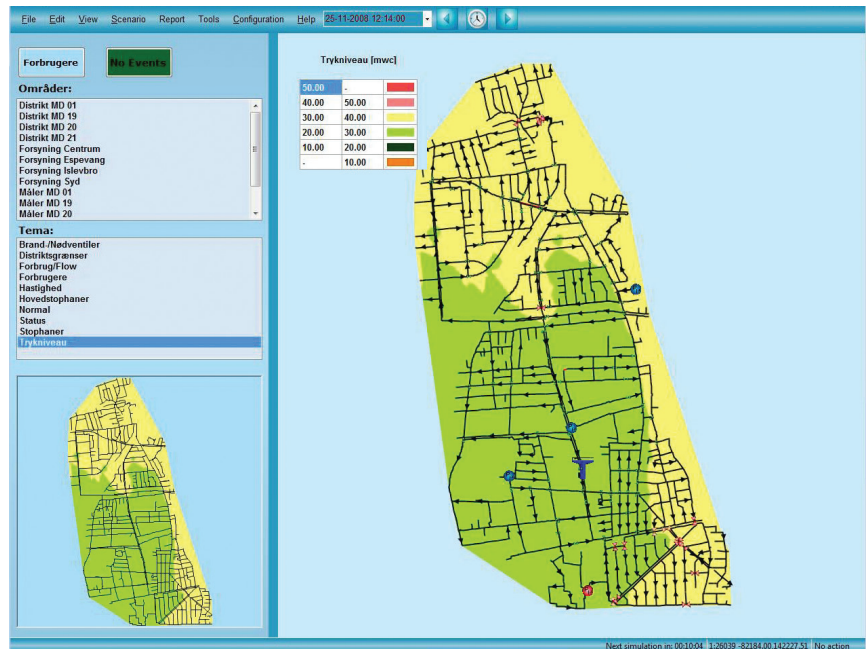
The aim of the new AQUIS functions is to provide water utilities with:

- a reliable tool to provide an overview of what is happening in the network, right now, with regard to flow directions, age and pressure.
- a simulation tool providing information of what effect valve closures etc. will have on the network in relation to leakage repairs and renovation.

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„The price of purchasing the water alone is actually enough to finance the effort to limit waste. However, it cannot be avoided completely because of the constant appearance of new leaks. So the solution is to find and use the tool that can identify where the leaks occur as quickly as possible. This is the key to waste reduction.“

*Svend Erik Pedersen, Chairman of the committee for technology and environment.*



### The Result

#### Water waste cut in half

The improved overview and division into zones has eased the leak detection. This has resulted in a halving of the wasted water. At the same time the number of pockets where the water wasn't renewed as often as required has been reduced.

### Consumer Advantages

#### Straight answers

By making use of online depiction of supply conditions and various simulation options, the new model equips the waterworks with better answers for consumers.

### User Advantages

#### Better overview

The simplicity of the user interface means that duty personnel don't need any prior knowledge about AQUIS. The operator can zoom in to the areas of the network needing attention.

By default, the current state of the network is shown. But by clicking the arrows at the top, the operator can scroll back in time to see what happened the previous night, or forward in time to see what is expected to happen in the future.

The system is set up so that pumps and valves, controlled by the SCADA system, are automatically included in the calculations. With a single mouse click the operator can simulate the closure of a valve and immediately see if it will have any impact on the delivery in the network later that same day.