

# Unified Management in Liguria



**Thanks to Movicon all the different utilities have been united in an all- in-one and first of its kind remote control system.**

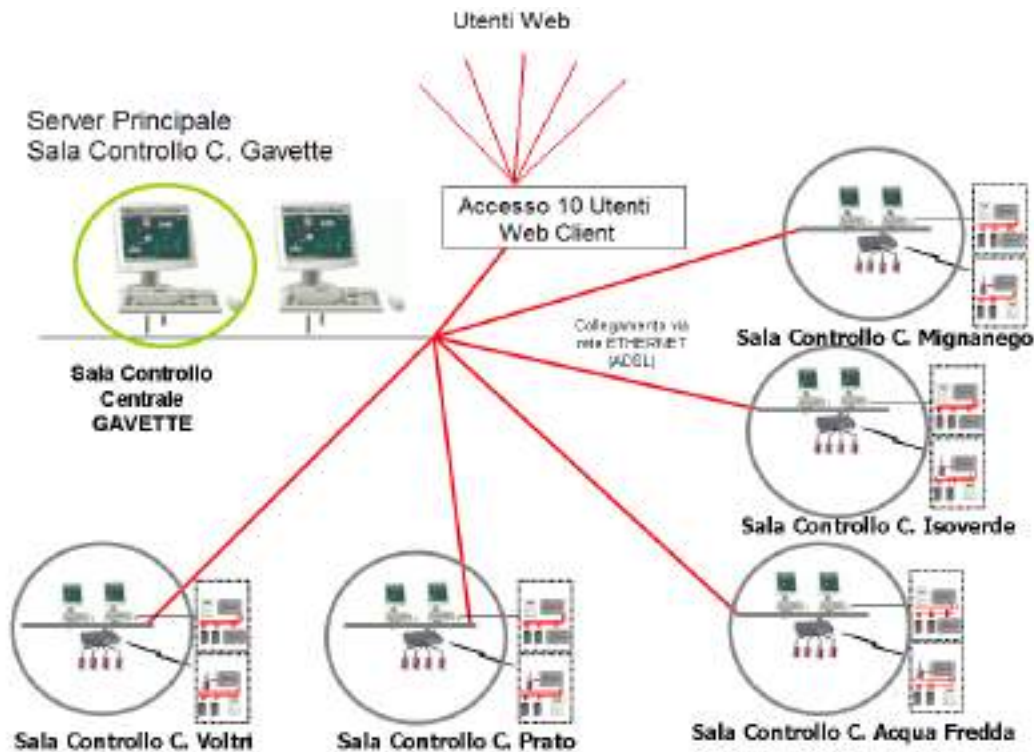
Mediterranea delle Acque, a company belonging to Gruppo Iride, is run and coordinated by Iride Water Gas company from Genoa established in spring 2006 when the three main potable water services of the Genoese ATO merged together: Genova Aqua, Ferrari Galliera and Nicolay waterworks. A national inheritance, steep in history, has been brought up-to-date with the new age of modern technology to supply integrated and efficient water services that are environment friendly and safe for

public health and consumption.

Mediterranea delle Aqua guarantees services for the whole community of Genoa and the 39 local municipalities of the ATO Genoese, supplying water to more than 700 thousand inhabitants.

#### **The network and services**

The newborn company's mission is to satisfy user requirements in Ligure by adapting to the increase in water consumption and offering top quality



*The Mediterranea delle Acque potable water remote control project of the Genoa district*

services. Its waterworks deliver around a yearly rate of 100 m<sup>3</sup> of potable water to Genoa and local towns, through a distribution network covering over 1,700 km.

It manages a total of five big water purification plants equipped with technologically advanced water treatment processes. Thanks to its numerous water sources deriving from local 48 springs and rivers varying in length, width and depth, the company is able to guarantee the required quantity of water supply to users in critical periods such as the drought season by using the necessary amount of water accumulated mainly during the winter period in reservoirs and treated in aqueducts of various diameters and material, to cover over a total distance of 1,700 km.

**The results**

When the three main water boards in Liguria merged together they each had been using different automation and control systems developed at different times for different situations and suppliers. This became a major problem for the newly formed Mediterranea delle Acque

company to administrate and maintain. The company engineers were given the task to find a solution with technology that was more suitable and sustainable using an all-in-one automation and remote control and monitoring system to manage all the potable water plants (purification plants, sewage systems, pumping stations, etc.) at contained costs. By taking into consideration the correct handling of water supply throughout the different seasons of the year, the main system requirements focused on; free to use any supplier without

being restricted to just the one, to be able to develop pilot projects with internal resources; quick to learn with userfriendly interfaces enabling staff to control, monitor, perform modifications and integrate data without any complications; permit economical evaluations, full control of eventual outsourcing to external companies. The new system also had to guarantee connectivity to the already existing PLCs, installed in positions in the different waterworks plant locations. The 'scouting' phase was set with a deadline. The best solution had to be found quick and needed to meet all these needs while offering quality services for customer support with training and technical assistance to help reduce time in developing and installing the new system once found.

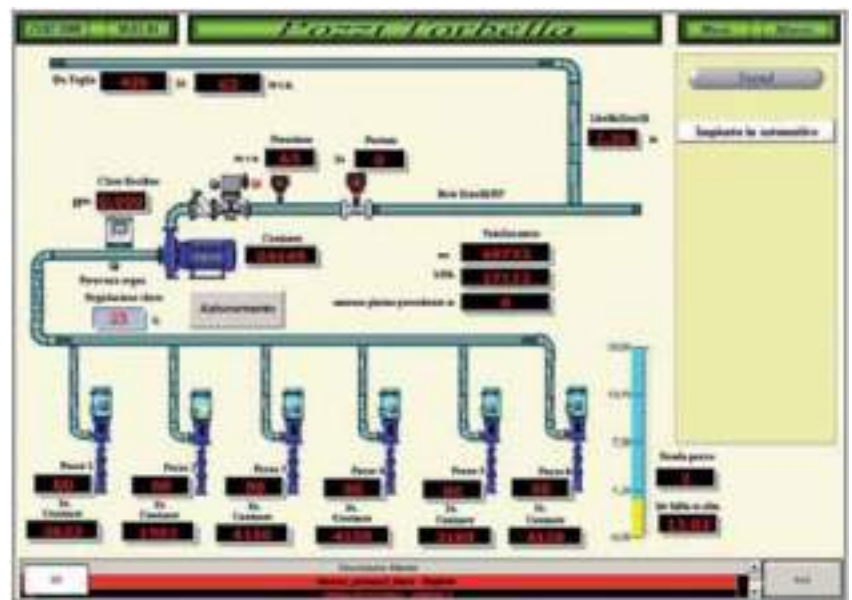
The Mediterranea delle Acque engineers opted unanimously for the Movicon Scada/HMI software produced by Progea, together with the Rockwell Automation and Moeller Electric products for their field PLCs. In fact all the new waterwork systems or those in the completion phase, use PLCs from the Rockwell MicroLogix family and the Easy

series by Moeller on remote locations. The already existing parts of the plant system have been connected to the Movicon supervisor including other important automation devices developed by the previous managements, these included ABB's AC31PLCs (by using the appropriate Hilscher convertors) and Schneider TSX Micro (using a Ethernet communication module).

**Remote control**

After drawing up an outline of the specifics, the system engineering phase stepped in and started developing the entire project based on these specifics. So far the first phase of setting up and putting the water network system covering Genova and Ambito into operation has been successful. All the telecontrol stations have been activated for a total of 17 stations out of the planned 47 in the project for only the part relating to the 'potable water service' about 37 percent of all the system as a whole. The first piloted phase was setup and put into action quickly delivering positive results by achieving the original objectives set out in the planning stage. By using a cost effective PLC and thanks to programming simplicity, they are now able to monitor different remote stations residing in lifting plants, tanks, potable water treatment plants and hydroelectric power substations. The application has been easily optimized in all these cases regardless of the network's diverse complexity. One of its power plant's, the Teglia Power Station, for example, field I/O is very high (about 330 I/O), while another, the "Sardella" power station has an I/O of only 30. The network architecture has local workstations setup and used for monitoring and supervising each single zone, interconnected through Ethernet, and a series of servers located in the main control room dedicated to the specific data

collection and publishing functions. The local PCs, record, store and display all the information relating to the all the different processes, provide all details at maximum level to operators who can interact and perform the necessary interventions and maintenance operations. One of the servers in the control room gathers, manages and displays all connected substation data by exploiting the Movicon 'Parent-child' technology which consents a Parent project to be created containing all the decentralized resources of child projects. In addition to all the other Movicon functionalities, this server has been configured with redundancy to ensure that the process is constantly running and in complete operation. The main bulk of centralized data is stored in a SQL database in a third machine dedicated for this purpose. A Web Server together with the Movicon WebClient function, deals with publishing the central server's application, consenting access to the process and relating data through the Internet, while being protected with top level security. This type of configuration also enables the system to automatically switch over to the secondary server in standby if ever the primary should crash to guarantee continuous water network services. The waterworks management has been greatly enhanced by using an all-in-one remote control system. Intervention times have been improved to be much quicker guaranteeing a much more reliable service.



*A remote control system screen page based on Movicon*

The first installation of this remote control system of the various plant locations has had very positive results, where the pumping process of various potable water lifting stations has been optimized by controlling that right amount of water flow from the various sources is kept constant to permit hydroelectric production and significant savings in total power used all round.



*One of the gathering basins used for treating water.*

*Mediterranea delle  
Acque Spa.*