

# Wastewater Treatment Plant Improves Operations and Reduces Energy Usage with PACSystems™ Control Automation Solutions

## RESULTS

- Reduced energy usage by 30%
- Over oxygenation of effluent reversed to reduce cost and damage to crucial river flora and fauna
- All plant data collected and used for predictive calculations and for optimizing process efficiency
- Ease of installation allowed implementation with only about a half hour shutdown, essential for a water treatment plant



## APPLICATION

Wastewater treatment plant

## CUSTOMER

Hera Imola - Faenza S.r.l.

## CHALLENGE

This wastewater treatment plant in northern Italy purifies water before it is discharged into a local river. The plant is subject to seasonal variations and effluent from multiple industries. Major fines are issued by authorities if there is spillage of wastewater downstream into the river. In the past, the plant worked on a fixed time process basis with only dissolved oxygen levels and other lab test data as input parameters. The result was highly inefficient in that effluent was over-oxygenated, causing a threat to local flora and fauna. Plus, energy consumption could not be easily regulated. The plant needed a dynamic control system to automate the water treatment process, provide optimum oxygenation of effluent, monitor energy consumption, and provide safe discharge to the river. The plant required an always-on installation that was highly available and reliable and provided easy data access to operators.

***“When we decided to refurbish the plant, we asked ourselves how to make sure that the new automation system would guarantee our peace of mind. The water treatment plant releases water into our own rivers and this implies additional responsibilities towards society: we need to guarantee faultless operation, for ourselves and for our environment.”***

**Massimo Zanoni**

Electrical Maintenance, Automation and Remote, Control Manager of Hera Imola - Faenza S.r.l.

### SOLUTION

After a rigorous selection and vetting process, the plant and its systems integrator selected the Emerson PACSystems RX3i solution in a redundant hot backup configuration as the plant's new control system. The system interfaces with all the field instruments on a Profibus network and collects data from approximately 600 new and existing sensors. The two redundant controllers assure the high plant availability required for the needed 24/7 operations. The PACSystems RX3i controller establishes the standing times of the slurry in the various stages of treatment. The controller communicates data to the control room where it is stored in a SQL database and concisely displayed so that the operators can be immediately warned of faults and respond proactively.

A local computer displays all process information in terms of operator displays, trends, logs and alarms. This ensures availability of local level control in addition to remote control from the central control room.

The continuous collection of data from the sensors, rapid response of the control system, and the predictive analysis by the controller help optimize machine running times and consequently decreases energy consumption while ensuring high water quality. After only 50 days, for example, an energy consumption reduction of 30% was achieved. Remarkably, the plant was only shut down for approximately half an hour to allow the new system to be installed and personnel training was swift thanks to intuitive, self-explanatory graphic displays. The plant achieved significant results in minimal time.



*PACSystems RX3i controllers in redundant configuration interface with field instrumentation.*

### RESOURCES

#### PACSystems

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