

Siemens in collaboration with Acciona, creates a Digital Twin for water treatment plants

- **This new technology has been used in one of the biggest desalination plants in the Middle East to analyze, optimize and improve productivity, reducing operating times and finding faults early**
- **Simit software can be used to simulate field equipment and even the process of an entire plant, in real time.**
- **The Digital Twin enables virtual commissioning of the plant and remote training for operators.**

Siemens has been collaborating with Acciona to create a Digital Twin to improve treatment plant management in one of the biggest desalination plants in the Middle East. This new technology is used to analyze, optimize and improve productivity, reducing operating times and finding faults early.

Simit software can be used to simulate field equipment and even the process of an entire plant, in real time. The Digital Twin creates a collaborative environment in which a virtual commissioning can be run, and operators can be trained in a safe way using a remote training station.

The digital twin enables testing of the operational data in the process control system before the implementation, which makes process validation simpler, and means you can try various system operation and optimization options.

A Digital Twin is an exact digital copy of the real installation. It offers some significant advantages including remote plant management, analyzing and optimizing plant productivity and preventing faults before commissioning. There are two sides to the 'Digital Twin', one related to the actual engineering design and the other related to the control system, in which different technologies like virtual reality, augmented reality, and the Internet of Things or Machine Learning converge. Creating a Digital Twin of a desalination plant is a complex project, as various knowledge disciplines on the process, mechanical equipment, electrical equipment, instrumentation, the control system and the simulation platform must all come together.

The system was developed in CECO (the Acciona water control center) adopting the same cyber security standards and communication channel allocation used at all the other plants connected. This gives access to all functions in a quick and flexible way. The creation of the Digital Twin meets an ever-increasing need in the water sector: the automation systems are implemented with highest efficiency and availability, so that the plants are commissioned as quickly as possible.

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