Integrated Systems

Monitoring of Reverse Osmosis in Desalination





Uncontrolled fouling or clogging of the membranes leads to increased maintenance, higher energy costs and a shortened membrane life.

Parameters

Hach provides a wide range of online and laboratory solutions for the monitoring of desalination processes. In this case the the customer requested the following parameters:

- Chlorine
- Calcium Hardness
- Total Alkalinity
- Turbidity
- Conductivity, pH, temperature

Problem

The major operational issues of today's desalination facilities involve day-to-day monitoring of the complete process and careful preventive maintenance. The addition of online monitoring technology helps protect the RO process and the production of high quality, safe water.

When a global engineering company had a large desalination project in the Middle East, Hach®, through its Belgian division, was tasked with providing a turnkey monitoring solution for water quality.

Solution

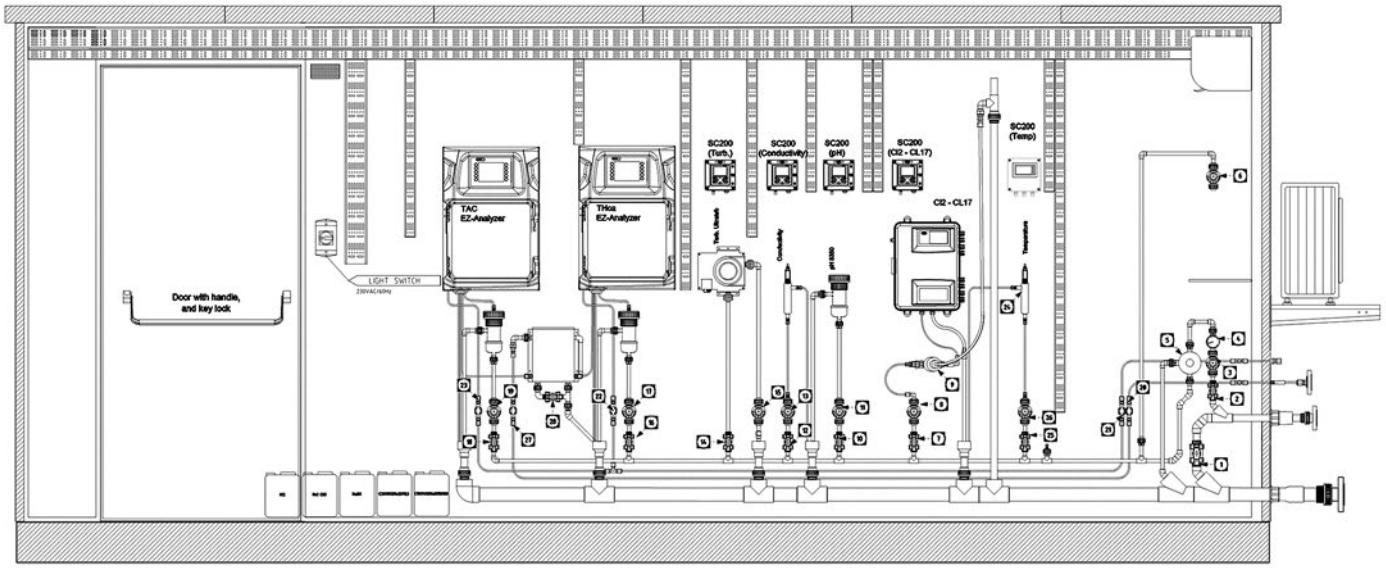
Hach inhouse engineers designed a weather and corrosion resistant AnaShell analytical shelter. With dimensions of 2 m x 6 m (WxD) sufficient space was provided for multiple analysers, turbidimeters and probes to monitor the requested parameters. Before delivery the entire shelter and its components underwent a factory acceptance test (FAT) for instant and sustainable operational reliability on site.

Benefits

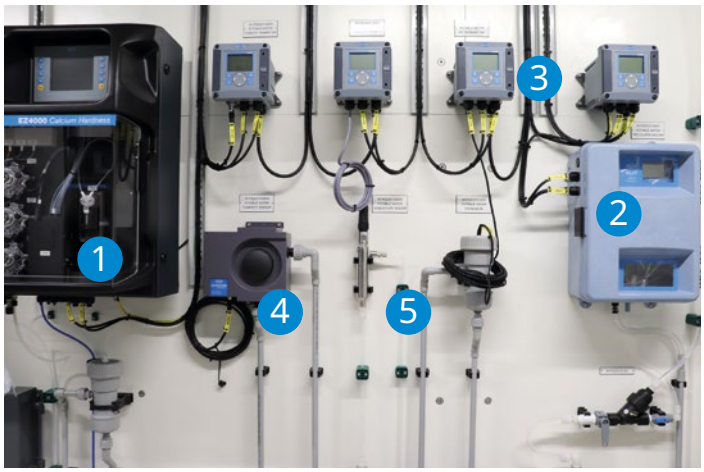
The protected environment of the analytical shelter and two suitably sized AC units creates **stable, laboratory-like conditions** for the instruments to achieve high accuracy and uptime.

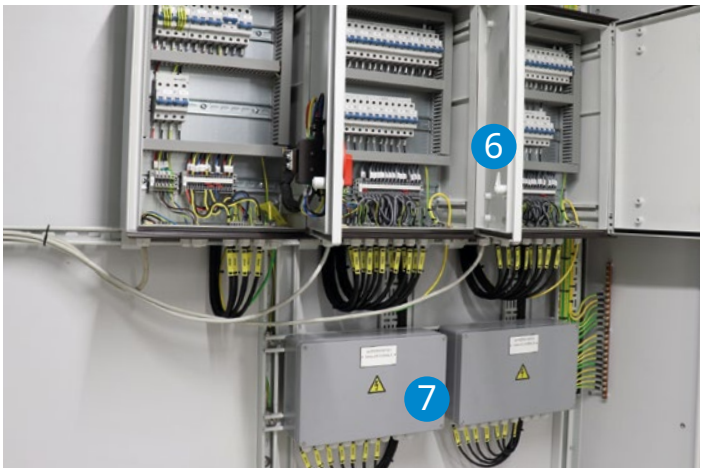
By opting for a turnkey solution, the engineering company was able to focus on the construction of the new plant. Sourcing through Hach offers the unique opportunity to combine the **expertise** of an online process instrumentation manufacturer with the capabilities of an experienced **inhouse engineering** team – **at a fixed price**.

Details & Components



In the early stages of a project, a concept drawing is created, and detailed drawings are developed from this.
After the FAT the final documentation includes electrical drawings, 2D mechanical drawings, and P&ID drawings.







Every sample stream and every sensor is labelled.
Every cable is tagged at both ends.

1 EZ Series analyser for Calcium Hardness
2 CL17 Chlorine analyser
3 SC controllers
4 Ultraturb seawater turbidimeter
5 Electrodes for pH, conductivity and temperature
6 Local power distribution panel
7 Signal junction box
8 Air conditioning unit
9 Sample in / out
10 Lifting / mounting bracket