



FUJAIRAH

seawater reverse osmosis desalination plant (United Arab Emirates)



project

The Fujairah's SWRO plant is part of the large complex proposed by Doosan to the UWEC (Union Water & Electricity Company) to fulfill its need of 500 MW (net output on the electrical grid) and 100 MIGD water production mainly used for irrigation of the Al-Ayn area due to severe depletion of the local aquifers. The main originality of this proposal was to use a hybrid plant for the water production i.e.

62.5 MIGD from 5 MSF units coupled with the power plant and 37.5 MIGD from seawater reverse osmosis.

Equipment delivery, plant erection and commissioning were achieved within a very tight schedule of 24 months. A 6 months pilot testing optimizes the pre-treatment stage and the chemical regime in relation to the seawater quality.

degremont® design

RO pre-treatment

- A dosing system able to dose up H_2SO_4 , $FeCl_3$ (pure) and polymer to be mixed with the seawater in two static mixers and two coagulation tanks.
- 2 lines of 7 open dual media filters (Mediazur) fed by gravity and handling up to 1,500 m³/h of seawater.
- 2 lines of 9 cartridge filters each with 360 cartridges (5 microns).

reverse osmosis

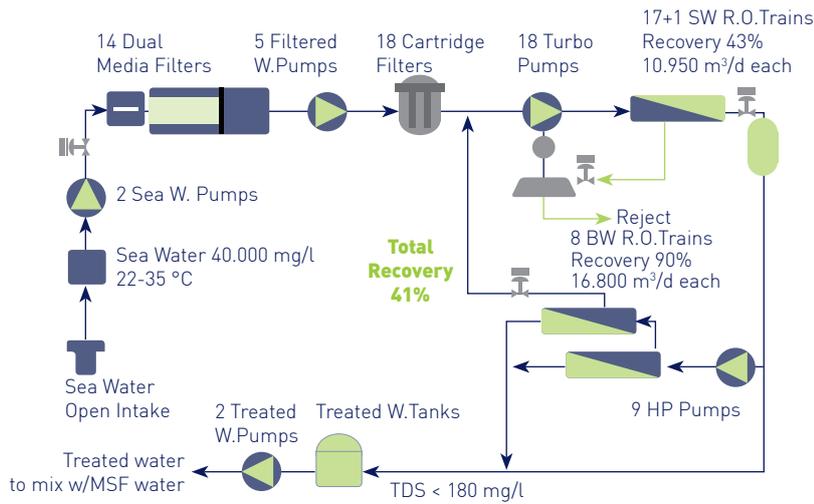
To achieve a salinity lower than 180 mg/l, the RO design incorporates a double pass system:

- 1st pass: 17 + 1 trains, each one with 136 PV x 7 elements SWC3 Hydranautics high rejection modules with a recovery rate of 43 %,
- 2nd pass: 8 trains, each one with 70 PV x 7 elements >recovery rate of 90 %.

A pressure regulation is provided to compensate automatically for the change in membrane permeability and temperature in such a way to minimize the energy requirement of the whole system.

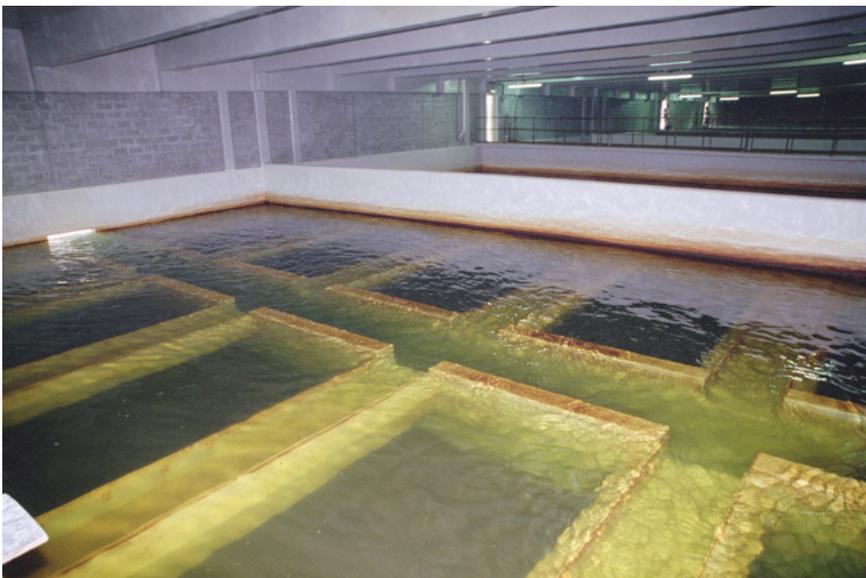


degremont® treatment line



characteristics

	Operation	Design
Seawater SDI	10 - 35	4 - 20
Average seawater SDI	18	7
Seawater Salinity, mg/l	39,500 - 40,050	40,000
Temperature, °C	28 - 34.5	22 - 36
Pretreated water pH	6.8 - 7.1	6.5 - 7.2
Pretreated water SDI15	2.1 - 3.5	< 5
RO 1 st pass TDS, mg/l	360 - 450	< 650
RO 2 nd pass TDS, mg/l	10 - 30	< 50
Blended TDS, mg/l	70 - 110	< 180
Production m ³ /d	171,000 - 176,000	170,475



contacts

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SUEZ

Treatment solutions

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