
Process:	Ultrafiltration followed by Reverse Osmosis
Client:	Kindasa Water Services Company
Location:	Jeddah Port, Kingdom of Saudi Arabia
Contract Description:	Turnkey project - design, supply, construct, commission
Capacity:	26,840 m ³ / per day
Sea Water Conversion:	47%
Sea Water Feed Quality:	42,500mg/l (tds)
Fresh Water Output Quality:	< 250 mg/l (tds)

**Project Description:**

26,840 m³/day Sea Water Reverse Osmosis Plant (3 x 8,947 m³/day trains) utilising a Hybrid pre-treatment system consisting of Media Filtration followed by Membrane Ultra-filtration (UF).

Process Description:

Seawater is delivered from the intake system seawater lift pumps, to the Hybrid pre-treatment system comprising a “roughing” media filtration stage and a membrane ultra-filtration (UF) stage. From the UF system, the feed water is directed to the RO plant which is made up of two passes: a first pass sea water RO (SWRO) followed by a partial second pass brackish water RO (BWRO)

Each of the three 1st Pass RO trains consists of 2-stages with interstage pumping and energy recovery. Concentrate from each 1st pass RO train flows through an energy recovery Pelton wheel to the outfall. Part of the first combined 1st pass permeate is further treated through three 2nd Pass pass BWRO trains. The blended permeate is re-hardened by addition of a saturated lime water solution and chlorinated before being transferred to the client's product tank
