

QuantumFlux Case Study

Low Energy Installation

Installation Overview

Site Location	Port Hueneme (Oxnard), California
Installation Date	August 2008
Scale	100 m ³ /d (26,417 USGPD)
Product	Qfx SW 365 ES

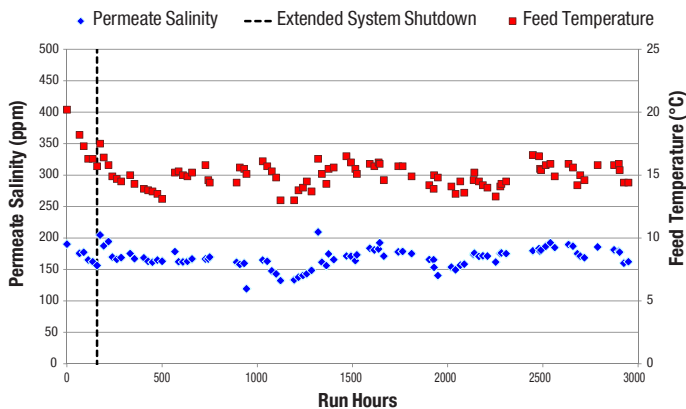
System Description

At the U.S. Navy Seawater Desalination Test Facility (SDTF) in Port Hueneme, California, NanoH₂O achieved a 17% reduction in operating pressure and a 10% reduction in specific energy when compared to conventional membranes under the same operating conditions.

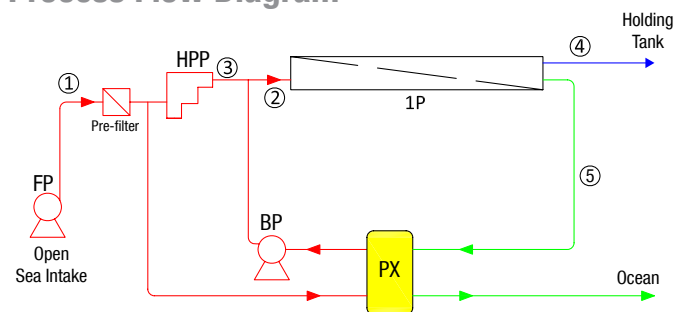
Feedwater enters through a screen-fed open ocean intake into an ultrafiltration (UF) pretreatment system for the seawater reverse osmosis (SWRO) that consists of five 2-element vessels plumbed in series. All element tests were conducted with only four of the five vessels resulting in a seven-element-in-series, single-pass array. An ERI PX energy recovery device and variable frequency drive-controlled positive displacement Danfoss axial plunger pumps were used to allow efficient operation over a range of operating conditions.

Performance data are outlined below, and the system schematic design is shown on the right.

Permeate Salinity vs. Feed Temperature



Process Flow Diagram



- (1) LP Feed
 - (2) Overall HP Feed
 - (3) HP Pump Feed
 - (4) Overall Permeate
 - (5) 1st Pass Concentrate
- FP** = Low pressure feed pump **PX** = Pressure exchanger
HPP = High pressure pump **1P** = 1st pass array
BP = ER booster pump

Specific Energy

