Nitto

HYDRANAUTICS
Nitto Group Company

GROWING OUR VALUE

Case study

Hydranautics Integrated Membrane Solution provides drinking water to 500 families in Indonesia.

The PROBLEM

Untung Jawa is an island off the coast of Jakarta, Indonesia. About 500 families are residing on the island who needed safe drinking water. The island also attracts several hundred tourists over weekends and during holiday season.

The Government of Indonesia took the initiative to install a desalination plant and PT Rapi Tirta Treatmendo, Jakarta installed the plant.

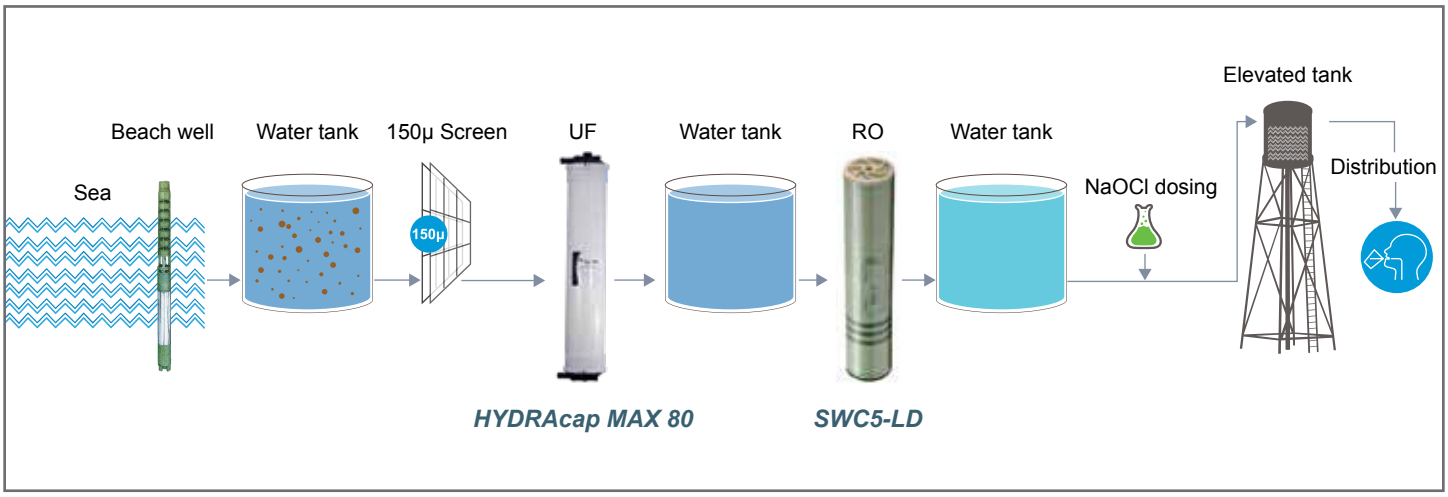
Location	Untung Jawa island, Indonesia
Feed water source	Seawater, beach well
Application	Drinking water
Capacity	9 m^3/h
Start-up date	May 2015
UF Design	1 rack x 4 HYDRAcap®MAX80
RO Design	16 SWC5-LD one pass, one stage, 4 x 0 array

The SOLUTION

Hydranautics Integrated Membrane Solution (IMS) comprising of HYDRAcap®MAX80 ultrafiltration (UF) and SWC5-LD seawater reverse osmosis (RO) membranes have been installed in the plant. The UF plant has been designed with 4 HYDRAcap®MAX80 membranes to treat raw seawater with expected turbidity around 10 NTU.

In practice, feed water conditions were worse than expected with turbidity spiking at 30 NTU and high iron concentrations. However, due to its robust TIPS PVDF fiber structure, HYDRAcap®MAX membranes managed to overcome this challenge. Chemical cleaning philosophy has been adapted by replacing daily chlorine cleans with sulphuric acid cleans.

The treatment scheme is shown on the next page.



Ever since commissioning the plant in May 2015, HYDRAcap®MAX membranes needed recovery cleans only twice with citric acid. The SWC5-LD membranes have been cleaned only once at high and low pH. This proves the efficacy of the HYDRAcap®MAX pre-treatment and that of LD Technology® in requiring reduced number of cleanings.

The table below shows performance since commissioning.

Parameter	HYDRAcap®MAX80	SWC5-LD
Feed quality	10 – 30 NTU	35,000 – 38,000 ppm
Outlet quality	< 0.5 NTU	220 – 260 ppm
Feed pressure, bar	0.6 – 0.7	55 – 57
Concentrate pressure, bar	0.5 – 0.6	54 – 56
Filtrate pressure, bar	0	0
UF Trans-membrane pressure, bar	0.55 – 0.65	–
Recovery (%)	95 – 97	40
Operating flux, LMH	61.3	15.1

The IMPACT

The high quality treated water is supplied at the doorstep of each of the 500 households through a distribution network comprising of HDPE pipeline and water meters. Now the residents do not have to fetch drinking water from a long distance. This is a big relief to the residents of the island.

About the author

MR. SATISH CHILEKAR

***Satish Chilekar**, a Water Management Advisor is recognized as a pioneer in the Indian membrane technology sector.*

Mr. Chilekar provides technical expertise to industries and utilities in applications of membrane technology. This includes reverse osmosis, nanofiltration, ultrafiltration, microfiltration and MBR membrane technologies applied for seawater desalination, potable water treatment, and industrial and municipal wastewater reclamation.
Mr. Chilekar is currently active in research, consultancy and training work in India and SE Asia. Training is an important part of Mr. Chilekar's work. He conducts regular training courses in India and overseas on various aspects of membrane technology and water treatment.

For more information about Hydranautics case studies, contact us at **hy-info@nitto.com** or visit our website at **membranes.com**

About Hydranautics

Since our founding in 1963, Hydranautics has been committed to the highest standards of technology research, product excellence and customer fulfillment. Hydranautics entered the Reverse Osmosis (RO) water treatment field in 1970 and is one of the most respected and experienced firms in the membrane separations industry. We joined the Osaka, Japan based Nitto Denko corporation in 1987 which was founded in 1918 and now has 117 companies in more than 20 countries, with over 30,000 employees worldwide. Our alliance with this global film industry giant boosts Hydranautics to a superior level of technological sophistication, product performance and customer response.

We are not simply product manufacturers; we are your membrane technology partners. As leaders of high quality membrane solutions, we believe our obligations extend beyond manufacturing and selling our products. Our skilled staff of technicians, engineers and service professionals assist in designing, operating and maintaining a robust, reliable and efficient membrane system to meet your requirements and exceed your expectations. Our support is offered from early stage conceptual design and engineering to start-up and maintenance, no matter the location globally whether it is on land or off-shore.

Nitto

HYDRANAUTICS
Nitto Group Company