OIL & GAS

Outsourced water plant for a Southeast Asian crude oil refinery

Invited to tender against the incumbent for a 10-year outsourced contract, Ecolutia won with a new treatment regime — safer to run, lighter on chemicals and power. Guarantees on quality and flow rates included.



CLIENT
Crude oil refinery

LOCATION
Southeast Asia

SERVICE
Multiyear: Outsourced filtration and RO permeate plant

DURATION
10 years

<3.8 kWh/kgal	$10k/mo	100%	10 t
MEASURED POWER USE	POWER COST SAVINGS	QUALITY & AVAILABILITY	SALT ELIMINATED MONTHLY

THE CHALLENGE

Beat the incumbent — and the region's volcanic water

Ecolutia was invited to tender for a new 10-year outsourced contract to produce RO permeate at a refinery in Southeast Asia. The region's volcanic geology brings silica up to 90 ppm from the deep wells, while the coastal location adds high hardness up to 100 ppm, and chlorides up to 900 ppm — problematic feedwater by any standard.

The incumbent offered continuity with the existing RO and no site disruption, so Ecolutia had to make a compelling case to demonstrate the benefits of a genuinely better solution.

PROJECT SNAPSHOT

Feed source
Four deep wells (785–3,500 µS/cm, 90 ppm SiO_2)

Output quality
<40 µS/cm · >95% TDS rejection

Flow delivered
Up to 260 GPM

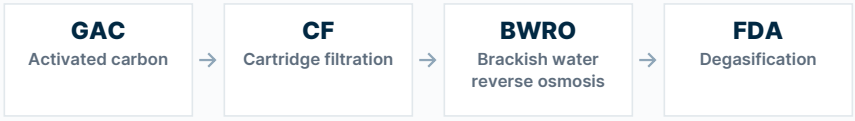
THE SOLUTION

New chemistry instead of tonnes of salt

The existing site process relied on monthly deliveries of up to 10 tonnes of salt for softener regeneration, plus large volumes of caustic for pH control. The Ecolutia solution removed the need for these deliveries and removed any suspended matter using GAC before it was fed to Ecolutia's Triton BWRO96. This was then followed by removal of dissolved O_2 and CO_2 using an FDA. The high-quality RO permeate was then fed to the customer's storage tank for use on site.

- ✓ Continuous monitoring, automated alarms and shutdown as backup
- ✓ BWRO96 at 65% recovery and >95% rejection, with guaranteed power consumption per kgal
- ✓ FDA degasification and raising pH for downstream corrosion control

TREATMENT FLOW PATH



THE RESULTS

Every obligation met — at half the power

All contractual obligations were met or exceeded, with 100% permeate quality and flowrate availability. Power use fell from over 7.5 kWh/kgal to consistently under 3.8 kWh/kgal — beating the <4.5 kWh/kgal contract spec and saving roughly US$10,000 a month on power alone. Eliminating bulk salt and caustic handling also made the site operations safer and more environmentally friendly.

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