

DESALINATION PLANT

From a Single Train to a Full Plant LG Water Solutions' 8-Year Journeys in Mostaganem



RO Models: **LG SW 440 R**

Active area: **440 ft² (41 m²)** | Permeate flow rate **37.5 m³/d (9,900 GPD)** | Stabilized salt rejection: **99.85%**

Background

Algeria's growing urban population, environmental changes, and limited water resources continue to pose significant challenges. More than half of the country's urban residents face intermittent water supply shortages. To combat this, the Algerian government has implemented a large-scale desalination program, including the Mostaganem SWRO Desalination Plant. This plant produces 200,000 m³ of drinking water daily, supplying over one million people. Since 2016, the plant has replaced with LG SW 440 R membranes helping deliver high-quality drinking water to the region.

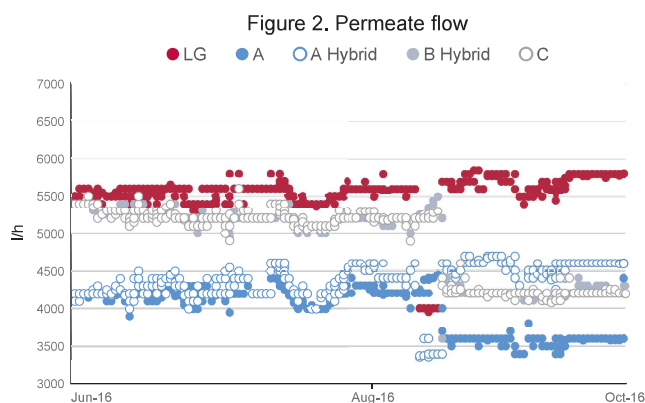
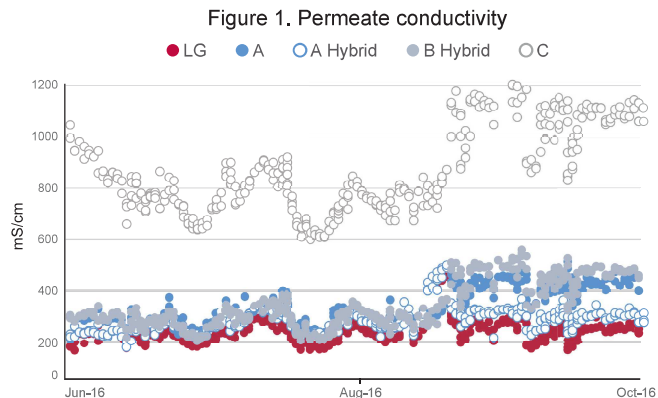
Plant Introduction

Capacity	200,000 m ³ /day
Configuration	8 double-rack trains with 304 pressure vessels each; 7 elements per vessel
Recovery	45%
Product quality required	TDS < 500 mg/l (after remineralization), Boron < 1 mg/l annual average
Operation	UTE O&M Mostaganem (50% Aqualia and 50% GS INIMA)

Outstanding Performance in On-site Pilot Testing

By 2016, the Mostaganem plant had been in operation for five years, and had begun to show signs of membrane aging, including increased energy consumption and decreased permeate quality. To address these issues, a pilot test was conducted to find the optimal solution. LG Water Solutions participated in this test with its LG SW 440 R product, equipped with innovative *TFN technology. The pilot test included membranes from four different manufacturers, allowing a direct performance comparison. LG SW 440 R membranes outperformed the others by achieving the highest permeate flow, lowest permeate conductivity, and highest boron rejection

Figure 1&2, Pilot Qualification Program – Results



(see Figure 1 & 2). As a result, LG SW 440 R membrane was selected to replace the membranes in Trains 1 and 2.

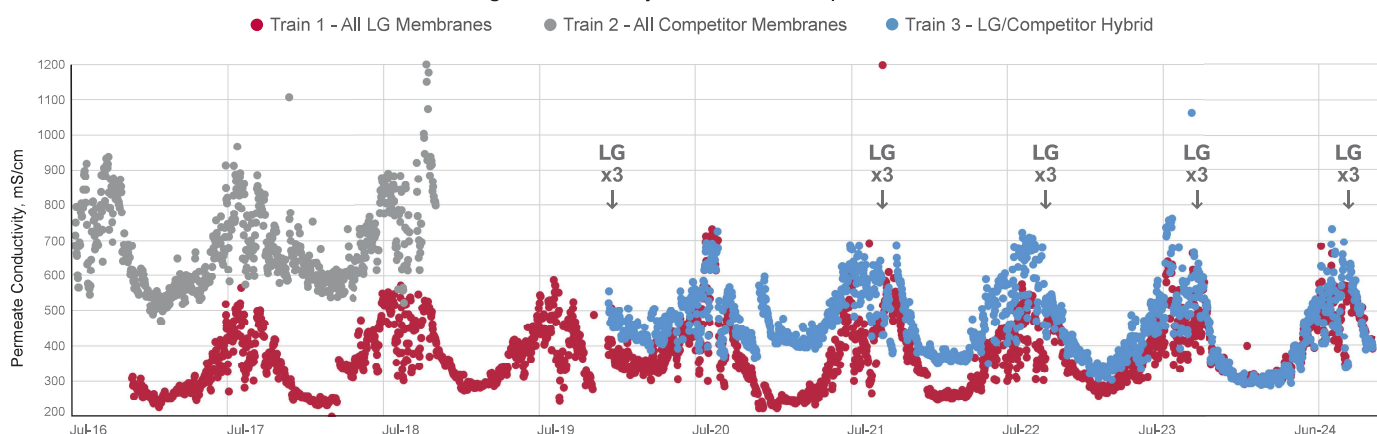
*TFN: Thin Film Nanocomposite

Excellent Performance Leads to Strategic Replacements

Since 2016, Trains 1 and 2 have demonstrated stable performance in both permeate flow and salt passage. Over the past eight years, the system required only six chemical cleaning ensuring consistent performance throughout. Membrane replacements have also been strategically managed, with timely replacements maintaining optimal performance and extending system lifespan. This proactive approach has ensured that the SWRO operation remains stable and efficient.

Impressed by the operational results demonstrated by LG SW 440 R membranes in Trains 1 and 2, the Mostaganem plant decided to expand the use of LG Water Solutions' membranes across all 14 remaining trains. The consistent delivery of water with lower conductivity and reduced boron levels demonstrated LG SW 440 R membranes' superior performance and outstanding reliability, ensuring compliance with stringent water quality standards (see Figure 3).

Figure 3. Train-by-Train Partial Replacement



“ By 2024, the plant had replaced 98% of its membranes with LG Water Solutions' TFN membranes. This strategic replacement improved water quality and enhanced the overall efficiency of the plant. The transformation also significantly increased production capabilities, leading to high levels of customer satisfaction and reinforcing LG Water Solutions' reputation for excellence. ”

Outcome

Today, the success of the Mostaganem plant stands as a powerful testament to the proven performance of LG Water Solutions' TFN membranes. What began as a single-train replacement evolved into a full-plant transformation, driven by our membrane technology and our ongoing commitment to meeting the evolving needs of our customers. By consistently

delivering exceptional water quality and innovative solutions, LG Water Solutions has set a new standard in the desalination industry. This study highlights both leadership in advancing SWRO technology and our commitment to ensuring sustainable, high-quality water supply for communities worldwide.

www.lgwatersolutions.com

Please visit our website for regional contact information or email us at waterinfo@lgchem.com

The information contained herein are deemed to be accurate and reliable and are offered in good faith, but without guarantee of performance. LG Chem assumes no liability for results obtained or damages incurred through the application of the information contained herein. Customer is responsible for determining whether the products and information presented are appropriate for the customer's use and for ensuring that customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Specifications subject to change without notice. NanoH₂O is the Trademark of LG Chem. All rights reserved. © LG Chem, Ltd.

 LinkedIn  YouTube

Global
Seawater RO