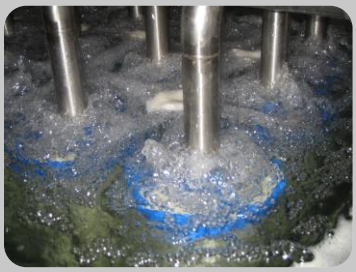
CASE STUDY
MICRODYN SpiraSep™ 900 UF
Canal Water as Boiler Feed Make-Up

MICRODYN NADIR
ADVANCED SEPARATION TECHNOLOGIES



Project Goal

Using spiral-wound polymeric UF membrane modules to treat canal water for RO pretreatment and finally, boiler feed make-up water.

Feed

- Canal Water Feed
- Feed TSS: 25-50 mg/L

Membranes

- MICRODYN SpiraSep™ 900-PES UF modules

Parameters Measured

- Operating flux: 42.5 lmh (25 gfd)
- TSS removal

Objective

A power plant in Spain needed to install a reverse osmosis (RO) system to provide boiler feed make-up water. Since the raw water source is a nearby canal, an advanced pretreatment technology was needed to provide high quality water for the RO system due to high turbidity levels in the canal. Conventional RO pretreatment technologies were not a viable option for this project due to the variable water quality associated with surface waters. A pretreatment technology that could provide high quality water, regardless of inlet quality was needed.

Materials & Methods

Ultrafiltration (UF) membranes produce high permeate water quality. However, not all UF technologies were applicable for this application due to the potentially high suspended solids levels in the canal water. Due to the low-pressure operation and membrane aeration, MICRODYN SpiraSep™ 900 UF membrane modules were chosen for their low-fouling tendencies.

Results

The modules operated at a steady flux of 42.5 lmh (25 gfd) on a feed stream of 25-40 mg/L total suspended solids (TSS). The SpiraSep UF modules operated at 90% recovery and produced effluent with TSS less than 1 mg/L. The high effluent quality was fit to send directly to the RO system for further treatment for boiler feed make-up water.

Conclusion

SpiraSep UF modules provide high effluent quality that can be sent directly to an RO system. This is exceptionally useful as not all UF technologies can handle feed streams with high suspended levels while also producing consistent, high quality effluent.

MICRODYN NADIR
ADVANCED SEPARATION TECHNOLOGIES

A MANN + HUMMEL Company

Europe
Germany: +49 611 962 6001
Italy: +39 0721 1796201
info@microdyn-nadir.de

Americas
USA: +1 805 964 8003
Brazil: +55 11 3378 7500
info@microdyn-nadir.com

Asia
China: + 86 592 677 5500
Singapore: +65 6457 7533
infochina@microdyn-nadir.cn