



DOW™ UF and RO Technology Produces Boiler Feed and Cooling Water In Spanish Mine



At Minera de Santa Marta, DOW™ Ultrafiltration (UF) modules and DOW FILMTEC™ Reverse Osmosis (RO) elements have been installed to treat water from the Tajo River. As a particularity of this plant, the raw water feeds the UF system by gravity. The ultrafiltrate is treated by DOW FILMTEC™ Reverse Osmosis elements and the final product water is used as boiler feed as well as cooling water. Since its start-up date in May 2010, the plant is operating successfully.

Fast Facts

Name of Plant:	Minera de Santa Marta	
Country:	Spain	
End-User:	Minera de Santa Marta (Mine Industry)	
Feed Water Quality:	River Water	
	Conductivity ~3,000 µS/cm; TSS: >40 mg/L Turbidity: 50-60 NTU; SDI > 5	
Membrane Type:	DOW™ UF SFP-2880	DOW FILMTEC™ LE-400
Total # of Elements:	22	72
Plant Capacity:	85 m³/h (2,040 m³/day)	65 m³/h
Recovery:	> 90%	76%
Flux:	60 L/m²h	24 L/m²h
Product Water Quality:	SDI < 1.3 (Ultrafiltrate)	
Temperature Range:	5-25°C	
Feed Pressure:	2.5 bar	
Start-Up Date:	May 2010	

Performance

- Filtration Cycle Duration: 50 minutes
- Operating Flux : 60 L/m²h
- Trans-Membrane Pressure (TMP) at 20°C: 0.40 bar

Operating Conditions UF – Summary Table

Parameter	Frequency	Duration	Chemical Consumption
Filtration	—	50 min	—
Air Scour	Every 50 min	40 s + 40 s	—
Backwash	Every 50 min	60 s	5 ppm NaOCl
Forward Flush	Every 50 min	60 s	—
CEB ^a	12 h	10 min	0.1% NaOH + 1,000 ppm NaOCl
CIP ^b	—	—	—

^aChemically Enhanced Backwash

^bClean-in-Place