

GE Ensures Low TOC Levels for Boiler Feedwater at a Belgian Nuclear Power Plant

Challenge

The Nuclear Power Station of Doel, located near Antwerp, Belgium, is a four-unit pressurized water reactor plant with a combined power output of 3,000 megawatts. This European power facility, owned and operated by Electrabel, was scheduled to replace its original steam generators due to stress corrosion cracking. Low levels of Total Organic Carbon (TOC) in boiler makeup water are essential for preventing corrosion, and the Doel facility was unable to meet the new and more stringent TOC requirements for its new steam generators.

Solution

With only six months to go until the new steam generators would come on-line, Doel needed a fast, reliable and effective solution for the reduction of the TOC load in their boiler feed. Based upon GE Water & Process Technologies' extensive experience with water treatment in the power industry and with fast-track projects, GE's membrane-based reverse osmosis (RO) technology was selected for polishing the power station's demineraliser effluent. After successfully operating the plant for two years, GE was subsequently awarded an expansion and a 10-year operate and maintain contract to meet the demands for all four nuclear units.

In this 125-cubic-meters-per-hour installation, TOC levels of 10 ppb are considerably lower than specifications. In addition to reducing organics, the GE RO process is also improving other critical water quality parameters including silica, suspended solids and ionic constituents such as sodium, chloride

and fluoride. Doel is one of several power industry installations in Europe for which the GE brand provides confidence. It is also one of many nuclear, fossil and cogen installations throughout the world where the customer is turning to GE for the full responsibility of operating and maintaining its water facilities under long-term agreement.



Nuclear Power Station, Belgium

End-user:	Electrabel, Belgium
Location:	Nuclear Power Station of Doel, Antwerp, Belgium
Commissioned:	1993 and 1995
Application:	High purity, low TOC water for boiler feed
Feedwater source:	Demineralized water and return condensate
Feedwater quality:	2-8 megohms, 100-300 ppb TOC
Product quality:	<10 ppb TOC (specification is <50 ppb)
Capacity:	125 m3/hour (550 gpm)
Technology:	Reverse osmosis (RO)



Find a contact near you by
visiting gewater.com or
e-mailing custhelp@ge.com.

Global Headquarters
Trevose, PA
+1-215-355-3300

Americas
Watertown, MA
+1-617-926-2500

Europe/Middle East/Africa
Heverlee, Belgium
+32-16-40-20-00

Asia/Pacific
Shanghai, China
+86 (0) 411-8366-6489