



Dow Water & Process Solutions

Integration of Dow Components Enables High-Purity Water Production for a Power Plant in Kiev, Ukraine

FAST FACTS

Location	Kiev, Ukraine
Construction:	Ecosoft
End-User:	KyivEnerg
Purpose/Application:	Feed water for steam boilers
Water Source:	River water from tributary of the Dniper
Installed Capacity:	340 m ³ /h UF 224 m ³ /h RO 200 m ³ /h EDI
Start-Up Date:	July 2015

DOW™ Ultrafiltration Modules, DOW FILMTEC™ Reverse Osmosis Elements and DOW™ Electrodeionization Modules are installed to produce 200 m³/h of high-purity water for Kiev power plant.

Challenge

To produce demi water < 0.1 µS/cm from Desenka river water, minimizing chemical consumption compared to old co flow IER system, reducing waste, automatizing the system and finally reducing cost of produced water.

Solution

Dow has been selected due to the strong technical support and good experience that the constructor had with Dow products. Moreover, dealing with one supplier of key materials minimizes the customer's technological risks.

Start-up Operational Results

- UF trains could achieve design performance at 62 l/m²/h flux
 - RO 1st pass delivered appropriate water quality performing according to design.
- During start-up the required final outlet quality was met:
- EDI train 1: 0.057 microS/cm.
 - EDI train 2: 0.065 microS/cm.

Raw Water Quality and Specified Product Water Quality

Parameter	Unit	Raw Water	Required Demi Water
Temperature	°C	30	—
TSS	mg/l	20	—
Conductivity	µS/cm	—	< 0.1
Total Dissolved Solids	ppm	300	—
Hardness	meq/l	3500	< 0.2
Sodium	ppb	20000	< 5
SiO ₂	ppb	10000	< 20
pH	—	7.5	6.5 - 7.5





Ultrafiltration



Reverse Osmosis

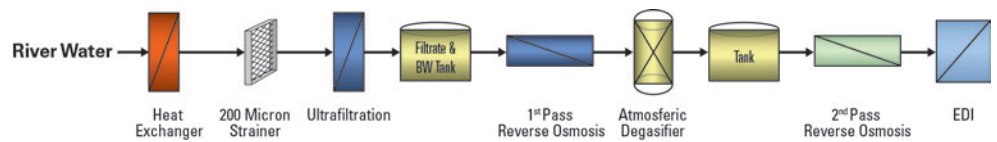


Electrodeionization

System Information

Unit	Design Flux (lmh)	Design Recovery (%)	Number of Trains	Product Installed	Total Number of Modules
UF	62	—	4	IP-77-18	72
RO 1st Pass	30	75	4	HRLE-440i	200
RO 2nd Pass	27	90	4	HRLE-440i	200
EDI	—	90	4	EDI-310	96

Flow Diagram of the Plant



Water & Process Solutions

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