



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 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

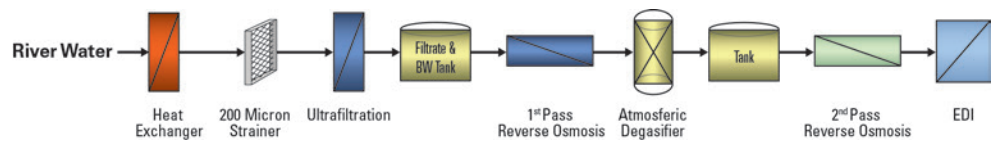


Electrodeionization

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

7600 Metro Blvd.
Edina, MN 55439

For more information, contact our Customer Information Group:

Asia Pacific	+86 21 3851 4988
Europe, Middle East, Africa	+31 115 672626
Latin America	+55 11 5184 8722
North America	1-800-447-4369

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.