

ELBE EUT — WHITE PAPER

Landfill Leachate Treatment

Two-Stage DTRO Design & Performance

Technical White Paper · 2026 Edition

1. The Leachate Challenge

Landfill leachate is among the most variable and difficult industrial wastewaters. COD can exceed 60,000 mg/L in young leachate, ammoniacal nitrogen frequently surpasses 2,000 mg/L, and chloride, heavy metals and humic substances create a corrosive, fouling-prone feed that defeats biological treatment and conventional membranes alike.

2. Two-Stage DTRO Process

ELBE EUT's standard leachate process routes raw or pre-screened leachate through a two-stage DTRO / DTNF train. Stage 1 concentrate is further dewatered in Stage 2, lifting overall recovery to 85 – 95 % while producing a permeate that meets direct discharge limits (COD < 100 mg/L, NH₄-N < 10 mg/L).

3. Performance Data (Reference Plant, 800 m³/day)

	Feed	Permeate
	18,400	78
	1,620	8.4
	3,900	210
n)	21,000	640
	—	91

4. Why DT Beats Spiral RO on Leachate

- Open channel tolerates turbidity up to 50 NTU without cartridge guard filters.
- 90 bar rating allows concentration of saturated brines impossible for spiral RO.
- No glue-line failure mode — discs are individually sealed, not wound.
- Modular skids scale from 30 to 1,500 m³/day with identical footprint logic.

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