

WATER TREATMENT CASE STUDY

Rusko Water Treatment Works Tampere, Finland



Situation:

In the 1960's, the City of Tampere, Finland began drawing water from Lake Roine when the quality of water from its original lake source deteriorated. A horizontal sedimentation basin was constructed in the early 70's and a laminar flotation process was implemented in 1989. Activated carbon replaced sand filtration in 1996, but the City was still not satisfied with its drinking water quality.

Solution:

In 1997, a pilot dissolved air flotation (DAF) system was retrofitted in one of the conventional sedimentation basin flocculators. The DAF pilot demonstrated much higher flotation rise rates than those previously achieved with the laminar DAF units.

In 2000, retrofitting of all laminar DAF units was completed. Today, the plant uses only the Dissolved Air Flotation system—named AquaDAF¹—for clarification.

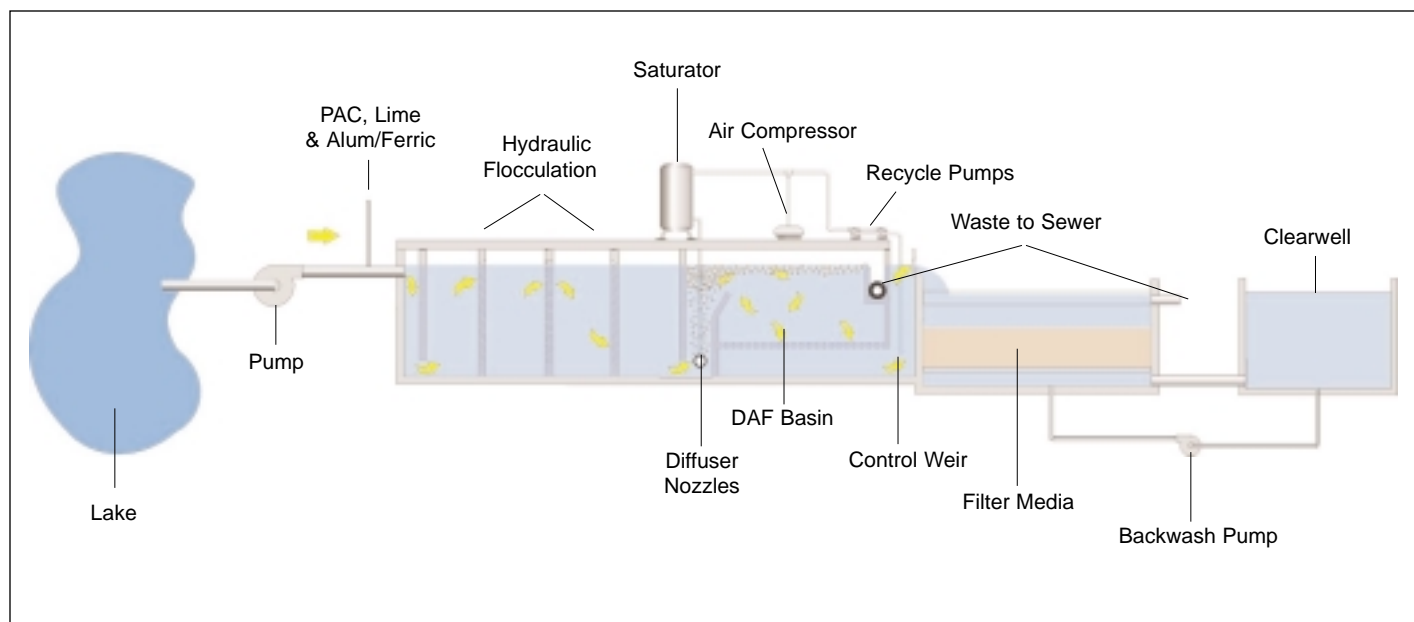
System Description:

The system was retrofitted in the original basins and sludge channels. The new structure is constructed entirely of wood.

The AquaDAFTM system utilizes hydraulic flocculation underneath the flotation area. Two very small unpacked saturators operate at a design recycle rate of 10%. The only submerged moving part is the effluent weir used for desludging.



Process Flow Diagram



Rusko Water Treatment Plant

System Performance (Water Temperature Range = 0.1°-17° C)

	Raw Influent	Clarifier Effluent	Filter Effluent
Turbidity	0.4-6 NTU	0.15-0.9 NTU	0.05-0.20 NTU
DOC	4.5-5.9 mg/l	<2.0 mg/l	
pH	6.2-7.5	5.0-7.0	

