



Aerial view of the Beckton desalination plant



Single media pressure filters at the Beckton desalination plant

Filtralite® pressure filters at Beckton (UK) for pretreatment prior to desalination

The new Thames Gateway Water Treatment Plant located at Beckton outside London, is the first large scale desalination plant in the UK and is built to reduce the risk of water shortage in the London area. It takes the raw water from the outlet of the River Thames, which means that the water is brackish water. The salinity changes by the tide and the maximum salinity is about 11 000 ppm.

The plant is built by the Spanish contractor Acciona Agua, and was opened in June, 2010.

Before the salt is removed by RO membranes the water is pre-treated in a three stage process. The first stage is coagulation, flocculation and lamella clarification. The second stage is horizontal single media pressure filters where Filtralite® is used as filter media. As a third pre-treatment step Ultra Filtration membranes are used.

The desalination plant have a production capacity of 150 000 m³/day and will provide water for around 900 000 people in London.

The single media pressure filter consists of 17 filters containing a bed of Filtralite® Pure HC 0.8-1.6 mm. These filters each have a filtration area of 50 m² and operate at a peak filtration rate of 12 m/h. This filtration step is to remove the carryover of fine suspended solids not removed by the lamella clarifiers.

Raw water quality at the Thames Gateway Water Treatment Plant

Parameter	Average value
pH	7.5
Suspended Solids (105°C)[mg/L]	149.0
Total Dissolved Soilds (185°C)[mg/L]	7,905.1
Turbidity (FTU)	48.4
Colour	10.8
TOC [mg/L]	4.1
DOC [mg/L]	4.6
Chloride [mg/L]	41.0
COD [mg/L]	211.0
Ammonium [mg/L]	0.3
Nitrate [mg/L]	17.8
Sodium [mg/l]	1.0
Total Phosphorus [mg/L]	1.7

The water is treated to match the specifications of UK legislation and Thames Water internal standards.