

MBR Neumeyer 3, Antarctic

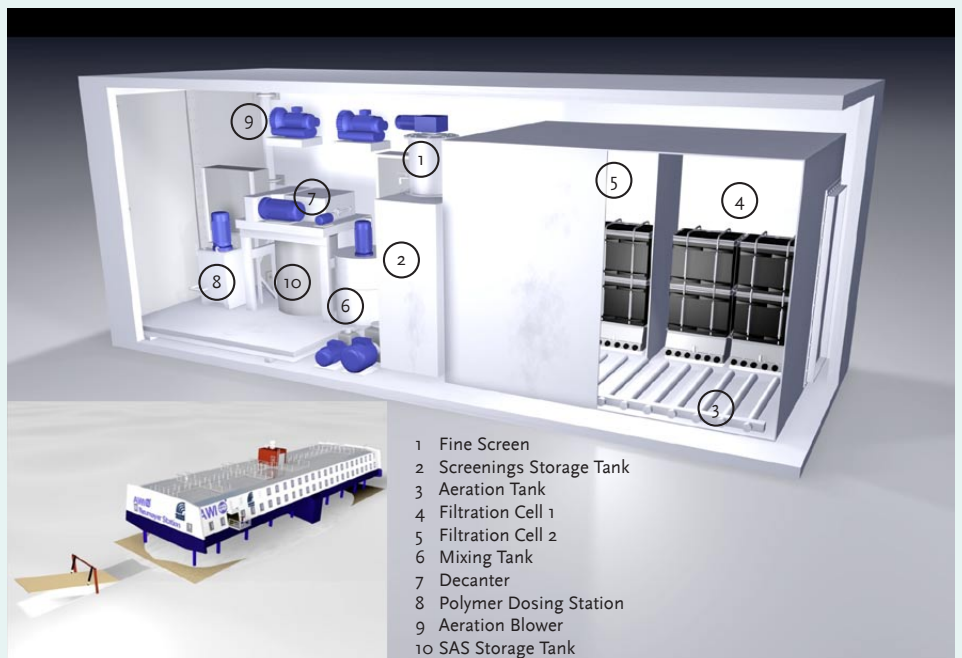
Task

Turnkey delivery of a compact siClaro® MBR plant for the new build German Polar Research Station NeumeyerIII in the Ekström Shelf Ice @ Atka Bay in the North-Eastern Weddell Sea (Position: 70°39'S, 008°15'). Client: Alfred Wegener Institut für Polar- und Meeresforschung, Bremerhaven. Delivery in 08/2007. Commissioning in 2009.

Process Description

The raw water first passes a 1mm fine screen unit before flowing to the membrane bioreactor by gravity. An internal buffer regulates flow and load variations during the day inside the membrane bioreactor tank. siClaro membrane filter separate the biological treated water from the activated sludge. The treated effluent is discharged into a pump out before finally being discharged to the ice. A fully automated Programmable Logic Controller (PLC) with electronic alarm system controls and monitors the operation of the MBR wastewater treatment system.

The plant has further a sludge processing unit to reduce the surplus activated sludge volume to a minimum.



Inlet

The system has the capability to treat the accumulated wastewater of 60 Persons during the summer period and for 11 Persons in winter time. The plant will produce an effluent quality typically better than the most stringent requirements, eliminating risk to both humans and this sensitive environment. MARTIN Systems was appointed to design, build and install an advanced sewage treatment system to manage the Polar Station's wastewater treatment. The siClaro® MBR system was chosen for its best design, the high treatment performance, the small footprint and its low operational and maintenance requirements, that make it an ideal solution for remote locations like this one.

Design Data

Design Load (kg/d)	3,6
Total design flow (ltr/d)	7,800
Peak hourly flow (l/h)	750,0
Aeration tank volume (m³)	5,2
No. of siClaro® Filter	4 FM 622
Emergency storage capacity	24 h
Fully automatic electronic alarm system	