

Case Study: Produced Water

Customer:



Location: Lower Saxony (Germany)

Conditions:

Parameter	Value
Temperature	20
pH	7
TDS (mg/l)	32.565
Oil (mg/l)	250
TSS (mg/l)	71

Challenge

Managing the increasing volumes of produced water associated with oil & gas production as well as sourcing water for operations is becoming more challenging for E&P companies. Handling oily wastewaters with high and variable contents of O&G and TSS requires complex and costly treatment trains with conventional technologies.

To evaluate akvoFloat™'s capability to handle such hard-to-treat effluents two different samples were collected:

- Produced water from DEA Hankensbüttel well (after separation tank)
- Crude Oil to create synthetic produced water with different oil and TSS concentrations

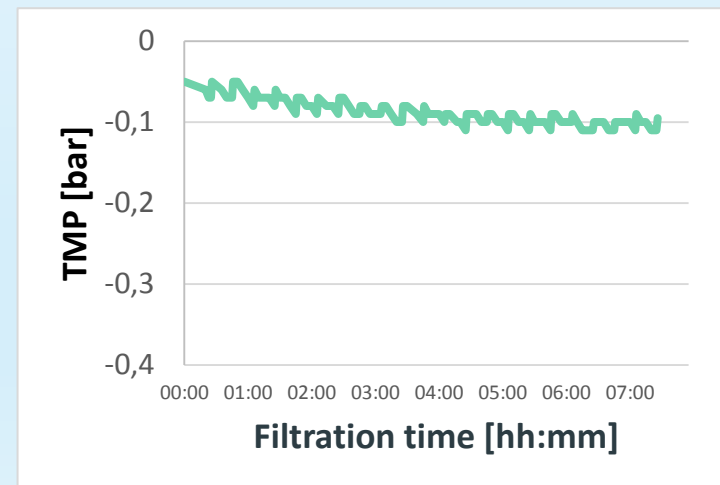
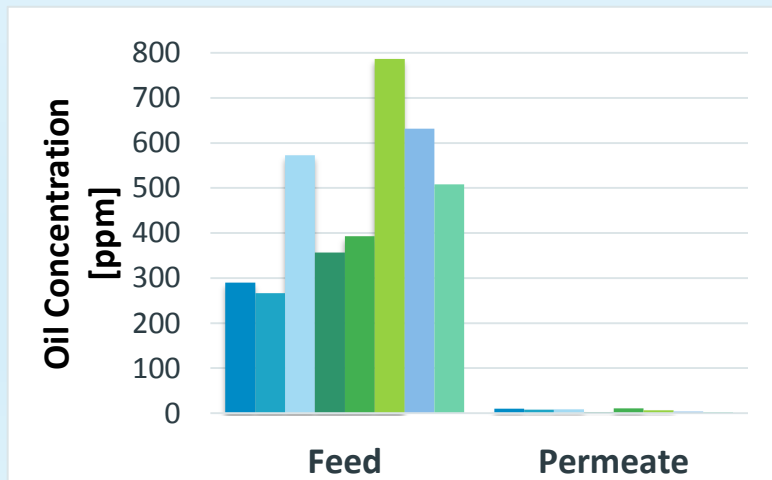
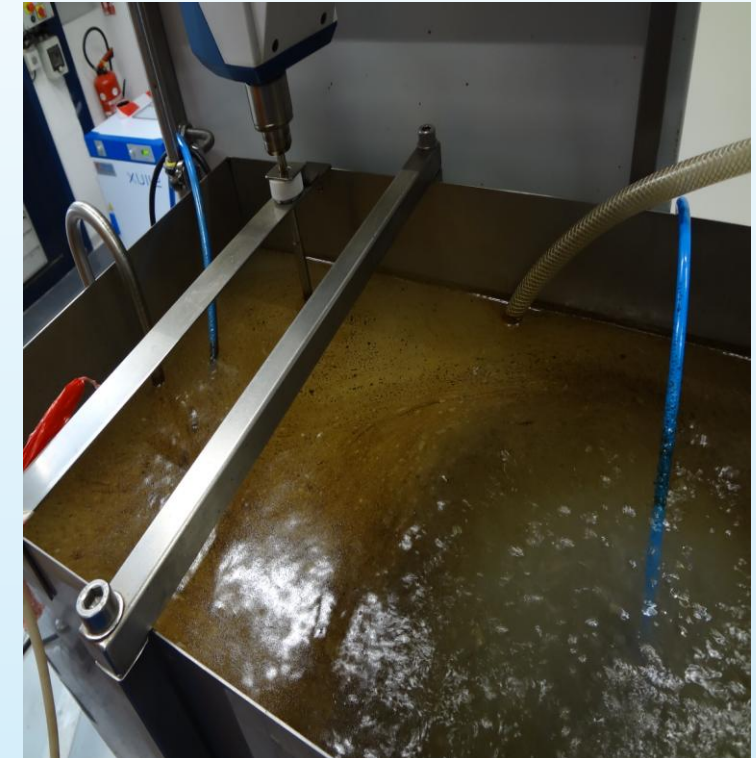
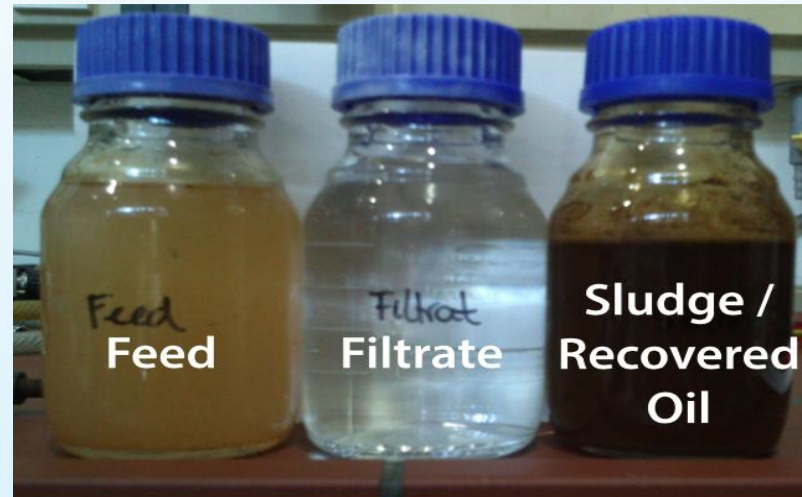
Solution

Lab tests were done with flowrates of 100-200 l/h. Different membrane materials and geometries were tested, i.e. Al₂O₃ and SiC, hollow fiber and flat sheet. All membranes removed the oil concentration to less than 10 ppm, in most cases less than 5 ppm.



Results - Oily / Produced Water

- ✓ High removal efficiency:
 - Oil (> 97%) – less < 2 ppm
 - TSS (> 99%)
- ✓ High recovery (> 95%)
- ✓ 8 hours of stable operation*
- ✓ High flux (120 l/mh)
- ✓ No coagulation/flocculation chemicals



* Stable Operations: TMP increase less than 30 mbar/h during 8 hours