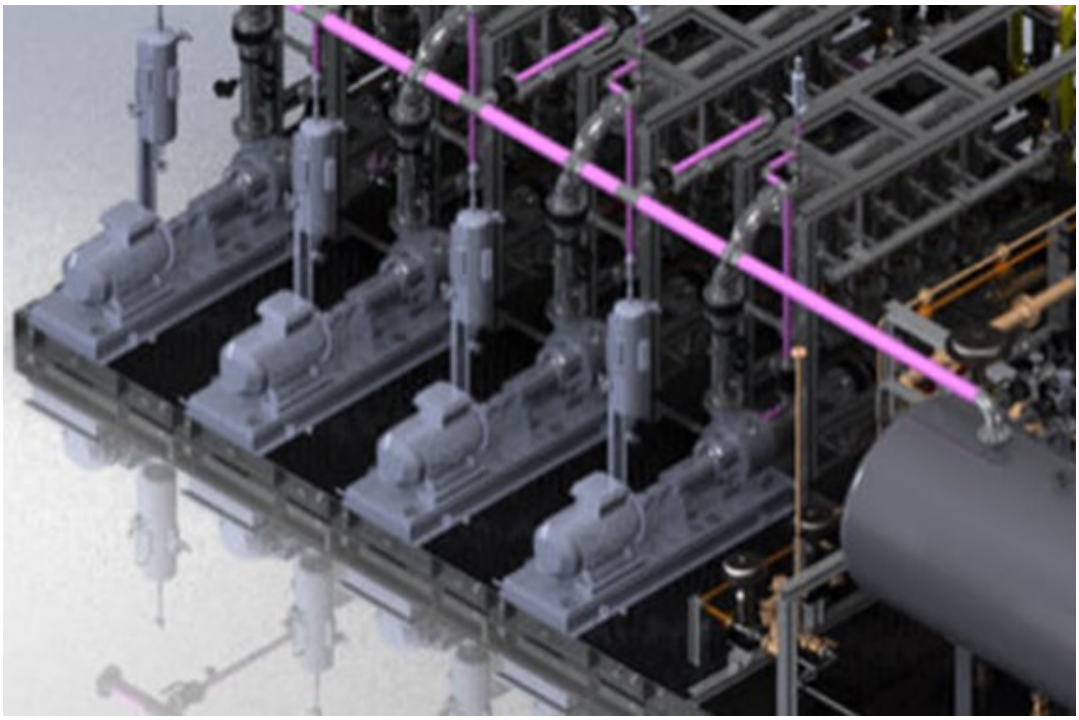
LIQTECH

PRODUCED WATER TREATMENT OFFSHORE DISCHARGE CASE



Produced Water Treatment Offshore Discharge

LiqTech silicon carbide membrane technology removes Oil in Water (OiW) to below OSPAR discharge limits (30 mg/L), thus achieving safe environmental discharge.

The Case

Offshore oil & gas production often includes produced water treatment with the objectives to recover oil and gas, while cleaning the "produced water" before discharging it to the sea. LiqTech SiC membrane technology ensures safe overboard discharge.

The Solution

LiqTech supplied SiC membranes, engineering, and commissioning of the full-scale system. The fully automated system has integrated backflush and chemical cleaning in place.

The produced water in this case is a gas condensate characterized by a relatively high concentration of corrosion inhibitors. Conventional water treatment technologies, such as Hydro Cyclones and flotation units (DAF/IGF) have certain limitations in regards to solids (TSS) and oil (OiW) removal. The high concentration of corrosion inhibitors created an oil emulsion and increased the viscosity that challenged the existing produced water treatment system.

The goal was to provide a polishing treatment step downstream of the existing installation to secure full OSPAR compliance. LiqTech worked closely with our partner and end-user, which decided for the LiqTech SiC membrane technology from over +10 competing technologies.

LiqTech System Design

Materials and Components

The UF membranes are made from silicon carbide material which proves to be extremely robust with high permeability and stable flux. Further, the membranes are chemically inert and very temperature resistant. Membrane housings and all piping are made of duplex steel. The individual trains can be cleaned one at the time in order to maintain capacity on the remaining membranes in operation

Operational performance

The SiC membrane system has shown a very satisfying process robustness and treated water quality. The system is operating at typical values shown in the picture.

Table: Operational performance of SiC membrane system for Produced Water treatment.

* Normal treated water quality has OiW content less than 5ppm, the higher value is due to effects of the corrosion inhibitor.

PARAMETER	UNIT	VALUE (MIN)	VALUE (MAX)
Flow	m^3	15	30
Oil In Water	ppm	~50 (feed)	~15* (out)
TMP	bar	0.10	0.50
Permeability	L/m^2.hour.bar)	200	1,000

We are here to help you