

## FPSO Capixaba (138,400 BWPD)

Process:	<b>Sulphate Removal</b>
Client:	<b>Single Buoy Moorings Inc.</b>
Country:	<b>Monaco, Switzerland, Brasil.</b>
Contract Description:	<b>Supply of membrane plant for sulphate removal</b>
Contract Date:	<b>January 2005</b>
Contract Completion Date:	<b>November 2005</b>
Capacity:	<b>138,400 BPD (22,000m<sup>3</sup>/day)</b>
Sea Water Conversion:	<b>75%</b>
Sea Water Feed Quality:	<b>36,000 mg/l (tds)</b>
Product Water Output Quality:	<b>≤ 100 mg/l sulphate</b>

### Project Description:

The Project is for the design, supply of a seawater treatment plant sized for 138,400 BPD (22,000 m<sup>3</sup>/day) of low sulphate water for the FPSO Capixaba, which will operate in the Golfinho Field, offshore Brazil.

The Project scope consists of a multi-skid arrangement comprising: Guard Cartridge Filtration, HP Feed Pumps, Sulphate Removal Membrane System, Chemical Cleaning System, Chemical Dosing Systems, Control Valves and Instrumentation.



### Process Description:

Fine filtration is achieved by a set of cartridge filters to provide fine filtration down to 5µm prior to membrane trains. The set of cartridge filters supplies feed water for two (2) trains.

The conditioned water, boosted to the required feed pressure, enters the Sulphate removal trains. Each membrane train is fitted with pressure vessels containing SR90-400 nanofiltration elements. A recovery of 75% is achieved by a 2:1 brine staged configuration. Brine reject from the process is discharged overboard, while the low Sulphate permeate is routed to a vacuum deaerator (provided by others). A dedicated clean in place (CIP) package, consisting of cleaning tank, pump, heater and cartridge filter vessel is provided for membrane cleaning purposes.