

Amarinth designs and delivers reverse osmosis desalination pumps to Ovivo in just 20 weeks for the NCOC Kashagan offshore oil field

case study



Sea water treatment

Kashagan is a massive shallow-water oil field located approximately 80km offshore Atyrau, Kazakhstan, in the North Caspian Sea. Kashagan phase one was the first offshore oil field development project in Kazakhstan and commenced commercial production in October 2016.

The field has produced a cumulative total of 30 million tonnes of crude oil, more than 8.44 billion cubic meters of gas, and 1.75 million tonnes of sulphur as of August 2019.

When Ovivo needed pumps for a reverse osmosis plant treating seawater to be deployed at Kashagan for their client, North Caspian Operating Company (NCOC), the company turned to Amarinth.

The decision was based on NCOC's high regard for Amarinth's reputation of delivering high-quality, high performance centrifugal pumps within the Kazakhstan and Caspian region where the challenging environment can see temperatures reaching 45C in the summer but plunging to an ice-bound -30C in the winter.

Reverse osmosis

Reverse osmosis is the process used to desalinate sea water. In this process sea water is forced against semi-permeable membranes under 60-70 bar of pressure.

As the water permeates through the membrane most of the dissolved impurities are removed and 99.5% of the total salt is removed.

The Ovivo reverse osmosis plant would be used to purify sea water in order to supply potable water to the hundreds of workers based on the offshore facility for both diet and sanitation.

The plant and its associated pumps had to be mounted on a skid which had size restrictions commonly associated with offshore facilities where space is always at a premium.

Complex skid arrangement

For the past two decades, Amarinth has successfully delivered high-pressure pumping solutions into many major Oil & Gas projects, including in Kazakhstan.

The pumps for Ovivo were specified to deliver the consistent high pressure required for the reverse osmosis process and manufactured from duplex stainless steel to handle the corrosive effects of the seawater.

Amarinth offered a bespoke design for the pumps that enabled them to be mounted on as small a baseplate as possible, while not compromising on rigidity, that would fit within Ovivo's complex skid arrangement and operate with the reliability as specified in the client's strict specifications.

Working in partnership

Working closely in partnership with Ovivo, Amarinth designed, manufactured, and delivered the pumps in less than 20 weeks which allowed Ovivo to supply the completed reverse osmosis desalination skid package to NCOC within the project delivery schedule restrictions.



Ovivo

Ovivo is a global provider of equipment, technology and macro / micro filtration systems that produce treated water for a variety of uses from power station seawater intake systems to producing the purest of drinking water.

Using its proprietary products advanced technology and extensive systems integration know-how, Ovivo offers water treatment solutions that are cost-effective, energy-efficient and environmentally sustainable.

Ovivo develops and implements innovative solutions to meet the challenges of treating water and wastewater for the Oil & Gas industry, addressing both upstream and downstream applications.