

Offshore

Wastewater treatment in the Caspian Sea

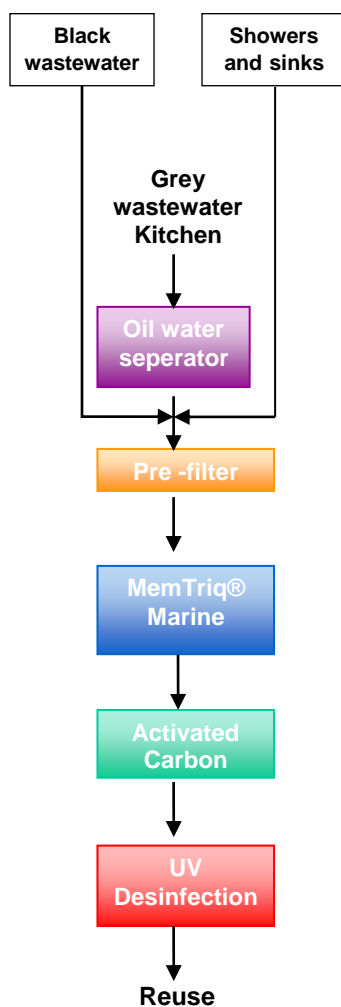
In the Caspian Sea is the biggest oilfield in the world is found in the last 30 years with an estimated oil reserve of 8 to 50 billion barrels. The field will be developed and operated by the *Offshore Kazakhstan International Operating Company (OKIOC)*, a consortium of international oil companies. An artificial island will be made in a shallow part of the Caspian Sea approximately 70 km outside the coast near to the city of Atyrau. For the treatment of the wastewater on the island Triqua will deliver a membrane bioreactor system including pre treatment, post treatment and sludge treatment.

Triqua awarded the order for the delivery of a wastewater treatment system on an artificial drilling island in the Caspian Sea. Triqua will design, manufacture, test and deliver a wastewater treatment system based on the membrane bioreactor principal onto a man-made island in the Caspian sea. On this island a land drilling rig for oil exploration and a self-contained accommodation module, together with all support services, will be installed.



For the treatment of the wastewater streams Triqua will supply a membrane bioreactor system.

A membrane bioreactor combines biological treatment with membrane filtration. This combination results in a very compact system with a very good effluent quality, which provides the possibility for water reuse. The whole treatment system includes, beside of the biological heart, a pretreatment, a post-treatment and sludge treatment. The pretreatment consists of grease traps, a tilted plate separator and a drum sieve, the posttreatment consists of activated carbon filters, UV disinfection and bactericide dosing, while the sludge treatment consists of sludge pre-conditioning and a filter press. The de-watered sludge will be incinerated on-island. The whole system, including pre-treatment, membrane bioreactor, post treatment and sludge treatment, will be located in three air-conditioned 40 ft containers.



needs to be installed on the island. Wherever possible the final treated effluent will be recycled, with the remaining water returned to the Caspian Sea. In addition to this the environmental conditions in the Caspian Sea are very severe with temperatures in the summer up to +45°C and in the winter down to -40°C.



The island population, consisting of up to 120 people, will generate a series of waste streams. These include domestic sewage, kitchen waste, laundry waste and the washroom waters used for washing and showering. The Kazakh authorities have demanded very stringent discharge standards in order to protect the sensitive environment including sturgeon, which is of great economical importance for the production of caviar. To meet these standards a sophisticated wastewater treatment system

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