

Walnut shells for water purification

WATER. Produced water treatment at the Caspian Sea.



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KASHAGAN. In 2022, Pörner Vienna successfully expanded and modernized the produced water treatment plant for the Kashagan oilfield (Kazakhstan) of the North Caspian Operating Company N.V. (NCOC). NCOC operates the giant Kashagan oil field with approximately nine to 13 billion barrels of recoverable oil. It is one of the world's largest oil discoveries in the last four decades.



The project's operating conditions were very challenging, as weather conditions in the region vary from -35 to +35 °C, and associated gas contains up to 15 % hydrogen sulfide.

Capacity increased, function improved

In 2016, the water engineering team was responsible for providing a functional system with a treatment capacity of 164 m³/h for the first two oil trains commissioned in 2020. Now, the third oil train system with a treatment capacity of 82 m³/h has been provided with an additional functional improvement to be realized in the coming years.

Complete performance

The scope of work for "Pörner Water" included: project management, basic and detail engineering, including process engineering, design and planning of the aggregates, the instrumentation and control equipment as well as the piping, procurement and delivery of the individual components,

construction supervision as well as documentation for export to Kazakhstan.

In the project, all three process stages of primary, secondary, and tertiary purification were upgraded, with the tertiary purification stage being extended by four walnut shell filters connected in parallel. Thus, modernization makes a significant contribution to the efficiency and environmental protection.

The successful project is another example of Pörner's industrial niche competence in the key water area. ■



The skid-mounted Bolashak Onshore Processing Facility (OPF) is located near Atyrau, where oil and gas from the offshore Kashagan field is processed.

WALNUT SHELL FILTRATION

The treatment of produced water is crucial for the efficiency of oil production and, at the same time, has a high environmental protection aspect. Since produced water contains many impurities, several water treatment technologies are used. One particularly resource-saving and environmentally compatible process is filtration using walnut shells. In this process, the oil-binding properties of the walnut shell ensure that traces of oil are removed, producing filtered water of very high quality. Then, by introducing rinsing water and gas, the walnut shell medium is regenerated, and after a short time, it is again available for continued filtration.

