



# PÖRNER WATER

Water is - besides air - the most important resource on our globe. Water supply with the appropriate quality is an integral part in the oil and gas process industry. This applies for upstream offshore and onshore installations as well as for downstream. Water treatment and management is becoming increasingly complex to keep pace with global standards, energy demands, and environmental regulations. For all challenges during green field installation, upgrades, extensions or modernizations, Pörner Water offers fully integrated solutions - from the idea to realization.

## THE RESOURCE WATER

The Pörner Water competence center designs and executes complete water treatment solutions for:

- Oil / Gas fields (on / off-shore)
- Refineries
- Petrochemical and Chemical industries
- Gas industries
- Local authorities

Clean water, environmental health and safety next to better efficiencies and a lower total cost of ownership is our focus.

## PÖRNER WATER

Pörner Water offers engineering services with the newest chemical-physical and biological technologies in the following areas:

- Concept development & consulting
- Process water treatment
- Produced water treatment
- Wastewater treatment
- Predictive maintenance

Backed by comprehensive project references for interna-



Supply of a produced water treatment plant with subsequent re-injection into the reservoir with a capacity of 41.6 m<sup>3</sup>/h (Tazlău / Romania, executed on behalf of Siemens)

tional installations, and a pro-active technology development, Pörner Water provides the optimum combination of modern water processes, systems and special components to meet the customers' needs.

The Pörner mission is to execute projects completely and responsibly: from the basic concept - tailored to customer requirements - to complete engineering, procurement and site supervision up to commissioning, training and start-up - as well as advanced service options available for predictive maintenance.



# PÖRNER WATER

## CONCENTRATED WATER COMPETENCE

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Whether developing an integrated water treatment scheme for a refinery or an injection water treatment package for an oil well, Pörner Water has the experience and expertise to create a customized solution.

With the new competence center Pörner Water, we support our customers in the process industry even better to sustainably minimize the energy and water consumption as well as the emissions of their process plants.

The portfolio ranges from water treatment plants in the upstream area for the de-oiling of reservoir water to the treatment of process water in the downstream area and in numerous other industrial applications.

Dedicated to continuous development, we test new technologies and carry out pilot studies on site to demonstrate the technical and economic feasibility of our solutions in close cooperation with our customers.

## LIFE CYCLE SERVICE CONCEPT

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Beyond front-end engineering and EPC services Pörner Water offers predictive maintenance services for the completed plants in operation.

Based on experience obtained from design, engineering and commissioning of process units, the Pörner Water specialists are prepared to provide evaluation, concepts and services for long-term value creation and full func-

tionality of the plants with low maintenance and utility costs. The aim of Life Cycle Service is the long-term operability of the plant and its maximum availability.

Critical risk elements are consistently reduced - such as unplanned downtimes, damage to key plant equipment, and negative environmental impacts - to ensure the continued safe operation of the plant.

### Main elements of maintenance

- Ensure full availability of water treatment unit
- Optimize utilization of process chemicals while maintaining the appropriate water quality
- Installation of means for predictive maintenance
- Training for operators to identify potential risks and avoid process failures

### Benefits for the customer

- Optimized operation of the water treatment unit and auxiliary equipment
- Process optimization (increased plant availability at minimized utility consumption)
- Know-how transfer to plant operators

## TOTAL COST OF OWNERSHIP

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Early engagement of Pörner Water in the conceptual project phase results in lower total cost of ownership and greater value throughout the operational plant life.

Experienced in operation consultancy, process evaluation and optimization of water treatment technologies the Pörner experts provide specific process solutions in complex projects.

# PÖRNER WATER TECHNOLOGIES

## Process Water Treatment

- Flocculation, coagulation, sedimentation, flotation
- Media filtration (sand-, activated carbon- and mixed bed filters)
- Removal of iron and manganese
- Removal of hydrocarbons, BTXE, phenols
- Membrane processes (ultra-filtration, micro-filtration, nano-filtration, reverse osmosis)
- Ion exchangers with internal/external regeneration
- CEDI (Continuous Electro Deionization)
- Integrated solutions of all listed technologies

## Produced / Wastewater Treatment

- Media filtration (sand-, activated carbon- and mixed bed filters)
- Primary oil removal (API, CPI)
- Secondary oil removal (flotation)
- Biological Wastewater Treatment
- Membrane processes (MBR, ultra-filtration, micro-filtration)
- Integrated solutions of all listed technologies

OIL



OIL PRODUCTION



TANK FARM



REFINERY / PETROCHEMISTRY

UPSTREAM

MIDSTREAM

DOWNSTREAM

GAS



GAS EXPLORATION



GAS TERMINAL



GAS DISTRIBUTION

Water treatment along the complete oil and gas value chain





# REFERENCES

## Produced Water Treatment

- Customer: NCOC (North Caspian Operating Company)
- Location: Atyrau / Kazakhstan
- Scope of work: basic & detail engineering, procurement, manufacturing, site supervision, commissioning
- Commissioning: 2016 (extension stage 1), 2020 (extension stage 2)



Supply of a produced water treatment plant for subsequent re-injection into the reservoir with a capacity of 164 m<sup>3</sup>/h (extension stage 1) and 82 m<sup>3</sup>/h (extension stage 2).

Execution on behalf of Siemens

## River Water Treatment

- Customer: OMV Petrom SA
- Location: Tazlau / Romania
- Scope of work: basic & detail engineering, procurement, manufacturing & installation, commissioning
- Commissioning: 2016



Supply of a river water treatment plant consisting of coagulation, flocculation, sedimentation and degassing with a capacity of 33 m<sup>3</sup>/h (5 000 BWP) for subsequent re-injection into the reservoir. Execution on behalf of Siemens

## Process Water Treatment

- Customer: Infrserv Höchst
- Location: Industriepark Höchst / Germany
- Scope of work: basic & detail engineering, manufacturing, installation, commissioning
- Commissioning: 2013



Treatment of river water to boiler feed water by ultra-filtration, cation exchanger for decarbonisation, reverse osmosis, degassers and subsequent multistep ion exchangers with a flow rate of 300 m<sup>3</sup>/h (stage 1) and 100 m<sup>3</sup>/h (stage 2). Execution on behalf of Siemens

## Boiler Feed Water Treatment

- Customer: OMV Deutschland GmbH
- Location: Burghausen / Germany
- Scope of work: basic & detail engineering, construction, installation supervision, commissioning
- Commissioning: 2007



Boiler feed water treatment with cation exchanger, degassers, an-ionic exchanger and subsequent mixed bed filter with a flow rate of 180 m<sup>3</sup>/h for the ion exchanger and 360 m<sup>3</sup>/h for the mixed bed filter stage. Execution on behalf of Siemens

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