

# MAKING THE MOST OF CHANGE

**Geert Willemse, product specialist at Frames, says optimising processes and facilities offshore makes a lot of sense**

The conditions in oil and gas fields naturally change over the years and can become ever more challenging. Water cuts rise, crude viscosity or density can increase, and the system can face more flow or emulsions problems due to the use of submersible pumps. Frames has years of experience in process optimisation and has consequently developed a set of solutions to deal with the challenges of these changing conditions.

In recent years, Frames has actively been involved in the design and supply of debottlenecking solutions, which pinpoint the specific locations and equipment at hydrocarbon plants that are limiting or reducing flow, for several major end-users in the Middle East, including in Kuwait and Saudi Arabia.

Many of those fields have passed their window of 'easy oil' and are facing strongly increasing water cuts for which the existing facilities are not designed. Revamping existing equipment with separation enhancing internals has proven to be an effective and really cost efficient solution. Some recent projects involved successfully debottlenecking separation trains by means of the installation of advanced equipment upstream, although this does come at the cost of plot space. For onshore fields space and weight are not necessarily a major restriction – which is entirely different for offshore facilities.

For offshore applications such as platforms and floating production storage and offloading (FPSO) units, Frames has been providing further advanced solutions. New major offshore projects in the MENA region are currently being equipped with Frames separation equipment including in the Mediterranean Sea, such as the West Nile Delta development project and the huge,



**Geert Willemse, product specialist at Frames.**

expanding Zohr gas field.

For the Petrojarl FPSO, entire process modules were revised in order to make the vessel suitable for the expected conditions of its new destination. Frames was faced with limited plot space and a strong motivation to reduce costs and re-use existing equipment as much as possible. A similar concept was delivered for the N'Goma FPSO for which both replacement of separation internals, as well as newly built equipment, was successfully supplied. On both occasions, the overall

knowledge of the entire process train proved to be a key differentiator in pinpointing the opportunities for optimisation, cost-savings and simplification.

The optimisation of offshore facilities is an area where significant advancements have been required in the last couple of years due to low oil prices, reduced investments and the subsequent drive for standardisation.

In facilities where there is a significant price tag for square metres of deck space and kilogrammes of structural steel, compact solutions are the sensible answer. Frames has, in close co-creation with several end-users, developed standard separation packages, such as for produced water treatment to realise substantial capital expenditure savings. The cost reduction is achieved by means of modular design, small footprint and low weight, combined with minimum engineering and site works. This concept is specifically suitable for clients driven by short delivery times or budget constraints that want a safe design according to international industry standards.

Optimisation, debottlenecking and standardisation have proven to Frames that changing conditions – whether it is the oilfield, the oil price or the entire market – do not need to be bad things necessarily. It will bring opportunities and solutions to those able and willing to see them. ○

**“THE OPTIMISATION OF OFFSHORE FACILITIES IS AN AREA WHERE SIGNIFICANT ADVANCEMENTS HAVE BEEN REQUIRED... DUE TO THE LOW OIL PRICES, REDUCED INVESTMENTS AND THE SUBSEQUENT DRIVE FOR STANDARDISATION.”**