

Expro Excellence

Expertise in deepwater subsea / ultra-high flow operations enables largest gas field development in Eastern Mediterranean

Subsea Well Access



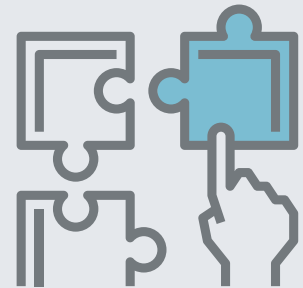
Customer challenges

- In 2010, Noble Energy discovered the largest gas field in the Mediterranean Sea. Following nearly a decade of planning, the subsea development in the deep-water Leviathan field commenced in 2018
- Noble Energy and Expro have a long partnership in the Eastern Mediterranean including the Noa and Tamar projects; employing Expro's Landing String Assembly (ELSA[®]) and Subsea Test Tree Assembly (SSTTA), Well Testing and **Fluids** services
- Expro's "Excellence in Operations" throughout this shared history led them to being entrusted with the provision of critical services on four subsea development wells on the largest project in Noble Energy's history - Leviathan

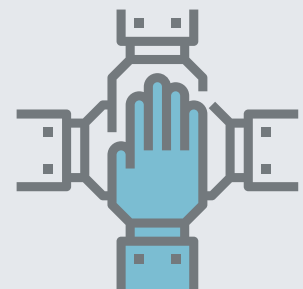
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- Development of Leviathan involved gas clean-up operations in excess of 120mmscf/day, water depths up to 1700m, and compliance to stringent Noble and rig DNV Class standards. Expertise in ultra-high rate Well Testing and Fluids sampling and analysis, and a quick-response subsea safety control system were all critical to project success
 - Performing live well operations on a dynamically positioned deep-water vessel requires the ability to safely disconnect in a weather or emergency event. The solution is a SSTTA with proven ability to isolate the well (including capability to cut and seal on any coil tubing or wireline operating in the wellbore), disconnect, and maintain well integrity – all in less than 45 seconds
 - Noble Energy challenged Expro to supply a product suitable for back-to-back (batch-completion) operations; with pre-drilled wells. Expro's solution was its market-leading **ELSA[®] 6-3/4" - HD** - a high debris-tolerant SSTTA with Electro-Hydraulic (EH) control system able to isolate and disconnect from a well in less than 20 seconds
 - Expro developed the **MegaFlow Separator** through its experience with high-flowrate gas wells. The only portable, modular, ultra-high rate separator capable of processing gas flowrates up to 175mmscf/day at a working pressure of 2,160psi; MegaFlow was selected as the ideal solution for the Leviathan project, along with the high-rate Multi-Tube Heat Exchanger
- Expro's expertise in Fluids sampling and analysis during the development (and previous appraisal) wells was critical to accurate production design
- Expro's established **CaTS Advanced Reservoir Testing** gauges allowed for long-term monitoring of downhole reservoir communication and response
- ### Value to the client
- With an extremely tight project delivery schedule; Expro allocated a dedicated project manager in Noble Energy's facility, ensuring efficient planning and coordination of the multiple services
 - Expro provided continuity of specialists familiar to Noble, with previous operating experience in Israel and supported by dedicated international infrastructure for Subsea, Well Testing, Fluids and Wireless Well Solutions
 - Expro's ELSA[®] 6-3/4" - HD SSTTA solution for batch-completions eliminated the requirement of performing critical path maintenance / supply of additional equipment, saving operational time and equipment costs
 - The industry-unique MegaFlow Separator and Multi-Tube Heat Exchanger enabled a simple, compact Well Test installation suitable for the ultra-high flowrate cleanup operations - versus the much larger footprint, crew and operational complexity which other dual-path, 'conventional' equipment options presented
 - Expro's proprietary **Iso-Split** fluid characterisation services provided critical Condensate Gas Ratio (CGR) measurements and the highest quality surface samples which gave rapid confirmation of liquid-to-gas production rates. Additional wellsite chemistry performed by our Fluids Experts provided clear and precise data on contaminants (H₂S, Radon, Sulphur and Mercury); critical to enabling accurate field production design
 - Installation of CaTS Advanced Reservoir Testing gauges allowed Noble to wirelessly monitor reservoir response and gather detailed understanding of infield communication, whilst simultaneous well test activity was performed on nearby wells, as well as providing long-term surveillance during production

Integrated approach



Partnership



Contact

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