

AGR drills and tests deep water fractured carbonate exploration well offshore Morocco



OVERVIEW

As part of an AGR managed campaign in the Mediterranean and North Africa, AGR was contracted by Genel Energy to drill a deep water exploration well targeting a fractured carbonate reservoir, and to conduct a drill stem test if hydrocarbons were found.

Due to the remote location and the fractured carbonate drilling risks identified in the planning phase, significant well contingency and logistics planning was required.

Value created for Genel was well leveraged and the protection of “the license to operate” was always in place

LJ Ursem, Genel Drilling Manager

CHALLENGE

- Fractured carbonate drilling risks - major losses, H₂S, slow drilling, minimising impairment, 983m water depth.
- Designing a well with sufficient contingencies in place but retaining flexibility to drill quickly and economically if the risks did not materialise
- Managing rig performance, as this would be the second well after an 18 month programme of shipyard work
- Managing logistical constraints in a shared port facility
- Delivering a well test programme that could cope with a range of oil types and the fractured carbonate reservoir setting



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APPROACH

The AGR operations, planning and logistics teams were fully integrated with operator organisation to jointly address the project challenges.

Contingencies were included in the design and operational programme for losses treatment, H2S management and drilling hard formations..

Highly conductive fractures were encountered and dual gradient / hydrostatic packer techniques were used to manage losses / flows and safely operate on the well at hydrostatic balance conditions.

Pressure balanced cementing techniques were used to cure loss zones to enable drilling operations to proceed.

A drill stem test programme was developed including contingencies for acid stimulation, management of back-produced drilling fluids and nitrogen lift.

A logistics base was set up in Agadir, with a combination of vessel and truck based supply from Europe and North Africa. Logistics operations had to cope with a dynamic and changeable operating situation.

Additional supervisors were assigned to the rig to manage the complexity of operations and to support crew coaching and performance delivery.

RESULT

- The well was drilled to the planned TD after adjusting casing setting points in response to well behaviour, and using a planned contingency hole size .
- Quality logistics support in a changeable operational situation with a long supply line - delivered on all requirements and enabled operations to proceed with no logistics related downtime
- All operational challenges encountered were overcome including major losses drilling fractured carbonates, and well control events.
- Fractured carbonate well test was delivered including acid stimulation and nitrogen lift



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