

Expro Excellence

Expro's Octopoda® remediates shallow aquifer in C annulus by reinstating hydrostatic overbalance

Well Intervention & Integrity



Objectives and background

- Petroleum Development Oman (PDO) engaged Expro to remediate a shallow aquifer in the C annulus, following regulatory requirements to isolate the source of sustained casing pressure (SCP) or proceed with well abandonment
- The required kill weight to overbalance the source aquifer closely matched the fracture pressure of a deeper weak formation. PDO needed a system capable of circulating heavy brine in a live annulus without inducing formation breakdown or total losses
- The C annulus contained significant volumes of degraded water-based mud (WBM), rendering it unsuitable for the traditional lubricate-and-bleed method

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- The Octopoda® hose was conveyed to 230m depth, establishing a circulation path without pressure cycling the annulus, thereby protecting weak formations
- A 1.39 SG calcium chloride brine was selected, exceeding the required 1.16 SG kill weight to overbalance the source formation, leveraging in-situ dilution with annulus fluids to reduce total brine volume requirements
- After 11 days and 32 m³ of brine pumped, SCP was fully eliminated. Surface pressure remains at zero psi, as confirmed through periodic verification
- Circulating via the hose at depth in the annulus significantly reduced the time, kill fluid volume, and risks associated with high-pressure, multi-cycle lubricate-and-bleed operations

Value to the client

- SCP in the C annulus was eliminated by re-establishing hydrostatic overbalance using a stable brine. This enabled dispensation removal and production to continue
- PDO avoided a costly workover or abandonment, with no production downtime during intervention
- This project was completed, and intervention objective achieved, from mobilization to de-mobilization within 2 weeks
- The Octopoda® Annulus Intervention fluid circulation process is more efficient and predictable compared to conventional lubricate-and-bleed and avoids the risk of formation fracture and total losses

Enhanced production



Bespoke solution



Cost effective

