CASE STUDY: RIO DE JANEIRO, BRAZIL

New motor lead extension substantially increased reliability in offshore deepwater ESP application

CHALLENGES

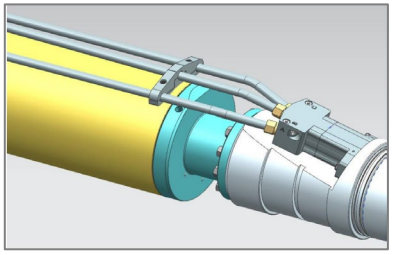
- Wide temperature range environment (4ºC – 135ºC)
- Severe ESP operation instabilities' exposure due to high gas volume fraction (up to 50%) and emulsion formation
- Rapid gas decompression events
- Deepwater offshore subsea modular of boosting (Caisson): Water depth 1920m
- Previous ESP motor connector had not met expected run life

SOLUTION

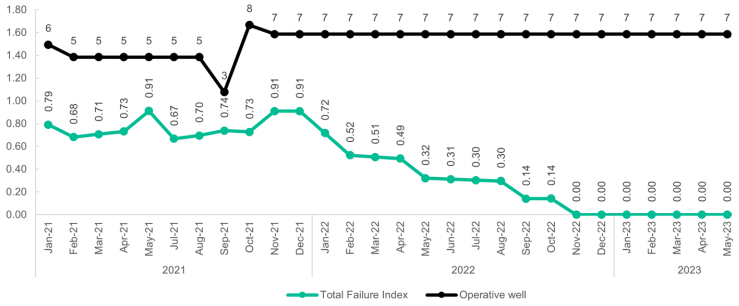
- New design developed based in failure analysis of the existing motor connector
- Robust qualification program implemented
- Tubing encapsulated cable with enhanced metal-to-metal sealing
- 280% more handling stress capability than original design
- Improved equipment reliability by pressure testing it before deployment

RESULTS

- First 6 units successfully installed into a deepwater mudline caisson
- Zero ESP failures on the last 20 months, since new motor lead extension cable deployment on October 2021
- Enhanced ESP reliability with failure index declining from 91% to zero
- ESP run life strongly growing to meet 3 years expected by the customer
- 100% reduction of production deferment between well interventions. Preventive well workovers instead of corrective maintenances.
- 115% of average oil production growth from October 2021 to July 2023
- Greater field production efficiency



SD4B motor lead extension



Project failure index reduction: Reliability enhancement

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