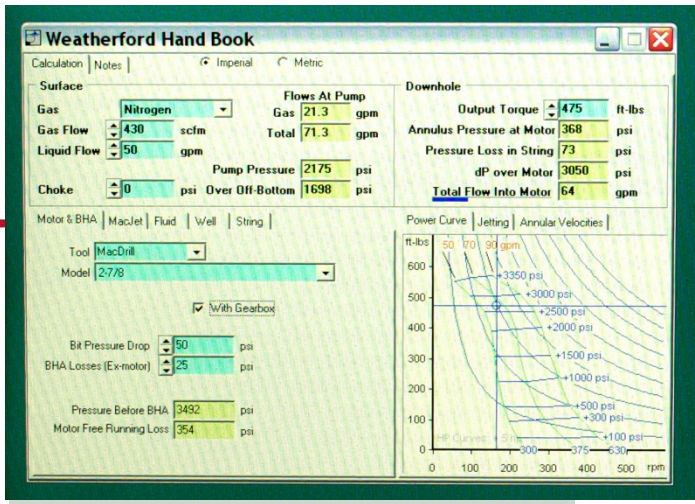
Weatherford®

REAL RESULTS

MacFlow™ Program Aids in Design of Coiled Tubing Operation, Saving Time and Money in HTHP Gas Well in Oman



A MacFlow program flow analysis of the proposed intervention allowed Weatherford to design a complete solution to successfully mill out a float collar below 16,000 ft (4,876 m) in a HPHT gas well in Oman. This innovative solution saved the operator more than 19 days versus the time required for a conventional workover rig.

Objectives

- Operate successfully in a high-pressure, high-temperature (HPHT) deep gas well environment with a bottomhole temperature (BHT) of 320 F (160 C).
- Minimize operating time on this intervention.
- Mill the float collar and 105 ft (32 m) of cement shoe at 16,184 ft (4,933 m) while addressing concerns about spinning the float collar because of insufficient weight on the bit.
- Address the challenge of using coiled tubing (CT) in an environment where it did not appear to be possible to maintain sufficient annular velocity (AV) using a conventional CT motorized drill.

Results

- A MacFlow program flow analysis was run before mobilization to determine circulating pressure, rates, dynamic positioning over the motor, annular pressure at the motor, AV required to lift cuttings to the surface, total flow rate into the motor, and output torque through the motor.
- Weatherford then deployed this solution using its high-temperature eCTD™ motor as part of a complete intervention strategy.
- Friction reducers were added to increase flow rate through the motor and maintain the appropriate AV.
- A high-pressure, tapered CT string was used to convey the bottomhole assembly, including the 2 7/8-in. *eCTD* motor and a 3 1/2-in mill.
- The float collar was safely and successfully milled along with 105 ft (32 m) of cement below the collar.

Client
Middle East operator

Location
Oman

Well Type
Oil producer

Number of Wells
1

Well Type
HTHP deep gas

Fluid Type
4% brine with gel for milling operation and 30% J507 friction reducer

Depth
16,184 ft (4,933 m)

Products/Services
- MacFlow program analysis
- *eCTD* motor

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Value to Client

- Using the MacFlow™ program flow analysis saved the operator time and costs by permitting the CT operation to take place in only eight hours instead of the 20 days necessary to mobilize a workover rig.
- Milling out the float collar and cement shoe track gave the operator access to the target gas reservoir, increasing well production and avoiding a hazardous workover rig operation.

MacFlow is a registered trademark of Mainstay.

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