



Overview

Location: New Zealand

Well/Run Type: Milling / Cleanout run

Run Length: Cleanout to 1267 meters (~4157 ft)

Products / Services: InFocus 2.875" AMP - All Metal Power section

Tubing Details

Tubing Size & Wt: 5-1/2" Cr13-S95, 20.3 lbs/ft

Tubing ID: 4.184"

Drift ID: 4.059"

Min. Restriction: 3.85"

Coil Tubing Size: 2"

Objectives

The objective was to mill calcium carbonate scale and or remove other obstructions in two wells to be prepared for acidization. These operations were performed over several days and runs utilizing one 2-7/8 All Metal Power (AMP) 9|10 3.8 stage motor while pumping bi-phase fluid of fresh water and N₂, followed up with a mutual solvent and acid treatment.

Results

Well 1 – Summary of Operations

Well Details: 6971m MD | 3631m TVD | H₂S 5ppm | CO₂ 7% | BHT 120C / 248F |
BHP 3,335 PSI | SISP 2741 PSI

Five BHA's were deployed with the 2-7/8" AMP motor in over 134 operating hrs with a combined 40 hrs of circulating time. During the course of the operation, N₂ and fresh water were pumped at an average rate of 800 SCF & 1.2bpm (avg circulation pressure 2460psi | WHP 1450psi) during the first phase of milling and descaling the targeted depth range of 5950 to 5990m MD. The second phase of treatment, (Musol® A) mutual solvent was pumped followed with an organic acid at an avg rate of 0.8bpm. N₂ was then brought online and pumped at a rate of 800scf to displace these fluids out the coil tubing over the targeted depth interval.

BHA Configurations Deployed

Connector - Slip type connector, pull test to 40,000lbs

Crossover

Bulk-Head

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BHA Configurations Deployed, continued

Coil-Link Tool
 Coil Link Crossover
 Motorhead Assembly, (MHA) 7/8" Disconnect Ball, 3/4" Circulation Ball, 5K bust disk
 Dual Acting Hydraulic Jar
 Lower Heavy Duty Drop Ball Disconnect, 5/8" Ball
 2.875" Thru Tubing AMP Motor
 Extension, to simulate Under-Reamer | Used in BHA's 1, 2, 3, & 5
 Under-Reamer 4.050" Open | Used in BHA 4
 3.745" MDX Diamond Mill C/W Side Jet | Used in BHA's 1, 2
 3.710" 5 Bladed Flat Bottom Junk Mill | Used in BHA's 3 & 4
 3.625" OD Diamond Taper Mill | Used in BHA 5

Well 2 – Summary of Operations

Well Details:
 6430m MD | 3630m TVD | H2S 5ppm | CO2 7% | BHT 120C / 248F | BHP 3,335 PSI |
 SISIP 2741 PSI

Two BHA's were deployed with the 2-7/8" AMP motor (same motor used in Well 1) over 56 operating hrs with a combined 14 hrs of circulating time. During the course of the operation, N2 and fresh water were pumped at an average rate of 800 SCF & 0.80bpm (avg Circulation Pressure 2625psi | WHP 880psi) during the first phase of milling and descaling the targeted depth range of 5414 to 5540m MD. The second phase of treatment included pumping an organic acid at an avg rate of 1.0bpm with N2 being brought online and pumped at a rate of 500scf to displace the acid out the coil tubing over the targeted depth interval.

BHA Configurations Deployed

Connector - Slip type connector, pull test to 40,000lbs
 Motorhead Assembly, (MHA) 7/8" Disconnect Ball, 3/4" Circulation Ball, 5K bust disk
 Dual Acting Hydraulic Jar
 Lower Heavy Duty Drop Ball Disconnect, 5/8" Ball
 2.875" Thru Tubing AMP Motor
 Extension, to simulate Under-Reamer | Used in BHA 1
 Under-Reamer 4.050" Open | Used in BHA 2
 Cross over, 2-3/8" PAC Pin x 2-3/8" Reg Box | Used in BHA 2
 3.710" 5 Bladed Flat Bottom Junk Mill | Used in BHA 1
 3.625" OD Diamond Taper Mill | Used in BHA 2

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Conclusions

The 2.875" (AMP) All Metal Power section performed multiple operations in several BHA's with various fluids such as water, solvents, acids and N2 without issue, resulting in no NPT to the operator. Upon return to the facility, the AMP was inspected and was found to be in good condition. The AMP was then dyno tested and the results were within 3% of the pre job dyno test.

With these recent runs to date this specific 2.875" AMP has achieved another milestone in accumulating over 405 circulating hrs in some of the harshest operating conditions in jobs here in Canada, Mexico, Colombia, Germany and New Zealand.

We at InFocus would like to thank Taranaki for their support and contributions to this milestone of higher asset utilization, low run cost per hour, and high reliability of our AMP product line.

InFocus would like to thank: Taranaki Thru Tubing Tools, New Zealand

