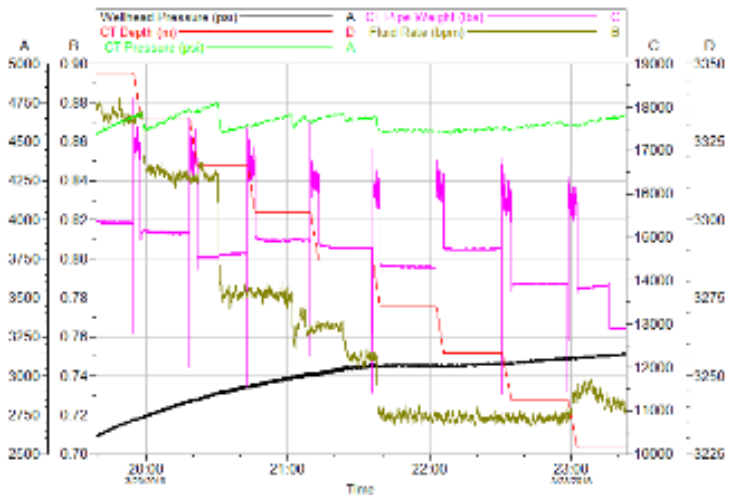
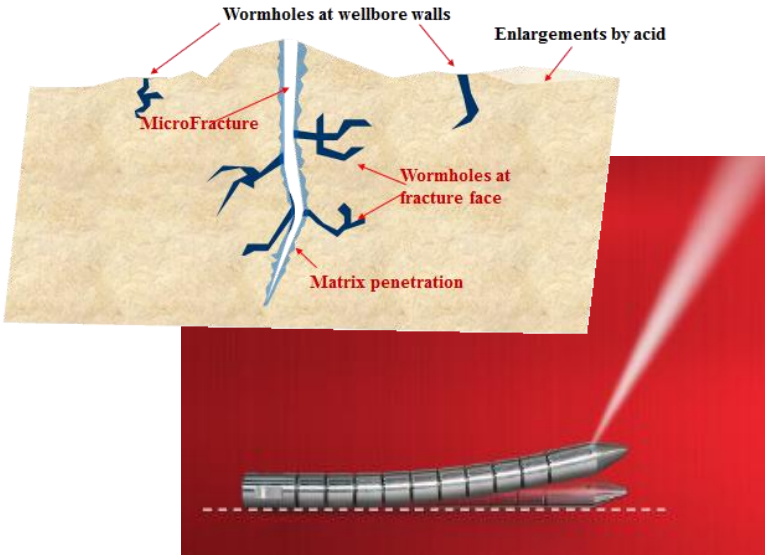
Case Study: Selective Open Hole Stimulation with HydraJet™ SPT





Location: Oman | Challenge: NWB Damage

Challenges

An oil producing well in Oman completion with 3-1/2" production tubing above a 7" open hole section had lost production over time from a build up of filter cake and other NWB (Near WellBore) damage processes in a tight formation

Intervention was required to restore well production without removing the existing completion string. Challenges included:

- Removal of existing NWB damage to restore connectivity to previously stimulated intervals
- Enabling injectivity of treatment into a tight formation
- Selectively placement treatment in 7" ID target intervals while working with 3-1/2" ID restriction of production tubing
- Recovering spent acid and restoring well flow with N2 lift after treatment

Solution

- Halliburton proposed selective placement of a 15% HCl acid treatment with the HydraJet™ SPT (Self Positioning Tool) to remove the filter cake and enable the treatment to bypass NWB damage
- The HydraJet™ SPT is a thru-tubing tool that combines jetting technology with a self-decentralizing capability activated by internal pressure. Use of this tool enables:
  - Effective jet placement, reducing stand-off below large ID restrictions
  - Improved efficiency of jetting due to less dispersion of the jet stream and more coherent flow
  - Focused injection of chemicals into the rock matrix to bypass NWB damage
  - Ability to combine selective acid treatment and N2 lift into a single run on coiled tubing

Results

- The results were exceptionally good, with post intervention production levels returning at higher than the original production of the well
- Oil production of the well was higher than offset wells stimulated by conventional processes

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