Diagnosing flow and integrity challenges in dual completions

Vasily Skutin, Principal Domain Champion, TGT
March 2021
Conventional Production Logging ('Spinners')

- Borehole flow profile for long string (below tubing end)
- Short String Production Profile
- Unwanted production zones
- Active subunits of targeted reservoir
Conventional Integrity Logging

- A-annulus pressure through tubing leak (if leak rate is sufficient)
- Communication between long & short string through tubing leak (if leak rate is sufficient)
- Packer integrity
- Production casing leak
- Communication pathway between long & short string
- Source of sustained annulus pressure in B&C annuli
Through-barrier diagnostics: acoustic flow sensing

Flow generates the sound
Through-barrier diagnostics: temperature flow quantification

Flow generates temperature disturbance
Case studies
Case Study #1 – Seal Integrity

Leak in SCAB Liner

**Challenge**
Pressure test failed after isolating SS perforated interval.

**Location** Middle East
**Well type** Gas Injector
Case Study #2 – Seal Integrity

*Communication between strings and out of zone injection*

**Challenge**

Nearby producers were suffering from lack in pressure support.

*Location* Middle East

*Well type* Water Injector
Case Study #3 – Reservoir Flow

Revealing the water invasion pathway to Short String production

**Challenge**

WC rapidly increased in SS production after injected water breakthrough in LS

**Location** Middle East

**Well type** Dual String Producer
Case Study #4 – Reservoir Flow

Revealing the Short String production profiling and source of water identification

**Challenge**
WC rapidly increased in SS production.

**Location** Middle East
**Well type** Dual String Producer
**Reference** SPE-182889-MS
Through-barrier Diagnostics Provide Comprehensive Diagnostic Insights

- Formation flow profile quantification
  - Actual flow thickness
  - Each active zone contribution
- Unwanted production zones
- Communication pathway between short and long string
  - Through leaking packer
  - Through leak in long string
  - Behind casing
- Integrity assessment
Thank you

www.tgtdiagnostics.com

askus@tgtdiagnostics.com