

# Reducing the frequency of sand screen replacements in challenging environments

## Failure prevention using 3M™ Ceramic Sand Screens

### Customer challenge

- ▶ Site was a depleted oil well with high gas-to-oil ratio and very low reservoir pressure.
- ▶ The maximum drawdown led to high velocities and hot spotting issues in the metallic sand screen. A workover was not commercially viable.
- ▶ Metallic through-tubing sand screens had to be replaced every 4 months on average.
- ▶ There was a need for a reliable solution to prevent failure at a reasonable cost while reducing the number of interventions.

### Why ceramic sand screens?

- ▶ Optimize productivity at maximum topside choke setting without sand production
- ▶ Unlock wells where sand failure has occurred
- ▶ Retrofit failed wells by setting screens above failed sand control completion
- ▶ Simplify deployment in logistically challenging environments

### Results

One well was equipped with 3M™ Ceramic Sand Screens in May 2016 and continues to produce.

- ▶ The screen was easily deployed on a slick line hanging from a landing nipple.
- ▶ Average production rates achieved:
  - ▶ 970bbl fluid
  - ▶ 6.2MMSCFD gas
- ▶ There has been no significant sand production to date even in an extremely erosive environment.
- ▶ There has been no well intervention required to date.
- ▶ The 3M ceramic sand screen has lasted 3x longer than the average lifetime of metallic screens, and is still working.



### Customer key decision drivers

- ▶ Simplicity of intervention
- ▶ Erosion resistance of the screen helps avoid the need for frequent and expensive intervention
- ▶ 3M ceramic sand screens offered an economical alternative to other options, including:
  - ▶ Metallic screens
  - ▶ Sand management
  - ▶ Well workover

## Technical references

**SPE-176225-MS:** Cased Hole Ceramic Screen Cutting Completion Cost for Marginal Reservoir: Application in Tunu Field

**OTC-25106-MS:** An Innovative Approach of Revival for Damaged Wells in High Erosive Environment Using Ceramic Sand Screens – BG Group

**SPE 146721:** An Innovative Milestone in Sand Control – Maersk Oil & Gas

**SPE 160327:** Ceramic Sand Screens for Sand Control in Unconsolidated Reservoirs (with Fines Content) – RAG

**SPE 166092-MS:** Ceramic Sand Screen: Ceramic Sand Screen - An Innovative Downhole Sand Control Solution for Old and Challenging Cased Holes – BG Group

**MOC-Egypt-April 2016:** Ceramic Sand Screen Systems - A Unique Downhole Solution for Sand Control

Sand Control with Ceramic Screens in Unconsolidated Reservoirs Demonstrated in the Mature Gaiselberg Oilfield. OIL GAS European Magazine, 2/2012, p. 74-78.

**SPE-182278-MS:** Sand Control in Corrosive and Erosive Downhole Conditions at High Temperatures – 3M Technical Ceramics

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