

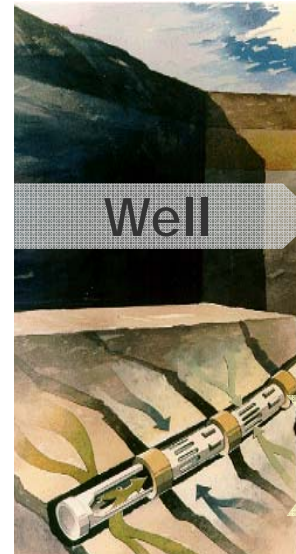
Operators view of coming challenges

Keynote addresses

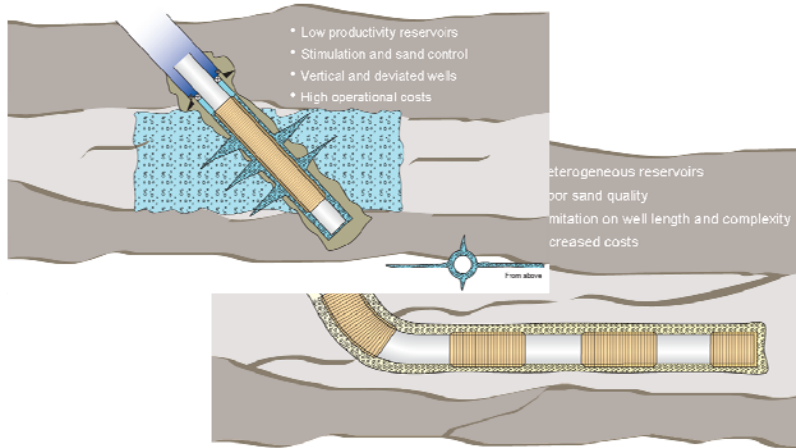
4th European Sand Management Forum 10th March 2010

Outline

- Down hole sand control
- Sand monitoring and handling
- Realities that will influence sand management
- Key Messages

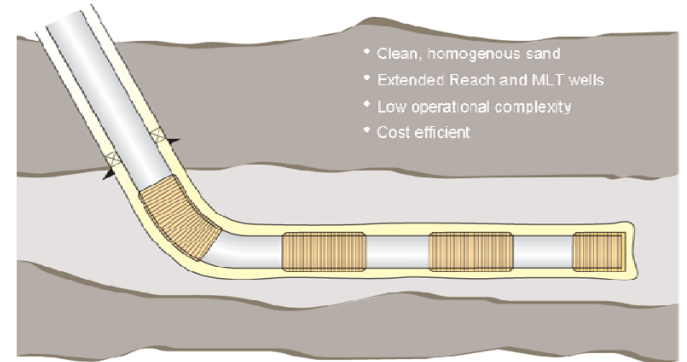


Frac Pack Completion



High risk of sand production

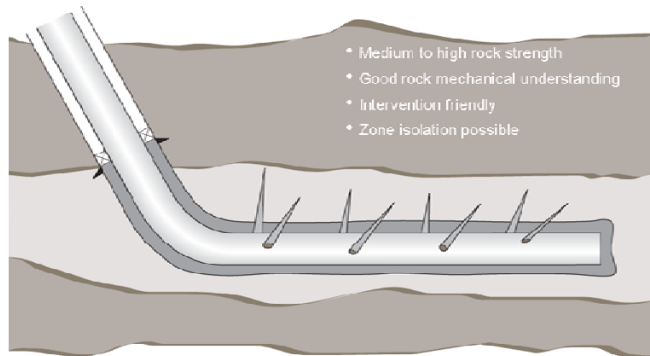
Stand Alone Screen, SAS Completion



Poor sand quality

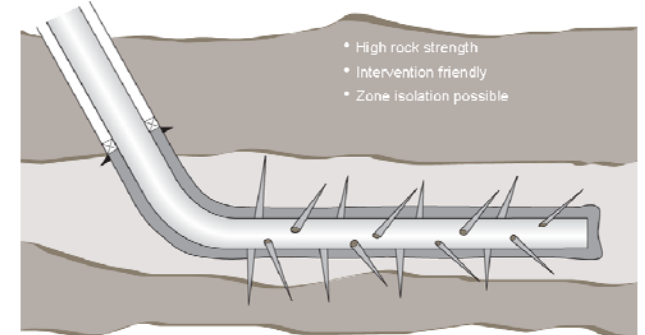
Good sand quality

Cased & Oriented Perforated Completion



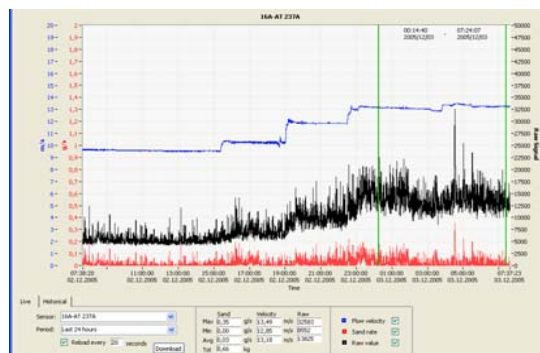
Low risk of sand production

Cased & Perforated Completion



Sand monitoring and handling

- Measurement
 - Detectors, ER probes
- Monitoring
 - Erosion monitoring
 - Sand volumes
 - Inspection strategy
- Handling
 - Well and production knowledge
 - Process handling
 - Cooperation and communication



Realities that will influence sand management

- Small discoveries
- Harsh environment
- Heavy oil/unconventional oil
- Less information and demand for low cost
- Fast track
- Sub sea development
- Deep water
- High temperature
- Unknown factors

Key message

- Design strategy for lower completion
- Active Sand monitoring and handling
- Value chain thinking
- Use of multi disciplinary work approach
- Lack of reservoir information in small discoveries influence strategy
- Allow for sand production within limits
- Maximize production without compromising safety
- Multi disciplinary work and high level collaboration
- Requirements for online data



Thank you

Operators view of coming challenges

Thorvald Jakobsen
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