Innovative Applications For Stranded Barrels of Oil

Conference

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Underbalanced Coiled Tubing Drilling and its successfull application in Hungary

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- Introduction - What happened on Öcsöd Eny 1?
- How it was solved
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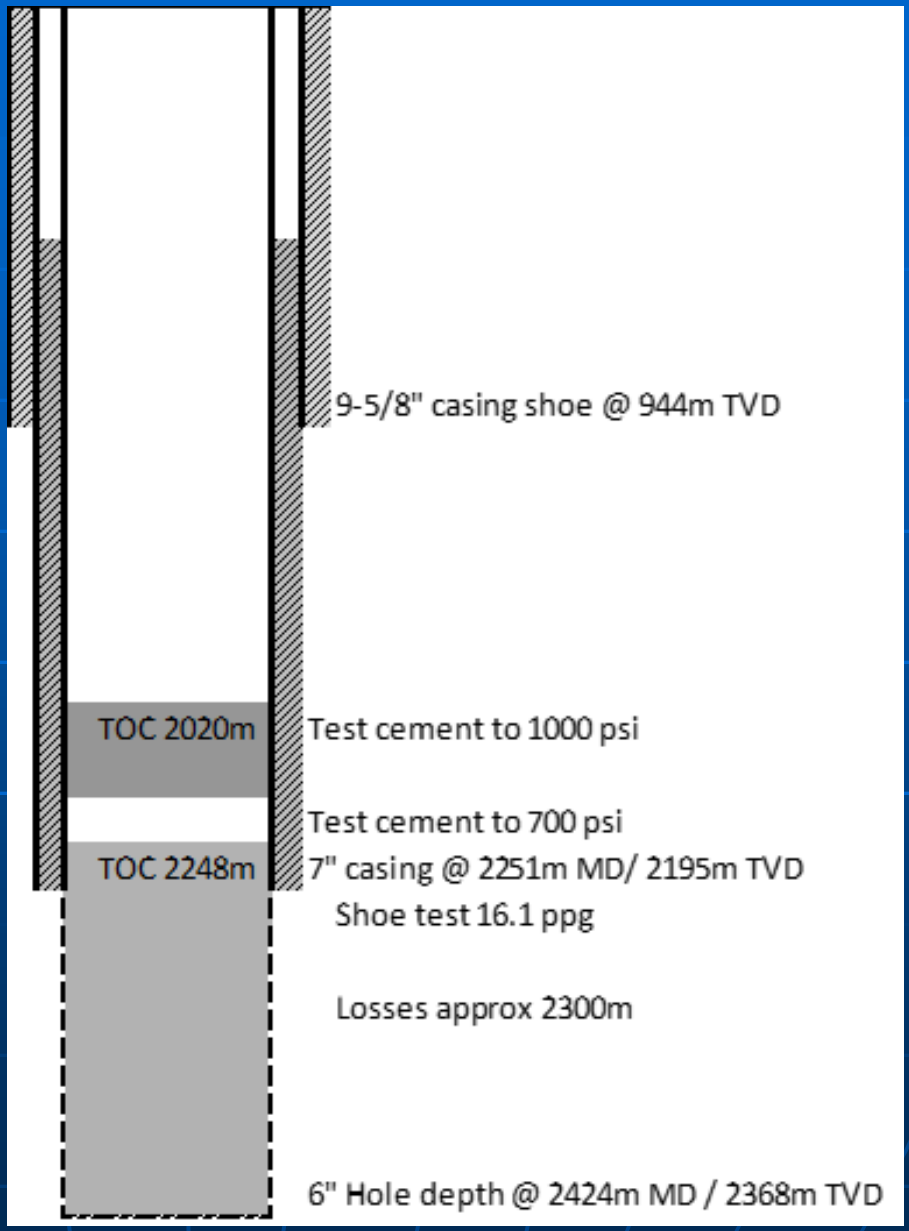
Introduction

Öscöd Eny 1

- After setting the 7“ conductor casing, the reservoir was supposed to be drilled using 1.85 SG mud
- Natural fractures were encountered, leading to extensive fluid losses
- The unfinished well had to be partly cemented in order to regain control

Introduction



Öscöd Eny 1 before CT Operation

Introduction

Benefits of Coiled Tubing Drilling

- Ideal system for underbalanced operations
- Highly reduced tripping times
- Allows higher ROPs due to underbalanced conditions
- Reservoir can be drilled without damages from fluid invasion
- Can be used as a contingency option or as the primarly approach

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How it was solved

1. Start Milling the cement

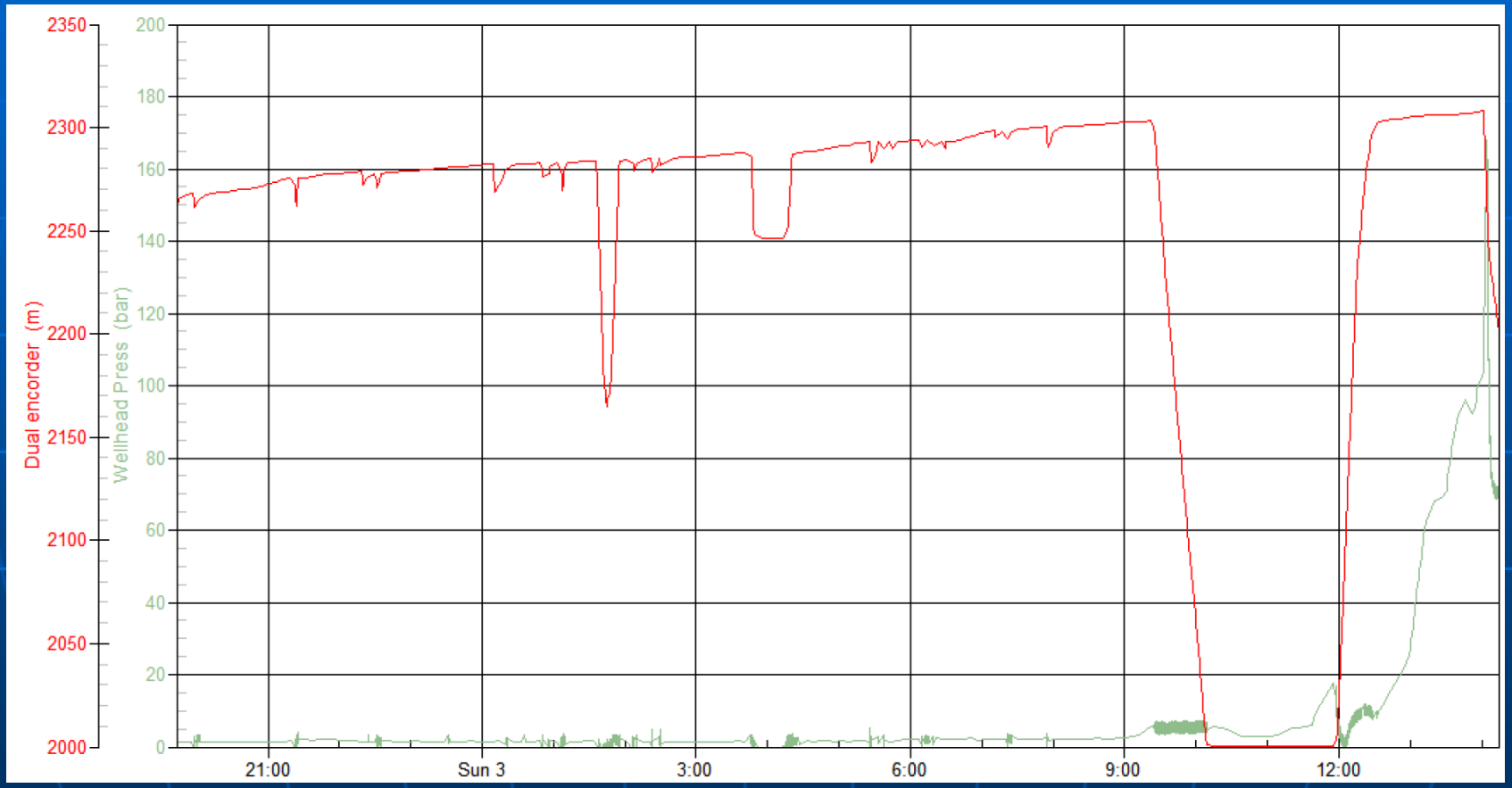
2. Equipment used
   - 2“ Coiled Tubing
   - 5.9“ Bit
   - 1.15 SG Brine

3. Sand returns at early stage ⇨ Probably sidetracking

4. WHP increases and gas comes to surface at 2300m

5. Mill/Drill wellbore until 2308m

How it was solved



Data log during cement milling

How it was solved

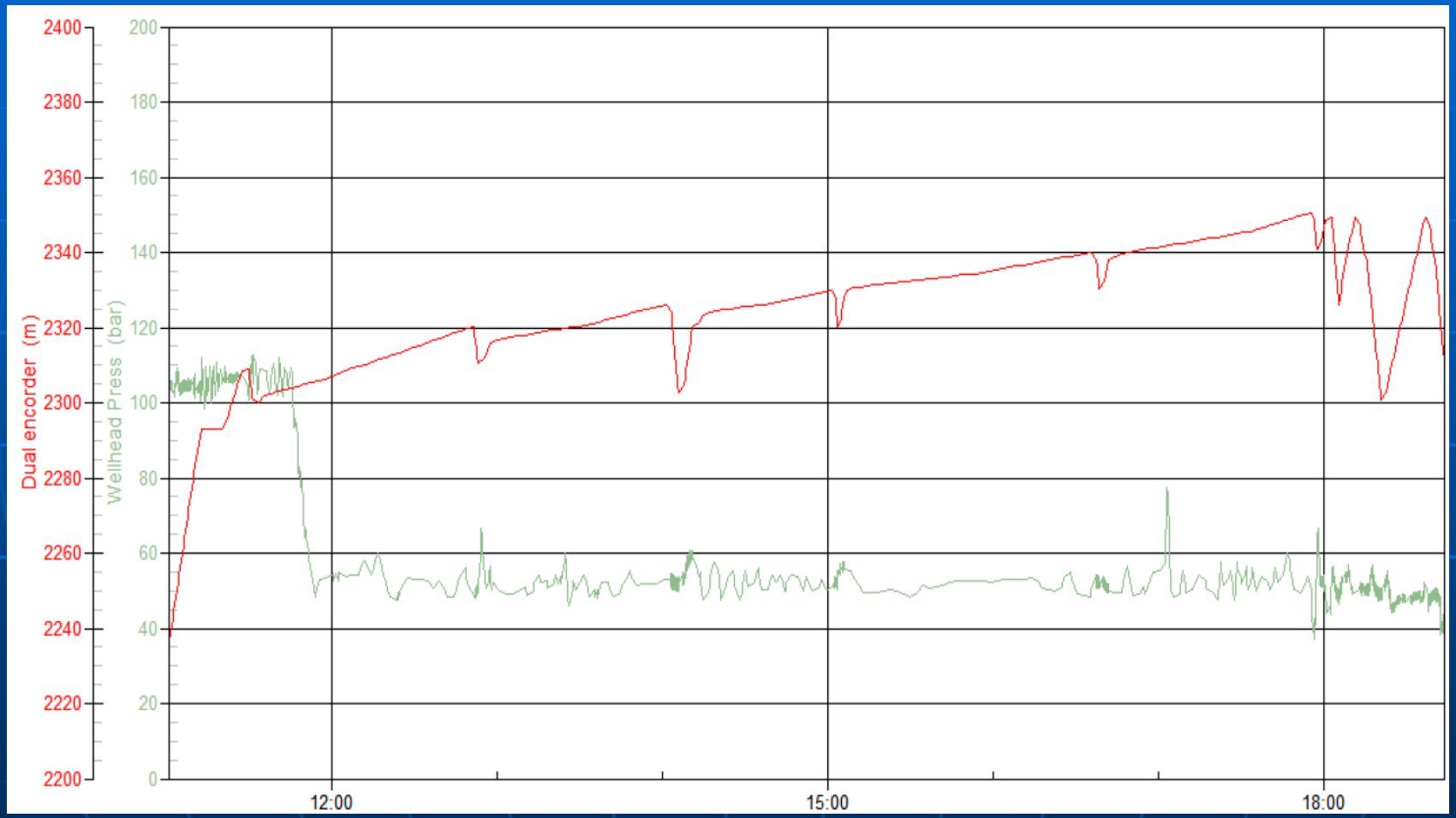
6. Logging run showed that the well is currently not deep enough

7. Decision to further deepen the well until 2350m using the same setup as before

8. Wellbore was successfully logged

9. Well was completed and brought to production

How it was solved



Data log during drilling

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Results

1. The final logging runs showed that
    a) The reservoir is now fully penetrated
    b) The sidetrack drilled on Coiled Tubing has a max. deviation of 1.7°

2. Coiled Tubing was on location for 56 hours for the drilling operation

3. Originally cemented and highly damaged well was brought to production

4. Althogh suffering from intense damage, the well produces as good as a conventionally drilled and stimulated well

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Future outlook

Anticipated future work schedule

1. Drill conventionally until casing setting depth
2. Set conductor casing
3. Drill through the reservoir underbalanced using Coiled Tubing
4. Set a plugged tailpipe
5. Install tubing
6. Pull plugs and produce the well

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Benefits

1. Eliminate the risk of wellbore control issues
2. Save costs of expensive drilling mud additives
3. Save costs of casing the lower wellbore section
4. Reduce tripping times
5. Eliminate formation damages
6. Safe stimulation costs

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Conclusions

1. Underbalanced CTD has proven possible in this Hungarian reservoir
2. A nearly abandoned well was brought to production
3. Non-damaging effect of underbalanced drilling enabled good production from a cemented well
4. The contingency plan proved as beneficial to make it the future primary plan

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Thank you for your attention

Köszönöm a figyelmet