Perforation Strategy
Managing Uncertainties Through Integrated Subsurface Characterization Platform

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The Challenge – Why?

Ineffective Selection of Perforation Strategies

Intrinsic subsurface uncertainties on petrophysical, lithological and geomechanical properties

Identification of Optimum Perforation Techniques
The Challenge – Why?
The Challenge – Why?

Litho-type = Laminated Sandstone, Facies = Aeolian Sand-sheet
The Challenge – Why?
The Challenge – Why?
The Challenge – Why?

Possible Permutations

5 & 5 = 0.13 x 10^6 Possible Permutations
Uncertainty is There ···. We Ignore or Acknowledge
How we Approached This Challenge

Perforation Strategy
How We Approached This Challenge
How We Approached This Challenge

Multi Variable Simulation

Multi Variable Simulation
How We Approached This Challenge

Potential variability

UCS-f
kv/kh
Pres
kdz
Dz
Cz
kh/kH
Shot deg
kcz

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Predicted Inflow Profiles

Perforation Strategy To Improve Performance
Conclusions/Observations

- It is fundamental to account for subsurface uncertainties during the identification of the perforation strategy.
- The presented approach was essential on the identification of potential optimizations impossible when using conventional approaches (e.g. average values).
- It is possible to define fit for propose perforation strategies with an associated impact on productivity and cost.
- By using an automated process it is possible to reduce design cycle.
QUESTIONS?
THANK YOU!