

UNCONVENTIONAL RESERVOIR ENGINEERING PROJECT

COLORADO SCHOOL OF MINES

Research Summary

PVT Behavior under Confinement based on Actual Data

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UNCONVENTIONAL RESERVOIR ENGINEERING PROJECT Advisory Board Meeting, May 4, 2018, Golden, Colorado CSM

- Confirm/improve a correlation that is created by Firincioglu et al. (2013) for bubble point suppression which is applicable to black oil formulation using other fluid samples
- Re-model and improve the impact of bubble point suppression on flow with different data sets using a black oil simulator



Previous unconventional-reservoir samples

Sample 1: Monterey Sample 2: Bakken Sample 3: Eagle Ford



Firincioglu, 2013:

- VLE was solved for two pressures (P_I and P_g) for the two phases
- Capillary K value (K_c) definition is used
- PR EOS was utilized
- EOS parameters for the fluid samples that were determined through regression to lab measurements were input



Correlation for Excess Suppression

Excess suppression values as a function of Rs for 3 samples



Total suppression = Pbulk - Pconfined Excess Suppression = Total Suppression - Pc Excess suppression ratio = Excess Suppr./Total Suppr.



Correlation for Excess Suppression

Excess suppression ratios as a function of Rs for 3 samples



(Firincioglu et al. 2013)



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Correlation for Excess Suppression



(Firincioglu et al. 2013)

$\frac{Excess \ Suppr.}{Total \ Suppr.} = 2.1x10^{-7} R_s^2 + 0.0009 R_s - 0.1022$



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New Results – Bubble Point Suppression



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New Results



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Questions?

Thank you

