**INTRODUCTION**

- Consumption of energy has increased; people have pivoted their focus on those unconventional resources, such as hydrocarbon productions from stimulated reservoirs.
- Tight oil reservoirs are responsible for over 50% daily oil production in the U.S.
- It is critical to evaluate the performance of hydraulic fracture (HF) in the early stage of the well.
- Straight-line flowback analysis is applied in this project, and one shale oil and one shale gas well are tested.

**OBJECTIVES**

- To obtain interested hydraulic fracture properties, such as initial fracture volume \( V_{f1} \) and initial fracture permeability \( k_{f1} \).
- To test out the validation of the given semi-analytical approach with completed model.

**RESULTS**

- **Shale Oil Well:**
  - \( V_f = 151.64 \, Mcf \)
  - \( k_f = 1866 \, md \)
  - \( \gamma_f = 1.0 \times 10^{-4} \, psi^{-1} \)

- **Shale Gas Well:**
  - \( V_f = 195.66 \, Mcf \)
  - \( k_f = 863 \, md \)
  - \( \gamma_f = 7.5 \times 10^{-4} \, psi^{-1} \)

**CONCLUSIONS**

- Estimated HF properties of oil and gas shale wells using flowback data, which are available shortly after HF stimulation.
- Estimated HF permeability has less accuracy than estimated HF volume due to higher uncertainty associated with the determination of the intercept from straight-line analysis.
- Future study will consider reconciliation of the long-term production data with the present flowback data analysis.
- Future study will consider three-phase flowback and production data analysis of shale wells.

**REFERENCES**


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