Department Of Geosciences And Geological And Petroleum Engineering

Wellbore Integrity, Hydraulic Fracture, and Enhanced Oil Recovery for Unconventional Reservoirs

Wellbore Integrity Research Topics:

- Modified Portland cement for long wellbore isolation
- Fly-ash cement for oil, gas, and geothermal wells applications
- Epoxy material for mitigating cements failure

Key Words

Experimental work is conducting to evaluate rheological and mechanical properties of the new developed cements.

Hydraulic Fracture Research Topics:

Characterize and evaluate fracture fluids including High Viscous Friction Reducers and linear gels:

- Rheological properties of fracture fluids
- Proppant static and dynamic settling velocity
- Proppant fracture conductivity

Key Words

Experimental work is conducting to evaluate rheological properties of fracture fluids and their impact on proppant dune development inside fractures.

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Funding:

NSF: CBET, asphaltene precipitation

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Enhanced Oil Recovery Research Topics:

Evaluate gas EOR in Unconventional reservoirs:

- Asphaltene precipitation, flocculation, and deposition
- Gas miscibility pressure
- Gas huff-n-puff
- Data analytics and management

Conformance Control:

- Gel injectivity through fractures, channels, and rock matrix
- Gel blocking Efficiency to water and oil
- Gel combination with polymer and low water salinity