

The Effect of Salinity, CEC, Mineralogy, and Grain Size Distribution on Wellbore Stability

Research Themes

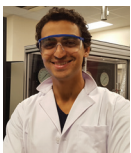
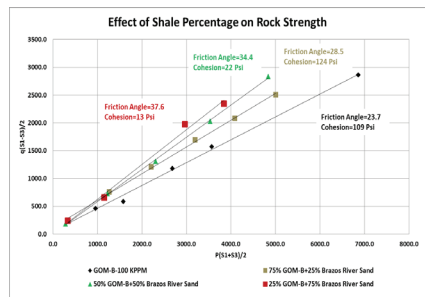
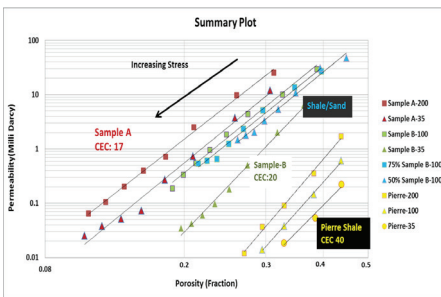
1. The use of resedimentation laboratory methods to fabricate core samples
2. Determining the effect of salinity, mineralogy, CEC, and grain size distribution on mudrock petrophysical properties such as porosity and permeability
3. Rock sample characterization using XRD, CEC determination, grain size distribution
4. Mudrock strength analysis using multistage triaxial measurements
5. Thick walled cylinder measurements to simulate wellbore failure in the lab
6. Finite element method to determine rock strength and for well bore failure prediction

Recent Accomplishments

1. Masters in petroleum engineering from the University of Houston (2015)
2. Winner of best poster at the SWE regional conference on shale's petrophysical properties (2016)
3. Published and presented two research papers at the American Rock Mechanics Association on the effects of salinity, CEC, mineralogy on Mudrock mechanical properties (2016)
4. Published and presented two research papers at the Society of Exploration Geophysicists on Mudrock petrophysical properties (2016)
5. Poster presentation at the AAPG-SEPM conference about the use of laboratory techniques to determine the effect of salinity, mineralogy, CEC on mudrock porosity and permeability (2016)
6. Joined the petroleum engineering PhD programs

Issues

1. Rock strength and fractures prediction
2. Well bore stability analysis
3. Calibrating material models using finite element analysis
4. Determining rock petrophysical and mechanical properties



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