

# **A Feasibility Study of Reusing Flowback Fluids in Hydraulic Fracturing Treatments at Reservoir Conditions**

## **Abstract**

Economic production from unconventional resources usually involves multistage hydraulic fracturing. High costs of water acquisition and waste water disposal, and the lack of available water resources near operation sites, make the reuse of produced water an unavoidable option. However, recycling produced water in hydraulic fracturing jobs result in low quality fracturing fluids, which usually have high levels of hardness and salinity. This is especially true for flowback fluids, which contain high polymer loading. The rheological properties of fracturing fluids significantly affect leak-off rate, proppant placement, length and width of fractures, fracture conductivity, and consequently, the success of the treatment.

The main objectives of this presentation will be: (a) to investigate the feasibility of using produced water in hydraulic fracturing in sandstone fields at reservoir temperatures, (b) introduce new techniques to evaluate the flowback fluid and to purify/qualify produced water at high temperatures, and (c) study the use of chelating agents to expand the acceptable range of TDS in fracturing base fluids.