Fluid Property Variations and its Relationship with the Geo-History of the Permian Delaware Basin

Alan Yu[1], Mauro Becker[1], Anindito Baskoro[2], Mukul Bhatia[2]
[1]Texas A&M; [2]Texas A&M University

9.29.2020 - 10.1.2020 – AAPG Annual Convention and Exhibition 2020, Online/Virtual

Abstract

The West Texas Permian Basin has become critical for oil supply and economic growth of the state and country. Even though oil and gas in the Permian Basin has been produced for over a century, the understanding of its integrated petroleum systems including conventional and unconventional resources is still under-studied. The Permian Basin has a complex geological history that involves multiple tectonic phases, significant exhumation events, and various source and reservoir intervals. This study investigated the variations of observed fluid phase, cumulative gas-oil and condensate-gas ratios and oil API gravity in the various reservoirs based on publicly reported well production data (>70,000) in the Delaware basin. The results of these fluid data analyses can be further used to validate geologic models by correlations between fluid phase variations with the geological factors controlling their variations and, therefore, provide fundamental basis for better resource assessment and production value creation in the Delaware Basin.

AAPG Datapages/Search and Discovery Article # 91200