

# Integrating Legacy Core and Cuttings with New Well Data to Identify Lateral Drilling and Vertical Recompletion Potential of a Conventional Carbonate Reservoir, Central Basin Platform, Texas

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Occidental Oil & Gas

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

## Abstract

Conventional carbonate reservoirs in the Permian Basin are potential candidates for lateral re-development. A multidisciplinary approach to reservoir characterization is crucial to delineate good reservoir-quality areas for optimizing well placement and horizontal landing zones. Critical data include legacy vertical well core and cuttings, mudlogs and production data, as well as rock and production data from newer wellbores. For carbonate reservoirs, thin sections reveal important reservoir characteristics that could make or break a lateral play. A case study from the Central Basin Platform will illustrate how standard petrographic techniques and the Lucia classification method can be used to develop a working depositional model and predict lateral facies extents using thin sections from cuttings and rotary sidewall cores. The model results can be integrated with petrophysical, production/tracer data, image logs and 3D seismic to develop a generalized workflow for assessing lateral drilling potential in untapped or inefficiently produced carbonate reservoirs. Results from the study highlighted the importance of using an integrated approach to 1) develop a field-scale geologic model, 2) identify contributing facies, 3) assess reservoir extents and lateral heterogeneity risk, and 4) identify best horizontal landing targets.