



PBS-SEPM SEPTEMBER LUNCHEON

Tuesday, September 24th, 2024 – 11:30AM

Bush Convention Center - 105 N Main St, Midland, TX 79701

\$25 Early Bird Rate | \$35 Walk-In/Late RSVP | \$10 Student | \$5 Virtual

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Reservoir Characterization of Pennsylvanian Mixed Carbonate and Clastic Reservoirs to Exploit Behind Pipe Pay on the Central Basin Platform, Permian Basin, TX

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ABSTRACT

Pennsylvanian reservoirs on the Central Basin Platform can be challenging to characterize due to their stratigraphic complexity, limited extent, and heterogeneity in dominant porosity type and rock fabric. In 2019 the Exploitation team at Oxy tested the behind-pipe pay potential in these Pennsylvanian reservoirs in a legacy field with extensive penetrations, triple combo logs, and 3-D seismic of this interval, and derived some key learnings to better characterize these mixed carbonate and clastic reservoir intervals. The Canyon and Strawn section are dominated by carbonates, and have lenses of porosity developed preferentially in the intervals near the top of interpreted third-order shallowing up cycles. Productive reservoir intervals are restricted to a geobody developed on the paleo-windward side of the asset that likely retrained interparticle porosity, while other intervals tested outside of this area of the field were non-productive due to having rock fabric dominated by moldic porosity. Separation between shallow and deep resistivity can be an indicator of an effective poro-perm system in these reservoirs. The Atoka and Cisco section are dominated by clastic reservoirs that have the potential for low resistivity pay. There is evidence that cherts of the Devonian 31 Formation were eroded from the Fort Stockton High, and deposited by alluvial/fluvial systems during relative sea-level lowstands. The tripolitic chert of the Devonian 31 has abundant microporosity, which leads to high calculated water saturations, but inter-granular pores are the effective pore network in these reservoirs that produced with very low water cuts. An integrated subsurface characterization of these reservoirs helped the team de-risk the recompletion campaign and better assess the remaining potential in this interval.

BIOGRAPHY

Evan Jones is a Geoscience Team Lead on the Oxy Midland Basin Subsurface Characterization Team, and has worked for Oxy for 8 years. He holds a BS in Geological Engineering from UCLA and a PhD in Geology from Colorado School of Mines.

Canyon Limestone – Porosity Distribution

