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Geophysics Cracks the Piceance Basin

The Piceance Basin of northwestern Colorado has proven to be one of the most prolific basin-centered gas plays in the Rocky Mountains, with original gas in place exceeding 100 BCF per 640-acre section over much of the productive area. Gas resides primarily in the tight, discontinuous, lenticular fluvial sands of the Williams Fork formation, which formed a gas-charged column that often exceeds 2000' in height. With wells being downspaced to as little as 10-acre spacing, geophysics has proved critical to the optimal development of these multi-TCF gas fields. In addition to the usual electric log suites, geophysical techniques include: 3-D seismic, real-time microseismicity studies during hydraulic fracturing operations, dipole sonic logs, formation micro-imager logs, in-situ formation pressure tools, geostatistical reservoir modeling using the seismic and electric logs, and, on an experimental basis, time-lapse monitoring of compression-wave and shear-wave responses during reservoir depletion. Geophysics will continue to play a critical role in future well placement and borehole stimulation decisions.