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***“Paleostructural control of hydrocarbon production from the Cretaceous Niobrara in a part of the Denver-Julesburg Basin of Colorado and Wyoming”***

**Abstract**

Horizontal drilling and fracture stimulation of the Niobrara Formation chinks within the last decade have resulted in a widespread resource play in the Denver-Julesburg (DJ) Basin where over 50,000 vertical wells had already penetrated the Niobrara. The first fracture-stimulated horizontal Niobrara well in the DJ Basin was drilled in 2005. By the end of 2015, over 2000 horizontal wells had been drilled targeting the Niobrara and these new wells have made over 120 MMBO and nearly 500 BCF. Thickness changes correlate with the varying success of hydrocarbon production from the Niobrara in a part of the DJ Basin of Colorado. In the study area, the Niobrara comprises four chinks with interbedded marlstones; from top to bottom the A, B, and C chinks, and the Fort Hays Limestone. The Niobrara B chalk is the primary target for horizontal drilling; both the A and C chalk are secondary targets. The Niobrara Formation is self-sourcing and the hydrocarbons in the study area are not thought to have migrated. Within the study area, productivity in the Niobrara may be directly related to thermal maturity. Regionally thinner Niobrara trends are more likely to contain more productive wells than where thicker Niobrara is present. Thin intervals also coincide with higher resistivity values in the Niobrara B chalk and higher bottom hole temperatures. Temperatures were likely elevated in these locations in the past which led to increased organic maturity. Reservoir porosity and permeability may be enhanced along thin trends where shallow water currents winnowed sediments. Mapping the interplay of thickness, resistivity, and temperature of the Niobrara Formation can greatly improve the success rate of drilling in this play.

**Our Presenter**

***Tom Sperr***



Tom grew up in the Amish country of Ohio and attended the University of Akron (GO ZIPS) majoring in both history and geology. He did his graduate studies in geology at the University of Wyoming (GO POKES) and completed his MBA at University of Denver (GO DU). He had the great, good fortune to marry another geologist, Libby Sperr, and they have two adult children, neither of which became geologists. Tom has worked with, and for a number of great companies and people here in Denver, and is currently employed by Robert L. Bayless, LLC. His outside interests are travel, hiking, skiing, music, and wine; not necessarily in that order.