Betting on the Turtle – A Slow and Steady Experiment to Test What Targets Should Co-Develop with the Uteland Butte

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Abstract

The Uteland Butte is the established backbone of horizontal development in the Uinta Basin, but with so many potential targets above and below the Uteland Butte the question arises; should any additional targets be co-developed? To answer this question a holistic approach was taken to characterize the fracture dimensions in the Uteland Butte. Several experiments were conducted using fiber, fracture modeling, geochemistry, and production interference tests to resolve the question. The trial pad contained four wells with two wells landed in the primary Uteland Butte target and one each in the upper and lower most Uteland Butte targets. Fiber was run on one of the primary target Uteland Butte wells and the upper most Uteland Butte well, detailing fracture growth response from all directions. Several fracture models were run independently on all four wells to compare with the fiber results. Between the fiber and fracture models, maximum and minimum fracture lengths of 50 feet to 1,300 feet were derived. Using geochemistry analysis through oil fingerprinting on this pad and several others the similarity or dissimilarity of the landing target oils could be studied. The geochemistry results show the produced oils localized to the primary Uteland Butte target, while the upper targets show a different oil source, and the lower targets show some potential mixing between the Uteland Butte and Wasatch. Additionally, multiple production interference tests were performed between the Uteland Butte and Wasatch targets by shutting-in the lower producing target and monitoring pressure and production responses. Weak to no interference between the landing zones was observed. Examining all the data suggests that the Uteland Butte fracs stay relatively well contained and therefore co-development with additional targets above or below is likely not necessary when optimizing for oil recovery in the stacked play development. Furthermore, this finding demonstrates independence between the upper and lower targets from one another enabling slower, more optimized future development.