

The Basin That Keeps on Giving: Overview and Updates on Utah's Uinta Basin Crude Oil Play

Michael D. Vanden Berg¹, Josh Sigler², Riley Brinkerhoff³, and Ryan Gall¹

¹Utah Geological Survey

²XCL Resources

³Wasatch Energy Management

Abstract

The Uinta Basin in northeastern Utah has been oil and gas productive for over 70 years, riding the ebbs and flows of commodity prices. However, 2022 marked a historic year for the basin with production of crude oil at an all-time high and a long-awaited rebound in natural gas production. Oil production in the basin averaged 110,200 barrels per day in 2022 (with an average monthly high of 126,300 barrels per day in October 2022), 22% higher than the previous record set in 2014. This significant increase in production was made possible by strong post-covid demand, high commodity prices, increased productivity from long-reach horizontal wells, increased frac size and intensity, and the increased ability to ship train loads of Uinta Wax to the Gulf Coast. Currently (April 2023), about 200 extended reach lateral wells (~10,000 ft) are producing oil in the Uinta Basin, with 145 additional wells in the drilling/completion process, about 330 permitted wells, and about 100 new wells waiting for permit approval. Many of the recent horizontal wells routinely exceed oil rates of 2500 barrels per day, and single well EURs show values as high as 1 to 1.5 million barrels. Recently, operators have progressed to drilling and stimulating multiple wells within a “cube” configuration, where one cube can produce over 10,000 barrels of oil per day from 8+ wells stacked in different horizons. The Uinta Basin contains a massive stack of world-class drilling targets; the Uteland Butte member of the lacustrine Green River Fm. is the most prolific horizontal production target, followed closely by the uppermost Wasatch Fm. Additionally, operators have increased their activity in secondary benches including the overlying Castle Peak, Black Shale, and Douglas Creek, as well as deeper reservoirs of the Wasatch. The previously recognized basin “sweet spot” was thought to cover about seven townships in central Duchesne Co. and western Uintah Co., within the area of overpressure, but operators have pushed the boundaries of the development fairway farther south and north with successful wells in lower pressured areas. The success of the Uinta Basin is clear, but challenges still exist that will require innovative solutions to enable the basin to reach its full potential. Transportation bottlenecks are still a problem as all oil needs to be trucked out of the basin to refineries in Salt Lake City or train loadouts in Price/Helper. A possible Uinta Basin Railway could help mitigate transportation problems and provide a path for doubling or even tripling basin production. Associated gas takeaway is also a limiting factor for oil production as Duchesne Co. currently lacks adequate gas infrastructure. Produced water management will also continue to be a challenge for operators. Despite these challenges, new technology, brilliant and innovative geologists and engineers, and new transportation options have all made the Uinta Basin the new “it” play in the United States.