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Do Ya Think I'm Waxy? – How Much Further Can Uinta Waxy Crude Production Increase?

AI-Based Analysis Suggests the Northeast Utah Region Has Staying Power



- Uinta waxy crude has many positive qualities, including 'sweet-spot' API gravity and low sulfur content
- But waxy crude is a semi-solid at ambient temperatures; it needs heated storage, special tanker trucks and railcars
- Salt Lake City refineries can only take so much waxy crude; the rest needs to be railed away
- Despite the many challenges, Uinta production has been soaring, spurring development of new infrastructure
- The key questions now are, how much more can Uinta production increase and how long will the resource last?

1. Introduction

In just a few years, the Uinta Basin in northeastern Utah has been transformed from a quirky, waxy-crude curiosity with only modest production to a burgeoning unconventional play with output north of 180 Mb/d and initial production (IP) rates that compare favorably with the best wells in the Permian. But while Uinta producers have “cracked the code” for producing increasing volumes of waxy crude from horizontal drilling and hydraulic fracturing, there are serious questions about how much further the basin’s output can grow and how long large production volumes can be sustained.

For one thing, while the Uinta’s two types of waxy crude (black and yellow) have a number of very favorable characteristics — medium-to-high API gravity, very low sulfur and acid content, and ideal for making high-value lubricants — waxy crude’s semi-solid state at ambient temperatures presents a host of logistical challenges.

When it emerges from wells, it needs to be stored in heated tanks. To be transported to market, waxy crude needs to be loaded in insulated tanker trucks (often double-tankers) and driven either to one of the five

refineries in the Salt Lake City area or to one of two rail terminals southwest of the basin for long-haul shipment in special insulated and coiled railcars. At refineries, waxy crude again is stored in heated tanks and moved within heat-traced pipes to prevent it from solidifying and literally gumming up the works.

Another challenge is that only a limited number of refineries have the heated storage and other equipment required to receive, store and process waxy crude. As a group, the five refineries in Salt Lake City can take a total of 70-90 Mb/d — just under half of current production. Most of the rest is railed to Gulf Coast terminals such as Plains St. James in Louisiana and Jefferson Beaumont in Texas that have connectivity to large refineries owned by ExxonMobil, Motiva, Shell, Marathon Petroleum and Valero Energy.

Also, a few times a month, unit trains of yellow waxy crude are railed from the truck-to-rail terminals south of the Uinta Basin to Plains All American's Stroud Terminal near the crude oil hub in Cushing, OK. The reheated crude is offloaded onto tanker trucks that are then driven to Plains' Cushing storage terminal, a distance of about 23 miles. There, Plains and its partners have figured out how to successfully blend yellow wax crude with light sweet oil to create a compliant Domestic Sweet (DSW), the crude quality deliverable on the CME/NYMEX futures contract usually referenced as WTI.

Over the past couple of years, fast-rising Uinta production has been bumping up against the ability of transportation and refinery infrastructure to handle the stuff. Several investments have been — and are being — made to support further production growth. For example, Williams Cos. has completed a gas pipeline project within the Uinta to transport some of the incremental associated gas being produced to a nearby gas processing plant, and Kinder Morgan is working on a gas pipeline project of its own.

Also, the owner of the 30-Mb/d Wildcat rail terminal in Helper, UT, earlier this summer secured Bureau of Land Management (BLM) approval to undertake a 70-Mb/d expansion and thereby enable more waxy crude to be railed out. (The other terminal, Price River in nearby Wellington, can handle up to 75 Mb/d.) And In January, a unit of Savage Co. said it plans to develop a new rail terminal near Price River, though no timetable or capacity for the project was revealed.

An even bigger project is in the works: A public/private partnership of the Seven County Infrastructure Coalition (the public partner) and DHIP Group (private investment partner) are seeking to advance the Uinta Basin Railway, a proposed 88-mile, short-line railroad in northeastern Utah whose primary purpose would be to transport at least two 110-car unit trains of waxy crude a day from the epicenter of Uinta production to interconnections with two long-haul rail lines.

The railway project's prospects are uncertain, however, in part because producers, shippers and others have been wary of making long-term commitments for capacity. And part of that uncertainty stems from questions about the long-term prospects of the waxy crude resource itself.

To put it simply, Uinta producers want to ramp up production, midstreamers want to add capacity for railing (and blending) increasing volumes, and at least some refiners are open to adding equipment that would enable them to process more waxy crude. But before pulling the trigger on big new midstream and downstream investments, companies want to gain a higher level of confidence that Uinta production can continue rising — and that those higher output levels can be sustained for years to come.

With the aim of addressing those concerns about the Uinta's long-term staying power, our friends at Novi Labs developed a data-based, machine-learning-enhanced analysis of the Uinta's all-important Uteland Butte and (Upper and Lower) Castle Peak benches' prospects to determine how much waxy crude is likely to be produced under various price scenarios. As we discuss in detail in this Drill Down Report, Novi's data and analysis suggest that the Uinta is likely to remain a hot spot for drilling and has many highly productive years ahead of it.

The Drill Down Report also provides a short history of Uinta Basin production, more information about waxy crude's characteristics, and a summary of other recent — and notable — developments.

This RBN Energy Drill-Down Report is available for individual purchase or as part of RBN's Backstage Pass premium content service at rbnenergy.com.

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