

Algar Lake SAGD Well Planning

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GeoConvention 2012: Vision

Grizzly Oil Sands, an independent private energy company has been active in finding and developing oil sands assets since 2006. Currently Grizzly has over 800,000 acres of long term oil sands leases in Athabasca and Peace River regions.

Grizzly's first SAGD project is Algar Lake, located off Highway 63 approximately 60 kilometers southwest of Fort McMurray. The project is 10 kilometers northwest of the JACOS Hangingstone SAGD project and 15 kilometers from the 35,000 bbls/d JACOS Hangingstone Expansion Project which is in the regulatory review stage. The Algar Lake Application for the first two phases of SAGD development was approved in November, 2011, allowing Grizzly to proceed with project execution capable of up to 11,300 bbls/d of production. First steam is expected to commence early in 2013.

As of March, 2011 Grizzly had drilled 65 cored delineation wells, recorded 21 square kilometers of 3D seismic and 27 kilometers of 2D seismic in the Algar Lake Project Area. Grizzly estimates 162 well pairs will be required to recover the 114 million barrels of proven and probable reserves. The initial development area is 4 sections in size located in township 85, range 12W4M. The first plant core will be installed along with one pad of 10 horizontal well pairs. Grizzly expects the first stage to provide 5,000 to 6,000 bbls/d of long term bitumen production.

The Algar Lake reservoir is the Lower Cretaceous McMurray Formation. Bitumen pay up to 22 meters thick occurs at a depth of 230 to 240 meters below surface. The reservoir sand, designated the McMurray C, was deposited in a sand-rich channel system. Average porosity of pay is 33% with corresponding vertical permeabilities that range from 500 to 4000 millidarcies. Average oil saturation, based on Dean Stark bulk mass oil, is 80%.

The base of the reservoir directly overlies the Devonian subcrop. Significant attention has been undertaken on planning the horizontal trajectories to optimize producer well performance and recovery. The reservoir underlies a modern stream valley, Little Horse Creek. The valley presents a surface restriction that has limited Grizzly's ability to gather subsurface information in this central area. For example, OSE core hole drilling in the valley was not possible and it was necessary to use hand drills for those seismic shot holes placed in the valley during the acquisition of the 3D survey. Because of these limitations, uncertainty analysis on the 3D seismic velocity field and bed boundary measurements while drilling had to be taken into account in developing a decision process for setting intermediate casing points and trajectories on the 800 meter horizontal producers. A review of that study and a comparison to preliminary drilling results will be presented.

Algar Lake 3D Seismic Processing Paleozoic Depth Difference Map

