

## **West Athabasca Grand Rapids Bitumen Deposit - A New SAGD Play**

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The majority of SAGD development to date has been concentrated in the McMurray Formation in the Eastern Athabasca fairway. More recently operators have identified projects with considerable resource located in shoreface sands of the Grand Rapids Formation in the Wabasca area. This presentation will discuss the reservoir characterization determined from wireline log and core data, that when integrated with 3D seismic, provides understandings key to horizontal well placement and SAGD development of the Grand Rapids bitumen resource.

The Grand Rapids Formation comprises the upper part of the regressive Upper Manville Group and consists of multiple thick sandstones hosting 54.5 billion barrels of bitumen in place. The uppermost Grand Rapids sand is the largest of the three identified deposits with 33.2 billion barrels in place. Much of the bitumen resource is underlain by a thin basal water leg of varying thickness.

The complex estuarine depositional environment in which the McMurray sands were deposited resulted in heterogeneous and complex reservoirs. In contrast, the upper Grand Rapids sand is interpreted to have been deposited in a regional marine shoreface setting. Its unique features - broad deposition, clean sand with homogeneous and continuous reservoir pay - increase the predictability and consistency of the reservoir.

Laricina Energy Ltd. (Laricina) holds a total of 63 sections in the deposit with an estimated 2.5 billion barrels of bitumen in place. Laricina has filed applications for regulatory approval of a commercial demonstration project capable of producing 5000 barrels per day utilizing a variant of SAGD technology which is based on steam and solvents.

In conventional SAGD reservoirs, the horizontal production and injection well pairs are typically placed within the bitumen zone. However, based on laboratory and new simulation studies, Laricina has determined that bitumen recovery in a reservoir with thin associated basal water can be maximized by placing the producer at the base of porosity within the basal water zone.

Key to the effective placement of horizontal SAGD wells is clearly identifying the porosity base, the bitumen-water contact and any impedance to vertical permeability. 3D characterization assists in resolving these attributes.