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The next SWEET

by Deborah Jaremko



The Grand Rapids formation, another part of Alberta's oilsands layer cake, could offer operators a new zone for production sweet spots.

A new play for steam assisted gravity drainage (SAGD) is emerging in the southwestern region of the Athabasca oilsands deposit. The target is the Grand Rapids formation in an area where it has never been commercially tapped before, and the prize is an estimated 55 billion barrels of oil in place—tempting producers such as the SAGD gurus at Cenovus Energy. Cenovus recently announced plans for its Grand Rapids SAGD pilot, joining a number of other companies in their quest to free bitumen from what one of the juniors calls a “simple” reservoir in an area with established infrastructure.

“We’re really happy with this reservoir at Laricina [Energy],” senior staff geologist Marnie Connelly told an audience at the Canadian Society of Petroleum Geologists annual convention this May. “It’s much more predictable to produce a resource like this.”

It is predictable primarily because of the bitumen’s depositional environment. In the more established SAGD plays closer to Fort McMurray, Alberta, producers target the McMurray or Wabiskaw-McMurray reservoir. In that case, the bitumen is laid down in meandering channels, challenging geological explorers to find the best place in which to drill their wells outside of the so-called “sweet spots.” In the southwestern Athabasca Grand Rapids play, the bitumen is deposited in a way resembling a beach or blanket sand, albeit of shifting quality.

“While the reservoir is prevalent over larger areas, bitumen saturation is variable, with pockets of high saturation and other areas with lower saturation,” write Macquarie research analysts, adding that the Grand Rapids still represents a solid SAGD production target. “While bitumen saturation may be slightly lower than the best areas of the McMurray, the vertical permeability is high relative to the horizontal

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In situ producers expand to the Grand Rapids formation, a yet-untapped play for SAGD that promises simplicity and predictability

permeability. This is a strong, positive indicator for the ability of steam chambers to grow upwards in a SAGD application, thus delivering favourable [steam to oil ratios].”

Macquarie also notes that the bitumen resources in the West Athabasca Grand Rapids play “are essentially equivalent in age as the Clearwater and Lower Grand Rapids formations in the Cold Lake region, which have been actively developed by operators such as Imperial Oil and Canadian Natural for decades.”

At least four producers now want to bring the long-life application of in situ oilsands technology to southwestern Athabasca, a region that has been supporting enhanced bitumen recovery operations from the Wabiskaw formation for many years—projects both known as Pelican to operators Cenovus Energy and Canadian Natural Resources.

Laricina Energy, project: Germain

As construction continues on Laricina Energy’s Saleski SAGD demonstration in the Grosmont carbonates (which Connelly calls an “exotic reservoir” in comparison to the Grand Rapids), its Germain SAGD project for the Grand Rapids winds its way through the regulatory process. Laricina received approval for a 1,800-barrel-per-day pilot at Germain last October but opted to resubmit an amended application for 5,000 barrels per day and the addition of solvents. The company expects to receive its approvals toward the end of this year, targeting a late 2012 start-up for steam injection.

BlackPearl Resources, project: Blackrod

Under the guidance of president John Festival (former president of BlackRock Ventures, which was purchased by Shell for \$2.4 billion in 2006), BlackPearl Resources plans on constructing a single well SAGD pilot in the Grand Rapids at West Athabasca later this

year. The company has announced it could expand the project to 10,000 barrels per day.

Paramount Resources, project: Hoole

Paramount Resources, which currently does not operate any thermal oilsands projects, recently announced the potential for SAGD development on its lands at Hoole, in the southwestern Athabasca region. Independent evaluation of the company’s Hoole resources in the Grand Rapids formation say a project could support a best estimate of 70,000 barrels per day when fully developed. Paramount says that it plans to submit an application for the commercial development at Hoole in 2011.

Cenovus Energy, project: Grand Rapids

Established SAGD operator has announced the addition of a southwestern Athabasca Grand Rapids project to its long list of planned in situ bitumen production growth. The project, called simply Grand Rapids, is planned in three commercial phases that could eventually produce 180,000 barrels per day. The first commercial phase of 60,000 barrels per day has a planned production start of 2017. Regulatory applications for all three phases are planned for the fourth quarter of 2011.

In the meantime, Cenovus targets operation of a supporting SAGD pilot in the region this fall. The company is still awaiting final approval from Alberta Environment for the small installation, but spokesman Reg Curren says that because the pilot would be built on its existing Pelican leases, no issues are anticipated.

Grand Rapids: why now?

The reports of southwestern Athabasca Grand Rapids potential paint a picture of simple, predictable, and ample production. Which begs the question—why has this resource not been targeted before? Laricina

Formation juxtaposition: GRAND RAPIDS V. MCMURRAY

GRAND RAPIDS

10–25 metre bitumen thickness
34 per cent porosity
65–75 per cent bitumen saturation
10–14 wt per cent bitumen
1–5 darcy permeability
Large areal extent
Predictable distribution of porosity and bitumen thickness

MCMURRAY

10–40 metre bitumen thickness
32 per cent porosity
70–85 per cent bitumen saturation
10–14 wt per cent bitumen
3–7 darcy permeability
Stacked fluvial channels
Prevalent vertical flow baffles

Laricina Energy says the Grand Rapids formation has comparable geological properties to the significantly more developed McMurray formation, and it would also expect comparable SAGD performance. One of the strengths of the Grand Rapids is its areal extent and predictability, which Laricina says lends it well to efficient development.

SOURCE: LARICINA ENERGY

Energy president and chief executive officer Glen Schmidt says it is just the natural progression of production of the resource. First, companies went after the vast sweet spots of the bitumen-saturated channels in the deposit’s northeast.

“As the McMurray gets developed, [companies are] moving into much more complex reservoirs,” says Schmidt. “It becomes more difficult.”

While there is still huge potential in those regions, some producers are taking advantage of the opportunity to move out to the sweet spots in another layer of the oilsands cake, the Grand Rapids, which Macquarie calls “the next sandbox.” **OSR**