The AB Basin Bakken Resource Play of NW Montana: Same Formation, Different Geology*

William B. Hansen¹

Search and Discovery Article #10418 (2012)**
Posted July 2, 2012

*Adapted from poster presentation at AAPG Annual Convention and Exhibition, Long Beach, California, April 22-25, 2012
**AAPG©2012 Serial rights given by author. For all other rights contact author directly.

¹Jireh Geological Associates, Great Falls, MT (wbhansen@mcn.net)

Abstract

Five hundred miles west of the Williston Basin, a new Bakken horizontal play is quietly emerging on the Blackfeet Indian Reservation, where the Alberta Basin extends into the United States. Newfield, Rosetta, and Anschutz are leading the way in this play, with each company having drilled 10-15 wells in Glacier County, Montana over the last two years. This is more drilling than has been seen on the Blackfeet Nation than in the previous 40 years. Despite this dramatic increase in activity, most of the townships on this large reservation remain untested. Two rigs were drilling in Glacier County as of the fall of 2011 under contracts to Rosetta and Anschutz. Newfield was conducting frac’ing and completion operations on several wells that were drilled the previous winter. Due to highly competitive leasing activity, very few completions have been announced, except for general statements about “encouraging results”. However, some information has been released by the publicly traded companies during their quarterly earnings conference calls.

Although the AB Basin Bakken contains the same three-part lithology as in the Williston, geologic conditions are different enough that a new learning curve is required. The Bakken Formation is shallower, but apparently mature and overpressured, especially where the Alberta Basin axis nudges up against the thrust belt to the west. Unlike the Williston Basin, there is a thick salt section in northwest Montana directly below the underlying Three Forks Formation, which has created problems with horizontal frac’ing attempts for some operators. Productivity in the future may be enhanced by utilizing a pervasive regional fracture system, which runs roughly east-west through the area.
THE AB BASIN BAKKEN RESOURCE PLAY OF NW MT: SAME FORMATION, DIFFERENT GEOLOGY

William B. Hansen, Consulting Geologist, Jirch Consulting Services, Great Falls, Montana

Sedimentary overburden on Bakken-Exshaw and equivalents at close of Cretaceous. Dashed lines are isopachs of Bakken-Exshaw shale.

350 Miles!!!

There are areal differences in Bakken reservoired thickness between the productivity fields of Richland County, and the Bakken fields in central and southeastern North Dakota.


AB BASIN BAKKEN/EXSHAW RESOURCE ESTIMATES
Rosetta Resources (2010): 13-15 MBOE/eq mile
Wood McKenzie (2011): 2.6 Billion Barrels, AB/MT

MAJOR DRILLING RESULTS TO DATE

<table>
<thead>
<tr>
<th>Field</th>
<th>Skull Depth</th>
<th>Skull Completion</th>
<th>Date</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosetta</td>
<td>0</td>
<td>10</td>
<td>6</td>
<td>2370 BO, 2798 MCF, 1567 BW - Dec. 2011 (Bakken) Producing</td>
</tr>
<tr>
<td>Newfield</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1354 BO, 1942 MCF, 2475 BW - Dec. 2010 (Niobrara) Shut-in</td>
</tr>
<tr>
<td>Anshutz</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>2907 BO, 1284 MCF, 1431 BW - Dec. 2011 (Conc) Producing</td>
</tr>
<tr>
<td>Primary</td>
<td>6</td>
<td></td>
<td></td>
<td>Under evaluation with partner</td>
</tr>
</tbody>
</table>

REFERENCES

