

Production control in the Dunvegan Formation, west-central Alberta

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The Dunvegan Formation is a deltaic sequence deposited in the Lower Cretaceous of west-central Alberta, bounded on the top by the Shaftesbury marine shale and on the bottom by the Kaskapau marine shale. The Hinton area is at the southeasternmost edge of the Dunvegan delta, so had relatively thin beds of sand. Despite this, the Dunvegan Formation produces very well in the Hinton area, with cumulative production of over 4 BCF gas in one well, and 5 BCF gas in another. The Findley area has good gas shows in the Dunvegan Formation, and the sands are thicker, but there is currently no

production in the area due to lack of pipeline infrastructure. If it is found that the Findley area could have the potential to produce, it may be an area of future development. The objective of this project is to determine what is controlling the production in the Dunvegan Formation in the Hinton and Findley areas; whether it be due to primary porosity or fracturing as the result of thrust faulting. Determining what is controlling the production will give information on areas that have higher or lower potential for production.

In order to achieve the objective of the project and to

pinpoint areas of exploration potential, both in the Hinton and Findley areas, the following steps were taken. The first step was to create a series of cross-sections in the Findley and Hinton areas to obtain an idea of which sands are producing and see whether the sands can be correlated over a large area. Contour maps of the stratigraphic and structural thicknesses of the sands of interest in both areas were done to show their regional distribution. The location of the producing wells was compared to the location of the thrust faults

that cut through the area to see if there is a possible relationship between production and fracturing resulting from the faulting. It was found that the producing wells are in close proximity to the thrust faults. From this it was determined that production in the Hinton area is likely due to fracturing, and therefore areas of interest in the Findley area would be to the west of the thrust faults where the sands are repeated and fractured.