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## Manitoba Oil Facts

### Did You Know That .....

- Manitoba has two potential areas for oil and gas production, southwest Manitoba and the Hudson Bay lowlands.
- Oil was discovered in Manitoba in, and has been produced since 1951.
- Manitoba's current oil production is located in southwest Manitoba along the northeastern flank of the Williston Basin, a sedimentary basin that also occupies portions of southern Saskatchewan, North Dakota, South Dakota and Montana.
- Potential hydrocarbon bearing-formations in southwest Manitoba occur to depths of up to 2 300 metres (7,500 feet).
- The majority of the approximately 6,300 wells drilled in Manitoba have only been drilled to Mississippian formations; this represents approximately one half of the potential hydrocarbon bearing formations.
- Production in 2007 was 1,247,192.9 m<sup>3</sup> – 7,848,135 Barrels. The month of March 2007 had the highest production on record – 113,949 m<sup>3</sup> (717,111 Bbls) or 23,133 Bbls per day. Total production to the end of 2007 was 40.2 million m<sup>3</sup> (253.0 million barrels).
- There is over 73 kilometers of core from wells drilled in Manitoba available for examination.
- All pre-1980 oil production originated from Mississippian Lodgepole and Mission Canyon formations at depths that range from 600 to 1 050 metres (2,000 to 3,500 feet) during 2007. These formations accounted for approximately 34% of Manitoba's production.
- Oil was discovered in 1980 above the Mississippian in the Jurassic Amaranth Formation. Approximately 8.3% of Manitoba's 2007 production originates from the Amaranth Formation in the Pierson-Waskada area.
- In 1985 oil was discovered in the Mississippian Bakken Formation in the Daly area. Production from the Bakken makes up 2.5% of the provincial total.
- In 1993, oil was discovered in the Jurassic Melita Formation in the St. Lazare area.
- In 2001, oil was discovered in the Devonian Three Forks Formation in the Daly Field, marking Manitoba's first pre Mississippian Production. In 2007, it accounted for 49% of Manitoba's oil production.
- Manitoba oil fields have produced a total of 40,228,351 m<sup>3</sup> (253,167,722 Bbls) of oil. The Virden field has produced 58.6% of this total.

- The oldest producing well drilled in Manitoba is Daly Unit #3 Prov. 7-12-10-26 which has produced since July 1951. Manitoba's most productive well is 2-21-11-26W1 in North Virden Scallion Unit No. 1 which has produced 1.89 million barrels of oil since June 1955.
- Manitoba's oil is of good quality, and in 2007 the average selling price for light sour blend crude was \$464.34 per cubic metre (\$73.79 CDN per barrel). The estimated value of oil sold in 2007 was approximately \$580 million.
- As of December 2007, there are approximately 2,576 producing oil wells in Manitoba, 246 of which were put on production during 2006.
- In December 2007, average production rate for horizontal wells in the province is 2.77 m<sup>3</sup> per day (17 barrels per day), compared to an average production rate of 1.16 m<sup>3</sup> per day (7.3 barrels per day) for vertical wells. During 2007, horizontal wells accounted for 30% of the province's total production.
- Currently there are 14 designated oil fields and 204 oil pools in southwest Manitoba.
- Manitoba's crude oil production is equivalent to approximately 25% of the province's refined petroleum products requirements.
- Approximately 8.2 million m<sup>3</sup> (51.4 million barrels) of salt water were produced in 2006, that's 10.06 m<sup>3</sup> of salt water for every 1 m<sup>3</sup> of crude oil produced. Salt water must be separated from the oil and re-injected into subsurface formations.
- Approximately 400 wells are used for purposes other than production, such as disposal of produced water.
- The current cost to drill and complete a well in Manitoba ranges from \$325,000 to \$1.2 Million depending primarily on depth.
- 324 new wells were drilled in Manitoba during 2007 including 58 horizontal wells; of these 300 (93%) were cased as potential oil producers.
- Only 10 to 15% of the oil discovered in Manitoba is recoverable under natural depletion. Recovery may be increased to over 30% by water flooding.
- In 2007, approximately 56% of the producing wells are in waterflood projects and presently account for approximately 28% of the oil produced.
- As of December 31, 2003, the remaining established oil reserves were estimated to be 4.3 million m<sup>3</sup> (27.2 million barrels).
- Approximately 80% of the oil and gas rights are owned by private individuals or companies (freehold), the remaining 20% are owned by the Crown in the right of Manitoba.
- With a geothermal gradient of 1.3°C/m in the Virden area, thermally mature oil and gas can be generated in the rocks as shallow as a depth of 335 m. This means the Cretaceous shales in Manitoba are excellent candidates for shallow gas exploration in most of the extreme southwest corner of Manitoba.
- Royalties payable to private oil and gas rights owners were estimated at \$62 million in 2006.
- Total oil industry expenditures in Manitoba in 2006 were approximately \$380 million.