

## Updated Isopach Map of the Patience Lake Member of the Devonian Prairie Evaporite in Saskatchewan

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This map was produced based on public data from nearly 2000 wells, using geophysical well logs and available assay reports obtained from the Saskatchewan Ministry of Energy and Resources, Information Management Branch, Well Data Unit. The contours were generated using a kriging interpolation algorithm in Golden Software Inc.'s Surfer® Version 12.0, therefore areas with a geological anomaly may not be accurately portrayed.

The thickness values for the isopach maps were updated from Yang and Love (2015) and Yang *et al.* (2009a, 2009b), adding data from about 500 off-confidential wells. The thickness data are available in Excel® format in Saskatchewan Geological Survey Data File 44 (Yang and Schuurmans, 2018). The cutoff values for mapping carnallite occurrence were set at a minimum grade of 6% carnallite and a minimum thickness of 1 m, based on assay data. Geophysical well logs were used to estimate carnallite content when assay reports were not available (Yang and Chi, 2013). Isopachs of the carnallite-bearing beds for the Patience Lake Member can be found on Map 4 of this series.

### References:

Yang, C. and Chi, G. (2013): Quantitative evaluation of potash grade and mineralogy based on geophysical well-log analysis: preliminary study of the Prairie Evaporite in Saskatchewan; in Summary of Investigations 2013, Volume 1, Saskatchewan Geological Survey, Saskatchewan Ministry of the Economy, Miscellaneous Report 2013-4.1, Paper A-1, 10p. URL-<[http://publications.gov.sk.ca/documents/310/91925-SOI2013V1\\_A1\\_Yang\\_Chi.pdf](http://publications.gov.sk.ca/documents/310/91925-SOI2013V1_A1_Yang_Chi.pdf)>.

Yang, C. and Love, M. (2015): Potash-rich members of the Devonian Prairie Evaporite in Saskatchewan: isopachs, carnallite contours, and K2O grade; Saskatchewan Ministry of the Economy, Saskatchewan Geological Survey, Open File 2015-2, set of 3 maps, URL-<<http://publications.gov.sk.ca/details.cfm?p=79910>>.

Yang, C., Jensen, G. and Berenyi, J. (2009a): The stratigraphic framework of the potash-rich members of the Middle Devonian upper Prairie Evaporite Formation, Saskatchewan; in Summary of Investigations 2009, Volume 1, Saskatchewan Geological Survey, Saskatchewan Ministry of Energy and Resources, Miscellaneous Report 2009-4.1, Paper A-4, 28p. URL-<[http://publications.gov.sk.ca/documents/310/37394-SOI2009V1\\_A4.pdf](http://publications.gov.sk.ca/documents/310/37394-SOI2009V1_A4.pdf)>.

Yang, C., Jensen, G.K.S. and Berenyi, J. (2009b): Isopach and salt-back thickness maps of the Patience Lake, Esterhazy, and Belle Plaine members of the Prairie Evaporite Formation (isopach and formation tops data included); Saskatchewan Ministry of Energy and Resources, Open Files 2009-24 to -29. URL-<<http://economy.gov.sk.ca/Default.aspx?DN=639d87ec-1af8-4ebb-97e6-8cc0df4cc3da>>.

Although the authors have exercised all reasonable care in the compilation, interpretation and production of this map, it is not possible to ensure complete accuracy, and all persons who rely on the information contained herein do so at their own risk. The authors hereby do not take responsibility for the accuracy of the data. The Saskatchewan Ministry of Energy and Resources and the Government of Saskatchewan do not accept liability for any errors, omissions or inaccuracies that may be included in, or derived from, this map.

### This map may be referenced as:

Yang, C., Schuurmans, E. and Love, M. (2018): Updated isopach map of the Patience Lake Member of the Devonian Prairie Evaporite in Saskatchewan; Saskatchewan Ministry of Energy and Resources, Saskatchewan Geological Survey, Open File 2018-1, Map 1 of 6.

### This map accompanies the following publications:

Yang, C. and Schuurmans, E. (2018): Thickness of potash-rich members of the Devonian Prairie Evaporite in Saskatchewan: updated database; Saskatchewan Ministry of Energy and Resources, Saskatchewan Geological Survey, Data File 44.

Yang, C., Schuurmans, E. and Love, M. (2018): Updated isopach map of the Belle Plaine Member of the Devonian Prairie Evaporite in Saskatchewan; Saskatchewan Ministry of Energy and Resources, Saskatchewan Geological Survey, Open File 2018-1, Map 2 of 6.

Yang, C., Schuurmans, E. and Love, M. (2018): Updated isopach map of the Esterhazy Member of the Devonian Prairie Evaporite in Saskatchewan; Saskatchewan Ministry of Energy and Resources, Saskatchewan Geological Survey, Open File 2018-1, Map 3 of 6.

Yang, C., Schuurmans, E. and Love, M. (2018): Isopach map of carnallite-bearing beds of the Patience Lake Member of the Devonian Prairie Evaporite in Saskatchewan; Saskatchewan Ministry of Energy and Resources, Saskatchewan Geological Survey, Open File 2018-1, Map 4 of 6.

Yang, C., Schuurmans, E. and Love, M. (2018): Isopach map of carnallite-bearing beds of the Belle Plaine Member of the Devonian Prairie Evaporite in Saskatchewan; Saskatchewan Ministry of Energy and Resources, Saskatchewan Geological Survey, Open File 2018-1, Map 5 of 6.

Yang, C., Schuurmans, E. and Love, M. (2018): Isopach map of carnallite-bearing beds of the Esterhazy Member of the Devonian Prairie Evaporite in Saskatchewan; Saskatchewan Ministry of Energy and Resources, Saskatchewan Geological Survey, Open File 2018-1, Map 6 of 6.

### This series may be referenced as:

Yang, C., Schuurmans, E. and Love, M. (2018): Updated isopach maps of the potash-rich members of the Devonian Prairie Evaporite in Saskatchewan; Saskatchewan Ministry of Energy and Resources, Saskatchewan Geological Survey, Open File 2018-1, set of 6 maps.

