K₂O Grades of the Esterhazy Member of the Prairie Formation
Kenmare 100K Sheet, North Dakota

This series of maps of the Kenmare 100K Sheet was based on public data from 74 wells gathered by the North Dakota Industrial Commission, Department of Mineral Resources, Oil & Gas Division. The Esterhazy Member was identified on the public data from 74 wells gathered by the North Dakota Industrial Commission, Department of Mineral Resources, Oil & Gas Division. The Esterhazy Member was identified on the well logs at the North Dakota Geological Survey, Open File Report 2007-1292, 14 p.

References:
Ned W. Kruger, 2019

The table and diagram below illustrate the distribution and thickness of the Esterhazy Member in the Kenmare 100K Sheet. The thickness values are based on gamma-ray log measurements corrected for borehole size and drilling mud weight. The gamma-ray signal was used to determine the maximum value of potash contamination at which the gamma-ray response declines to one-half its maximum value. This occurred most frequently in areas of the Esterhazy Member with a geological anomaly such as a fault or a fracture. The isopach contours generated from well-control data only, with minimal adjustments made by the author. Areas with a geological anomaly may not be accurately interpreted. The potash member thickness for each well and the isopach contours generated from them, were modified from Kruger (2014).

All calculations were based on gamma-ray log measurements corrected for borehole size and drilling mud weight. The corrected gamma-ray measurements were converted to apparent potassium oxide (K₂O) concentrations. Average K₂O concentrations and potash member thicknesses were obtained using the grade-thickness method described in Nelson (2007), modified from Kruger (2014). The corrected gamma-ray measurements were corrected for borehole size and drilling mud weight as well as removal of the baseline response from the gamma-ray signal. Corrections for borehole size and drilling mud weight as well as removal of the baseline response from the gamma-ray signal were made (Crain, 2014) (Crain & Anderson, 1966). The corrected gamma-ray measurements were converted to apparent potassium oxide (K₂O) concentrations. Average K₂O concentrations and potash member thicknesses were obtained using the grade-thickness method described in Nelson (2007), modified from Kruger (2014).

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The volume of potash from the Esterhazy Member represented by this sheet is approximately 3,400,000 acre feet.

Legend
Thickness (ft)

Symbols
- Well Control
d Avg K₂O% / Thickness (ft)

Other Features
- City
- State Highway
- Federal Highway

- Petroleum Unit
- Potash Member
- Mining Site
- Buffer Area
-一体 This sheet is approximately 3,400,000 acre feet. This occurred most frequently in areas of the Esterhazy Member with a geological anomaly such as a fault or a fracture. The isopach contours generated from well-control data only, with minimal adjustments made by the author. Areas with a geological anomaly may not be accurately interpreted. The potash member thickness for each well and the isopach contours generated from them, were modified from Kruger (2014).