This series of maps of the Mohall 100K Sheet was based on public data from 230 wells gathered by the North Dakota Industrial Commission – Department of Mineral Resources, Oil & Gas Division. The White Bear Member was identified on the geological logs of 18 wells. Log data were converted to FISTA (ver. 3.12) geophysical software. The contour lines were computer-generated based on well control data only, with minimal adjustments made by the author. Areas with geological anomaly may not be accurately portrayed. The potash member thickens for each well, and the isopachs contours generated from them, were modified from Kruger (2014).

All calculations were based on gamma-ray log measurements recorded in 1/4-inch intervals. Measurements throughout the potash-containing portion of the log. Corrections for borehole size and alpha-mu ratios as well as removal of the borehole gamma-ray signal were made (Erickson, 2014) (Erickson & Anderson, 1994). The corrected gamma-ray measurements were converted to the basis of an average potash grade. For each well, average potash concentrations and potash member thickness were determined using the gamma-ray signal method described in Nelson (2007), where bed thickness is equal to the distance between the elevations at which the gamma-ray log peaks exceed or fall below the maximum value.

When a potash member displayed multiple gamma-ray log peaks separated by troughs representing salt or interbeds such as clay or anhydrite, the potash intervals at the upper or lower boundaries of the member were not included in thickness or average-potash-grade calculations. If the corrected gamma-ray measurements were less than 60 API or separated by more than four feet from the main body of the potash member, this occurred most frequently in deposits of the White Bear Member, which may appear as one or two potash-rich beds underlying a thin salt-bearing interbed separated by an interval of halite.

The volume of potash from the White Bear Member as represented on this sheet is approximately 648,000 acre-feet.

References: