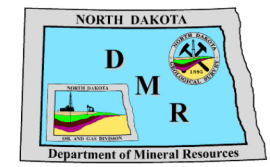


Offshore Glaciolacustrine Deposits of Glacial Lake Agassiz: The Brenna Formation in Cass County, North Dakota



Fred J. Anderson

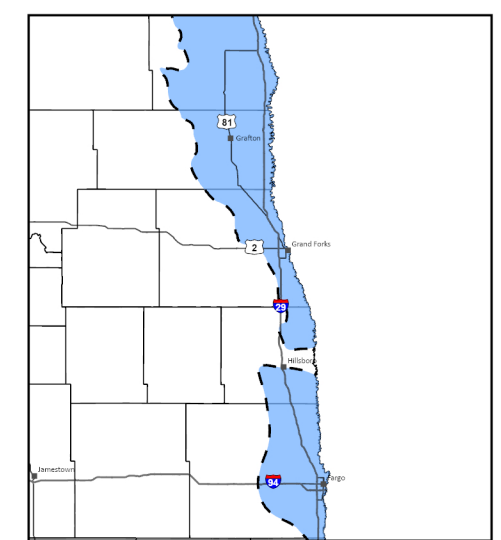
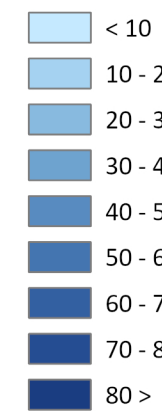
2023

BRENNA FORMATION ISOPACH

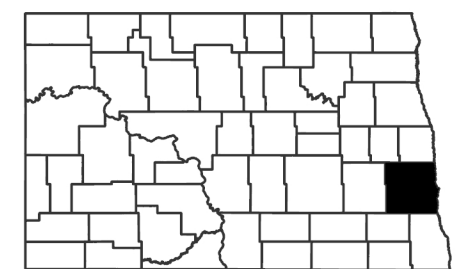
This map depicts the thickness of the offshore clay of the Brenna Formation in Cass County as colored isopach contour intervals modeled from test hole, water well, and deep-foundation drilling data. The Brenna Formation was only deposited in the eastern part of the county and covers an area of 839 square miles (2,173 km²). It is more laterally extensive southwest of Fargo and less extensive to the north. The Brenna Formation generally thickens from west to east and in areas underlying the Red River can be over 80 feet (24.4 m) thick.

The thickness of the Brenna Formation as depicted here also includes the soft offshore glaciolacustrine clay of the Argusville Formation which underlies the Brenna Formation in Cass County. The contact between these two units is difficult to distinguish from drilling records alone as additional sedimentological and engineering properties analysis is needed to differentiate the two. The Argusville Formation clays contain small amounts of sand and silt not found in the overlying Brenna Formation clay. From an engineering properties perspective however, these two units are similar and are modeled on this map as a single unit.

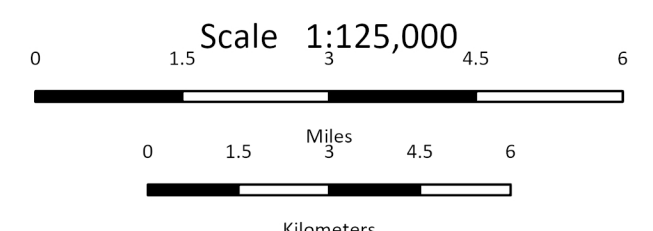
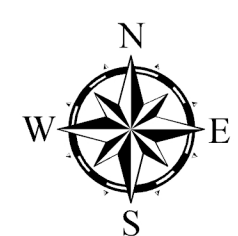
Brenna Formation Isopach Contour (feet)



Location and extent of the offshore lake clays of the Brenna Formation in the Red River Valley of North Dakota.



Cass County, North Dakota



Mercator Projection North American 1983 Datum
Standard Parallel 46°37'30"N Central Meridian 97°11'15"W

