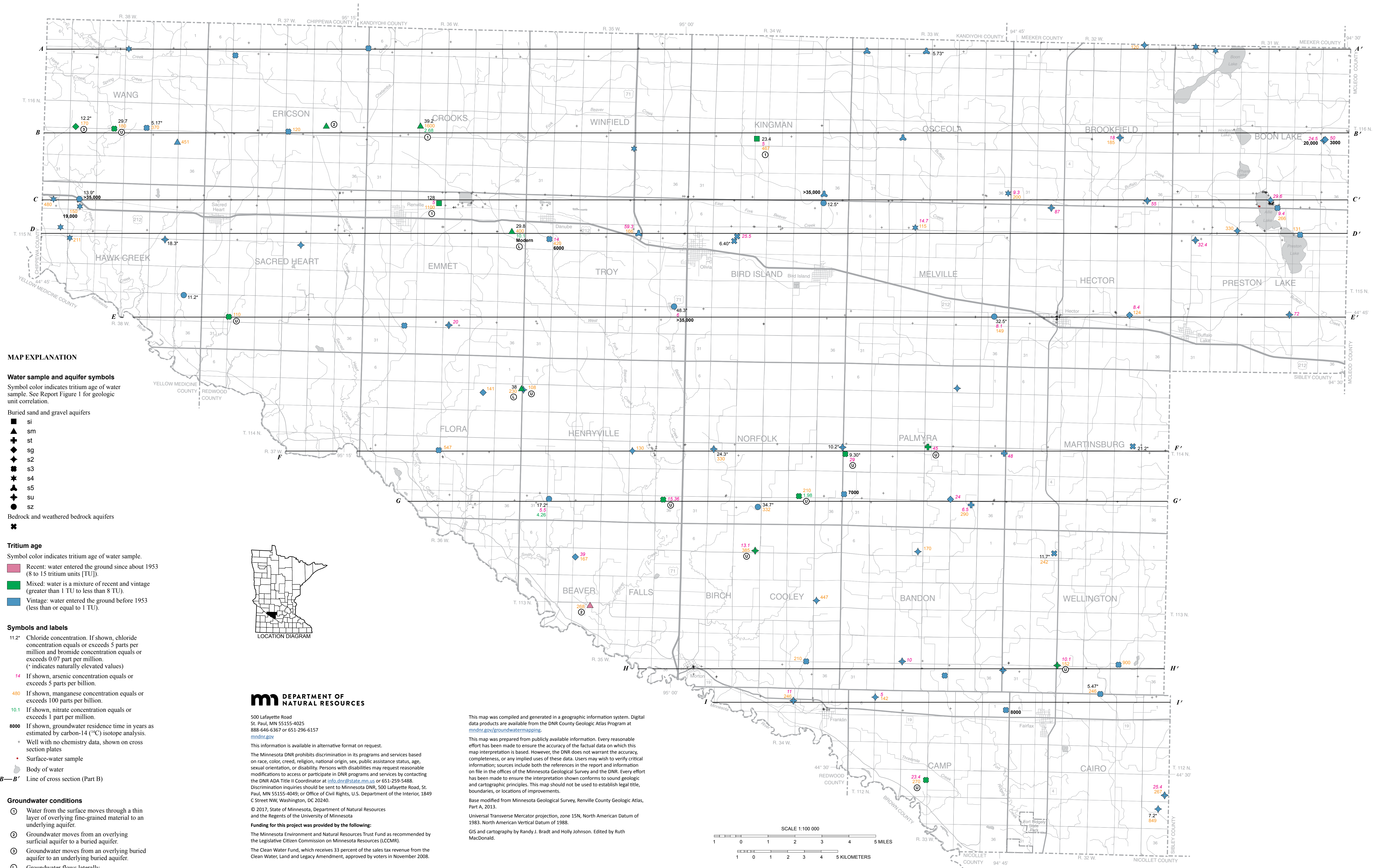


CHEMICAL HYDROGEOLOGY

By Randy J. Bradt

2017

To accompany these atlas components
Report, Map Figures 1-27, Plates 7-8



MAP EXPLANATION

Water sample and aquifer symbols

Symbol color indicates tritium age of water sample. See Report Figure 1 for geologic unit correlation.

Buried sand and gravel aquifers

- si
 - ▲ sm
 - ◆ st
 - ◆ sg
 - ◆ s2
 - ◆ s3
 - ◆ s4
 - ◆ s5
 - ◆ su
 - ◆ sz
- Bedrock and weathered bedrock aquifers
- ◆ *

Tritium age

Symbol color indicates tritium age of water sample.

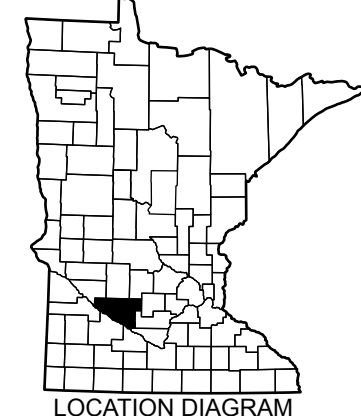
- Recent: water entered the ground since about 1953 (8 to 15 tritium units [TU]).
- Mixed: water is a mixture of recent and vintage (greater than 1 TU to less than 8 TU).
- Vintage: water entered the ground before 1953 (less than or equal to 1 TU).

Symbols and labels

- 11.2* Chloride concentration. If shown, chloride concentration equals or exceeds 5 parts per million and bromide concentration equals or exceeds 0.07 part per million. (* indicates naturally elevated values)
- 14 If shown, arsenic concentration equals or exceeds 5 parts per billion.
- 480 If shown, manganese concentration equals or exceeds 100 parts per billion.
- 10.1 If shown, nitrate concentration equals or exceeds 1 part per million.
- 8000 If shown, groundwater residence time in years as estimated by carbon-14 (¹⁴C) isotope analysis.
- Well with no chemistry data, shown on cross section plates
- Surface-water sample
- Body of water
- B—B' Line of cross section (Part B)

Groundwater conditions

- ① Water from the surface moves through a thin layer of overlying fine-grained material to an underlying aquifer.
- ② Groundwater moves from an overlying surficial aquifer to a buried aquifer.
- ③ Groundwater moves from an overlying buried aquifer to an underlying buried aquifer.
- ④ Groundwater flows laterally.
- ⑤ Groundwater flowpath is unknown (deep groundwater, recent or mixed tritium age).



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Base modified from Minnesota Geological Survey, Renville County Geologic Atlas, Part A, 2013.
Universal Transverse Mercator projection, zone 15N, North American Datum of 1983. North American Vertical Datum of 1988.
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