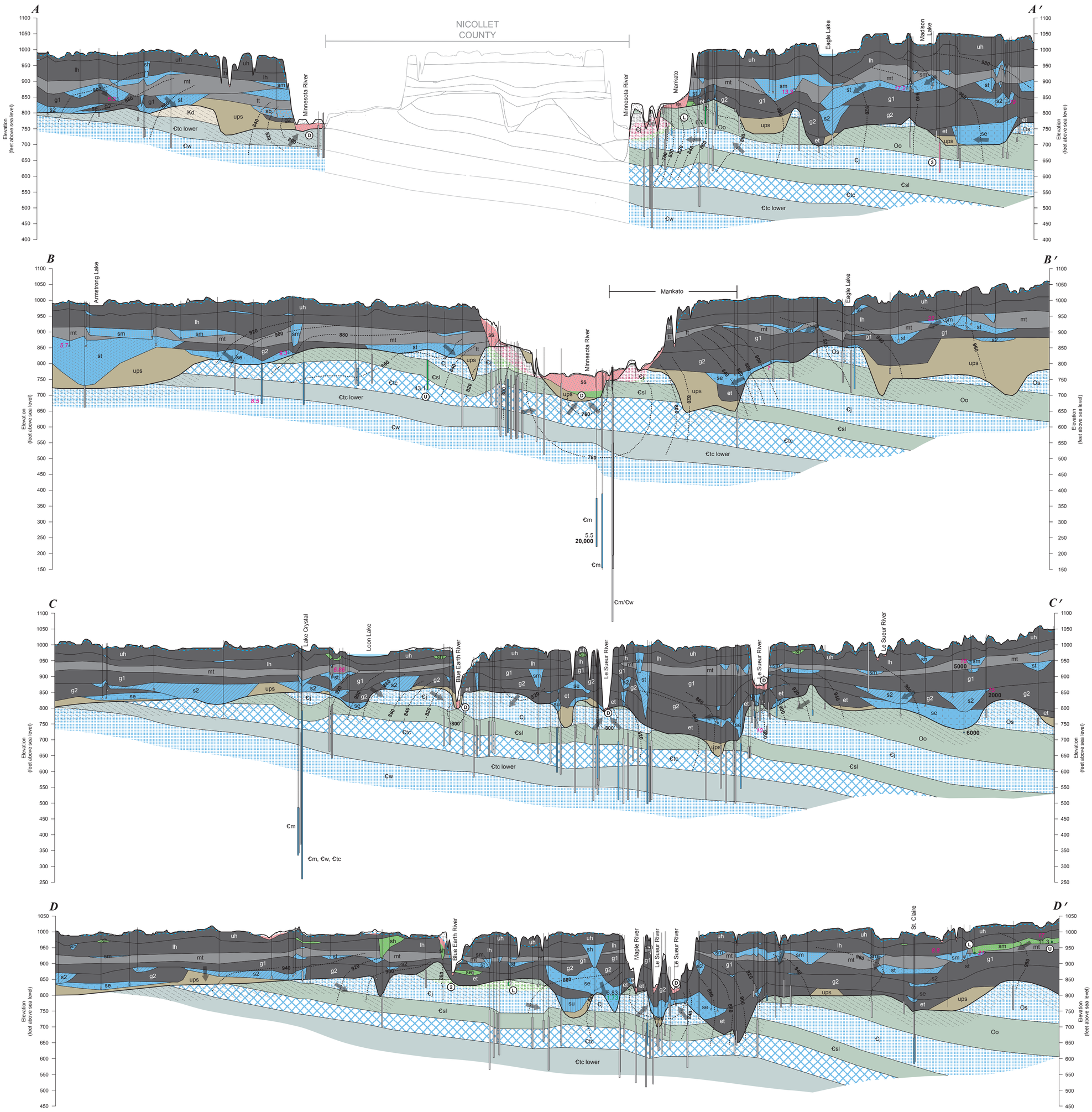
STATE OF MINNESOTA
DEPARTMENT OF NATURAL RESOURCES
ECOLOGICAL AND WATER RESOURCES DIVISION

Prepared and Published with the Support of the
MINNESOTA ENVIRONMENT AND NATURAL RESOURCES TRUST FUND and the CLEAN WATER, LAND AND LEGACY AMENDMENT

COUNTY ATLAS SERIES
BLUE EARTH COUNTY
ATLAS C-26, PART B, PLATE 8 of 9
Hydrogeologic Cross Sections



Hydrogeologic Cross Sections

By James A. Berg

2016

Reference report section: Hydrogeologic cross sections

CROSS SECTION EXPLANATION

Tritium age

Darker color in small vertical rectangle (well screen symbol) indicates tritium age of water sampled in well. The color in the surrounding area indicates interpreted age of water in aquifer.

- Recent: water entered the ground since about 1953 (8 to 15 tritium unit [TU]).
- Mixed: water is a mixture of recent and vintage waters (greater than 1 TU to less than 8 TU).
- Vintage: water entered the ground before 1953 (less than or equal to 1 TU).
- Well was not sampled for tritium.

Symbols and labels

- *13.3* If shown, arsenic concentration equals or exceeds 5 parts per billion.
- 11.3 If shown, chloride concentration equals or exceeds 5 parts per million.
- 1.73 If shown, nitrate-nitrogen concentration equals or exceeds 1 part per million.
- **5000** If shown, groundwater residence time in years, estimated by carbon-14 (^{14}C) isotope analysis
- General groundwater flow direction
- ···· 900 ···· Approximate equipotential contour; contour interval 20 feet
- Geologic contact
- Land or bedrock surface
- Water table
- Lake

Aquifers and aquitards grouped by stratigraphy

Surficial sand

- ss

Buried sand and gravel and Quaternary

- uh*
- sh
- lh*
- sm
- mt*
- st
- tt*
- g1*
- s2
- g2*
- se
- et*
- su

*aquitard

Bedrock

Color overlay indicates tritium age.

- Kd Dakota
- Os Shakopee (Prairie du Chien)
- Oo Oneota Dolomite (Prairie du Chien)*
- Cj Jordan
- Csl St. Lawrence Formation*
- Ctc Tunnel City
- Ctc lower Lower Tunnel City Group*
- Cw Wonewoc
- Enhanced-permeability zone

*aquitard

Cm The Mt. Simon aquifer is not shown on these cross sections though some of the wells that penetrated the aquifer are shown.

Quaternary aquitards

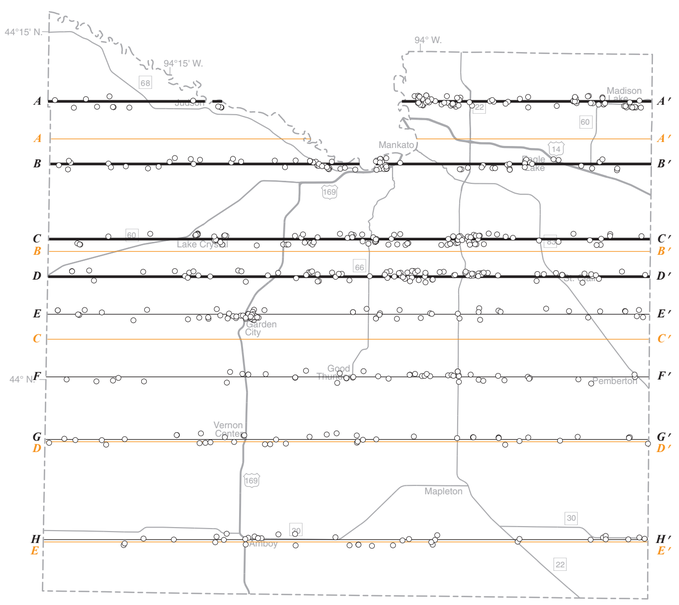
Grouped by sand content suggesting relative hydraulic conductivity.

Geologic unit code	Percent sand
uh, lh, g1, g2, et	≤ 30
mt, tt	> 30 and ≤ 40
Undifferentiated sediment (ups)	Texture unknown

Groundwater conditions

(Some conditions shown are interpreted and do not correspond to tritium data locations.)

- (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
- (D) Groundwater discharge from a buried aquifer to surface water
- (L) Groundwater flows laterally
- (U) Groundwater flowpath is unknown (deep groundwater with recent or mixed tritium age)



SCALE 1:300 000
1 0 1 2 3 4 5 MILES
1 0 1 2 3 4 5 6 7 8 9 KILOMETERS

SCALE 1:100 000
VERTICAL EXAGGERATION X 50
1 0 1 2 3 4 5 MILES
1 0 1 2 3 4 5 6 7 8 9 KILOMETERS

Symbols

- ○ Well used to generate cross section
- A——A′ Part B line of cross section shown on this plate
- A——A′ Part B line of cross section not shown on this plate
- A——A′ Part A line of cross section

LOCATION DIAGRAM

This map was compiled and generated in a geographic information system (GIS). Digital data products, including chemistry and geophysical data, are available from the DNR Ecological and Water Resources Division at http://www.mndnr.gov/waters.

This map was prepared from publicly available information only. Every reasonable effort has been made to ensure the accuracy of the factual data on which this map interpretation is based. However, the Department of Natural Resources does not warrant the accuracy, completeness, or any implied uses of these data. Users may wish to verify critical information; sources include both the references in the report and information on file in the offices of the Minnesota Geological Survey and the Minnesota Department of Natural Resources. Every effort has been made to ensure the interpretation shown conforms to sound geologic and cartographic principles. This map should not be used to establish legal title, boundaries, or locations of improvements.

Base modified from Minnesota Geological Survey, Blue Earth County Geologic Atlas, Part A, 2012.

Universal Transverse Mercator projection, zone 15N, North American Datum of 1983. Vertical datum is mean sea level.

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GEOLOGIC ATLAS OF BLUE EARTH COUNTY, MINNESOTA