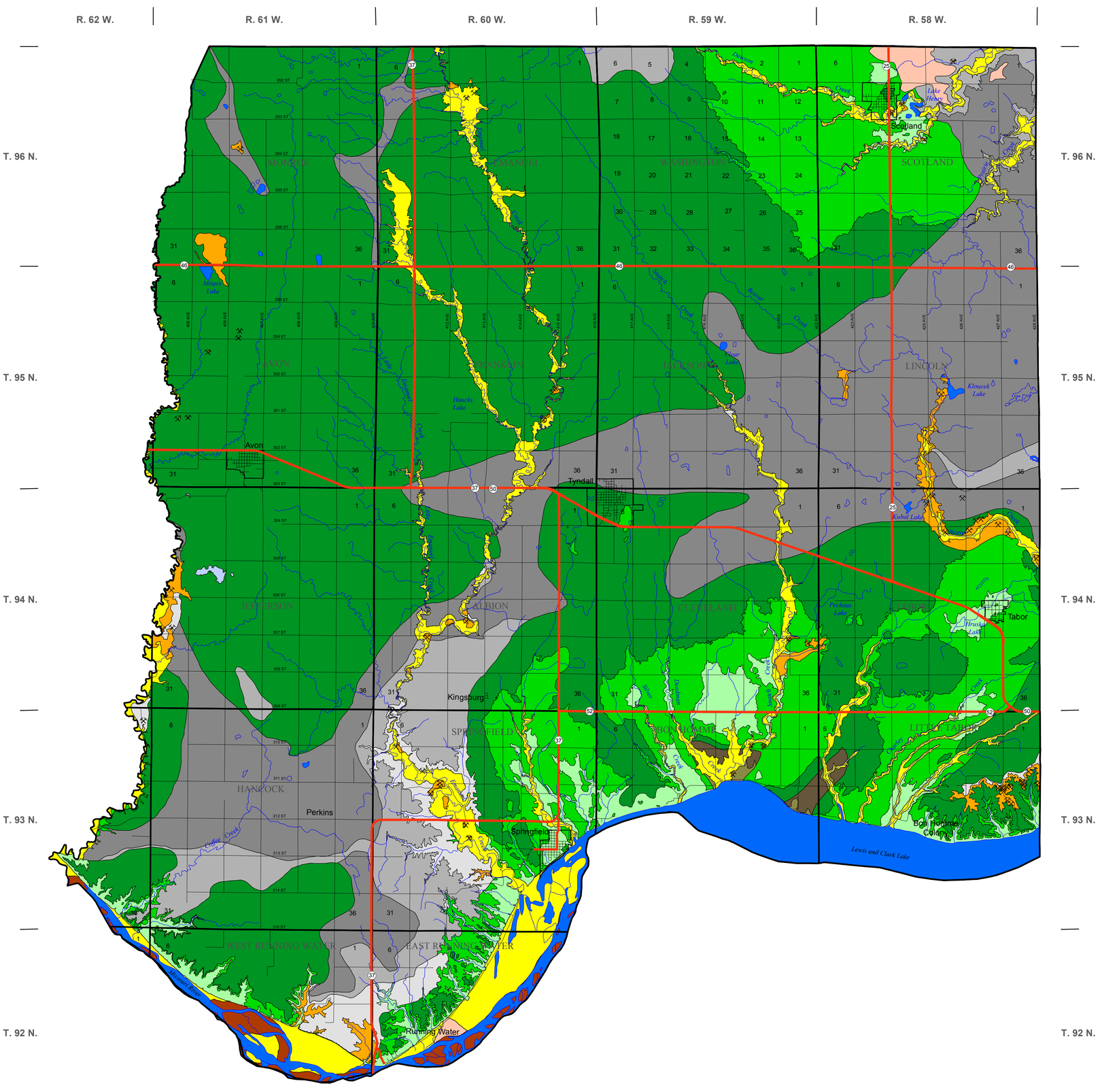
First Occurrence of Aquifer Materials in Bon Homme County, South Dakota

Department of Environment and Natural Resources
Division of Financial and Technical Assistance
Geological Survey Program
Aquifer Materials Map 34
Ann R. Jensen, 2012

State of South Dakota
Dennis Daugaard, Governor

South Dakota Geological Survey
Derric L. Iles, State Geologist



Explanation

This map is intended for use as a tool to aid in identifying areas underlain by aquifer material. The aquifer materials shown on this map are categorized below. This map does not show individual aquifers. There may be more than one type of aquifer material present in an area. However, only the aquifer material that would be first encountered is shown. Within the boundaries of any given map unit, there may be localized areas where aquifer material is absent. The thickness and permeability of aquifer material may vary significantly. Also, no attempt was made to distinguish between saturated and unsaturated material. Therefore, not all of the areas defined on this map may be an aquifer. Site-specific information should always be examined when making land management or water development decisions.

First occurrence is generally less than or equal to 50 feet below land surface

- **Alluvium:** Generally consists of clay and silt with minor amounts of sand and gravel (based on Christensen, 1974, Bulletin 21); boundaries along the Missouri River likely changed due to 2011 flood
- **Bar Sand:** Very fine to medium sand with minor amounts of silt and clay, usually bedded; occurs at land surface (based on Christensen, 1974, Bulletin 21); boundaries along the Missouri River likely changed due to 2011 flood
- **Dune Sand:** Fine to medium wind blown sand; occurs at land surface (based on Christensen, 1974, Bulletin 21); boundaries along the Missouri River likely changed due to 2011 flood
- **Sand and Gravel:** Generally occurs at land surface
- **Ogallala Group:** Pale gray to pale green orthoquartzite and conglomerate; occurs at land surface
- **Sand and Gravel:** First occurrence is generally below land surface. May not be uniform in depth and thickness and may be discontinuous in lateral extent
- **Niobrara Formation:** Light- to medium-blue-gray marl and white to cream colored limestone, calcareous, fossiliferous

First occurrence is generally greater than 50 feet and less than or equal to 100 feet below land surface

- **Sand and Gravel:** May not be uniform in depth and thickness and may be discontinuous in lateral extent
- **Niobrara Formation:** Light- to medium-blue-gray marl and white to cream colored limestone, calcareous, fossiliferous
- **Codell Sandstone Member - Carlile Shale:** Gray to green, fine to medium sandstone

First occurrence is generally greater than 100 feet below land surface

- **Sand and Gravel:** May not be uniform in depth and thickness and may be discontinuous in lateral extent
- **Niobrara Formation:** Light- to medium-blue-gray marl and white to cream colored limestone, calcareous, fossiliferous
- **Codell Sandstone Member - Carlile Shale:** Gray to green, fine to medium sandstone

For township section numbering system, see T. 96 N., R. 59 W.

Avon Township includes T. 95 N., R. 61 W., and sections 25 and 36 of T. 95 N., R. 62 W.

East Running Water Township includes T. 92 N., R. 60 W., and sections 1, 12, 13, and 24 of T. 92 N., R. 61 W.

Hancock Township includes T. 93 N., R. 61 W., and sections 1, 12, 13, 14, 22, 23, 24, 25, 26, 27, 35, and 36 of T. 93 N., R. 62 W.

Jefferson Township includes T. 94 N., R. 61 W., and sections 25 and 36 of T. 94 N., R. 62 W.

West Running Water Township includes T. 92 N., R. 61 W., excluding sections 1, 12, 13, and 24. It also includes section 1 of T. 92 N., R. 62 W.

- Open pit mine
- River or stream
- Lake
- Slough or intermittent lake
- Major highway
- Road
- Township boundary

Scale: 1:100,000

0 1 2 3 4 5 6 Miles

0 1 2 3 4 5 6 Kilometers

N W E S

This map was developed from lithologic logs and published reports. The major sources of information were:

Bruce, R.L., 1962, *Water supply for the city of Tyndall, South Dakota*: South Dakota Geological Survey Special Report 13, 23 p.

Bugliosi, E.F., 1986, *Water resources of Yankton County, South Dakota*: U.S. Geological Survey Water-Resources Investigations Report 84-4241, 41 p.

Christensen, C.M., 1963, *Ground water supply for the city of Scotland*: South Dakota Geological Survey Special Report 20, 27 p.

_____ 1970a, *Major ground-water aquifers in Bon Homme County, South Dakota*: South Dakota Geological Survey Water-Information Circular 4, 7 p.

_____ 1970b, *Sand and gravel resources in Bon Homme County, South Dakota*: South Dakota Geological Survey Circular 39, 5 p.

_____ 1974, *Geology and water resources of Bon Homme County, South Dakota; Part I: Geology*: South Dakota Geological Survey Bulletin 21, 48 p.

Hedges, L.S., 1972, *Sand and gravel resources in Charles Mix and Douglas Counties, South Dakota*: South Dakota Geological Survey Circular 42, 6 p.

_____ 1975, *Geology and water resources of Charles Mix and Douglas Counties, South Dakota; Part I: Geology*: South Dakota Geological Survey Bulletin 22, 43 p.

Jensen, A.R., 2007, *First occurrence of aquifer materials in Hutchinson County, South Dakota*: South Dakota Geological Survey Aquifer Materials Map 25, scale 1:100,000.

_____ 2008a, *First occurrence of aquifer materials in Douglas County, South Dakota*: South Dakota Geological Survey Aquifer Materials Map 28, scale 1:100,000.

_____ 2008b, *First occurrence of aquifer materials in Charles Mix County, South Dakota*: South Dakota Geological Survey Aquifer Materials Map 29, scale 1:100,000.

Johnson, G.D., and McCormick, K.A., 2005, *Geology of Yankton County, South Dakota*: South Dakota Geological Survey Bulletin 34, 46 p.

Jorgensen, D.G., 1971, *Geology and water resources of Bon Homme County, South Dakota; Part II: Water resources*: South Dakota Geological Survey Bulletin 21, 61 p.

Kume, J., 1972, *Major aquifers in Charles Mix and Douglas Counties, South Dakota*: South Dakota Geological Survey Information Pamphlet 2, 6 p.

_____ 1977, *Geology and water resources of Charles Mix and Douglas Counties, South Dakota; Part II: Water resources*: South Dakota Geological Survey Bulletin 22, 31 p.

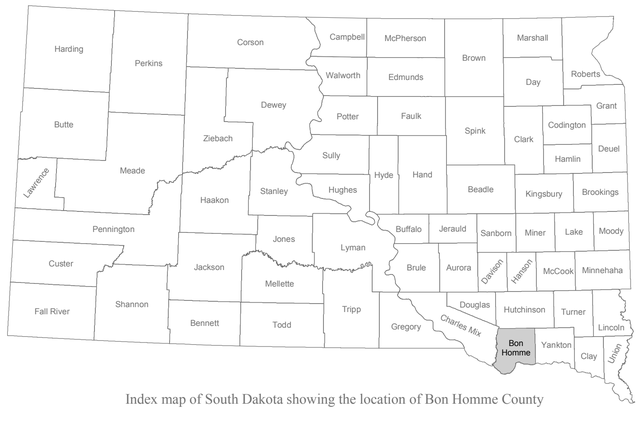
Lindgren, R.J., and Hansen, D.S., 1990, *Water resources of Hutchinson and Turner Counties, South Dakota*: U.S. Geological Survey Water-Resources Investigations Report 90-4093, 100 p.

McCormick, K.A., 2003, *First occurrence of aquifer materials in Yankton County, South Dakota*: South Dakota Geological Survey Aquifer Materials Map 14, scale 1:100,000.

South Dakota Geological Survey, Lithologic logs database.

Tomhave, D.W. and Schulz, L.D., 2004, *Bedrock geologic map showing configuration of the bedrock surface in South Dakota east of the Missouri River*: South Dakota Geological Survey General Map 9, scale 1:500,000.

The Geological Survey Program, Department of Environment and Natural Resources, engages in an ongoing data collection and interpretation process. An outcome of that process is to reflect those interpretations on maps such as this one. Reasonable efforts have been made to ensure that this map accurately reflects the source data used in its preparation. This map is date specific. As additional data become available, geologic interpretations may be revised and the map may be updated by the Geological Survey Program. This map should not be enlarged or otherwise used in an attempt to interpret more detail than can be seen at a scale of 1:100,000.



Index map of South Dakota showing the location of Bon Homme County