STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL SURVEY
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ELEVATION CONTOURS ON THE BASE OF THE DEEPEST UNDERGROUND SOURCES OF DRINKING WATER IN OHIO

by
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MAP EG-6
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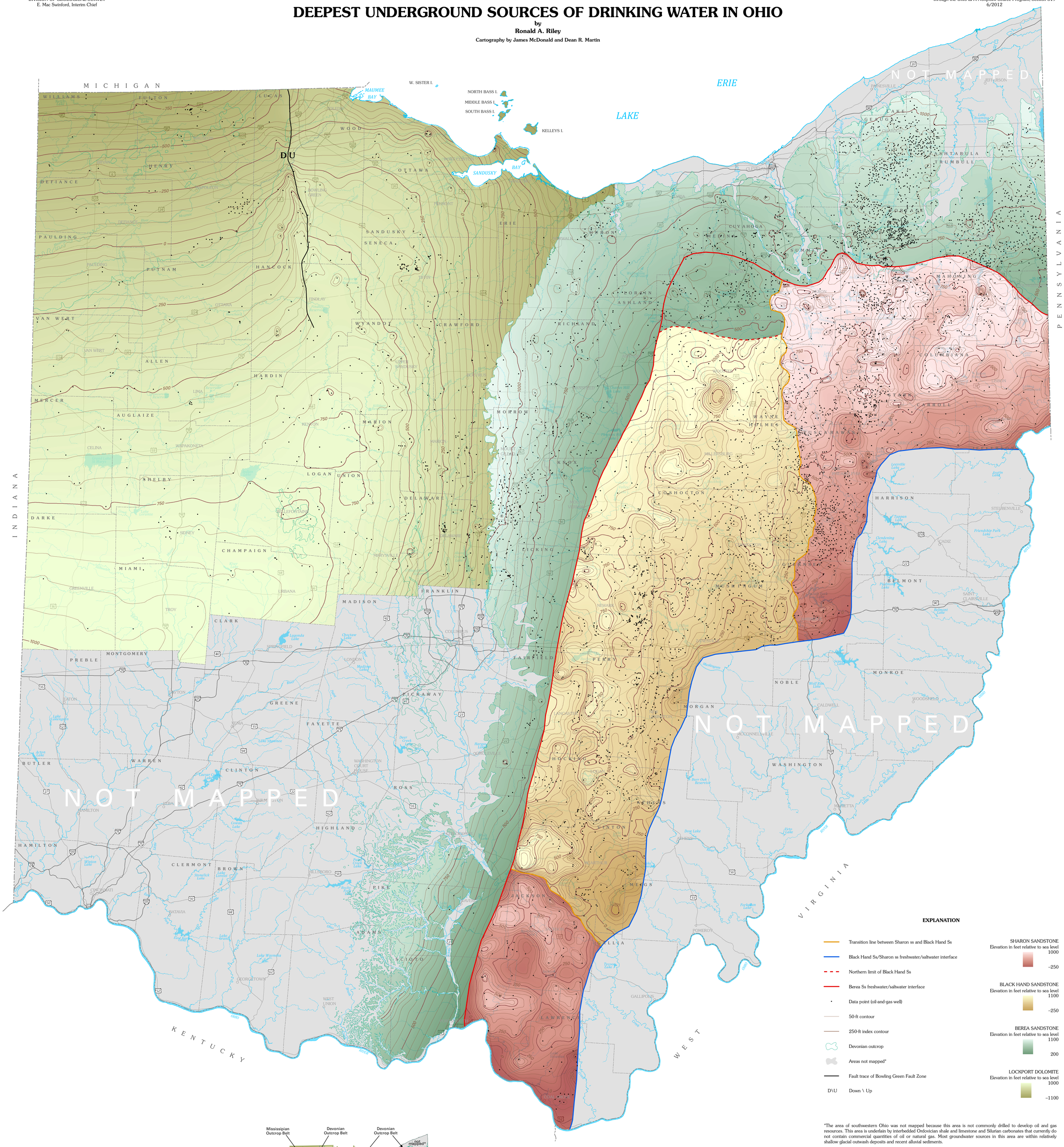


EXPLANATION

- Transition line between Sharon ss and Black Hand Ss
- Black Hand Ss/Sharon ss freshwater/saltwater interface
- Northern limit of Black Hand Ss
- Berea Ss freshwater/saltwater interface
- Data point (oil-and-gas well)
- 50-ft contour
- 250-ft index contour
- Devonian outcrop
- Areas not mapped*
- Fault trace of Bowling Green Fault Zone
- D\U Down \ Up

SHARON SANDSTONE
Elevation in feet relative to sea level
1000
–250

BLACK HAND SANDSTONE
Elevation in feet relative to sea level
1100
–250

BEREA SANDSTONE
Elevation in feet relative to sea level
1100
200

LOCKPORT DOLOMITE
Elevation in feet relative to sea level
1000
–1100

*The area of southwestern Ohio was not mapped because this area is not commonly drilled to develop oil and gas resources. This area is underlain by interbedded Ordovician shale and limestone and Silurian carbonates that currently do not contain commercial quantities of oil or natural gas. Most groundwater sources in this area are within relatively shallow glacial outwash deposits and recent alluvial sediments.

The area of southeastern Ohio is underlain primarily by sandstone, shale, coal, and freshwater limestone of Mississippian and Pennsylvanian ages. The lenticular, braided, intertwining nature of these deposits prohibits reliably naming and mapping a lowest USDW across any appreciable portions of this area. Casing depths in this area are set on a various USDWs.

The shaded area in extreme northeastern Ohio, bordering Lake Erie, also was not mapped. In this area, the top of bedrock is the Devonian-age Ohio Shale and yields small quantities of water locally from weathered and fractured zones in Devonian and Mississippian shales. Potable water is primarily from the overlying glacial deposits.

MAPPING CONVENTIONS

The deepest underground source of drinking water (USDW) in northwestern Ohio is defined by Sedam and Stein (1970) and other published reports as the Lockport Dolomite (Silurian) except within the Devonian and Mississippian outcrop belts, where the deepest USDW may be the Lower and Middle Devonian/Upper Silurian carbonates or the Devonian and Mississippian shales. For continuity of mapping, the base of the Lockport Dolomite was mapped throughout northwestern Ohio. The deepest USDW and freshwater/saltwater interface (using 10,000 ppm total dissolved solids) in eastern Ohio is based on Vogel (1982). Southwestern Ohio lies outside the major petroleum-producing areas of the state and its deepest USDW is not mapped. The deepest USDW also was not mapped in southeastern Ohio because the complex stratigraphic nature of these deposits prohibits reliably naming and mapping a lowest USDW across the area.

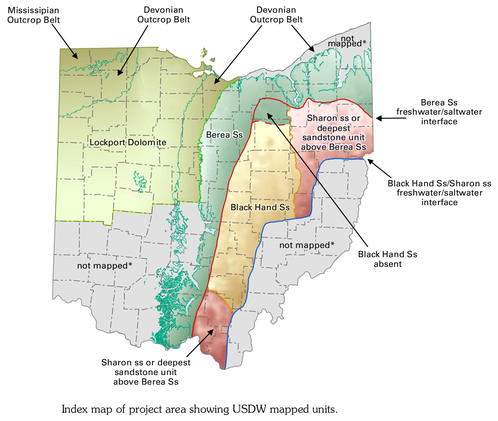
This map is modified from Riley (2001). Elevations are relative to mean sea level at the base of each mapped unit; contour interval is 50 feet.

REFERENCES

Riley, R.A., 2001, Mapping the deepest underground sources of drinking water in Ohio: Columbus, Ohio Department of Natural Resources, Division of Geological Survey final report to U.S. EPA on 319(h) grant, 5 p., 1 map (scale 1:500,000).

Sedam, A.C. and Stein, R.B., 1970, Saline ground-water resources of Ohio: U.S. Geological Survey Hydrologic Investigations Atlas HA-366, 2 sheets.

Vogel, D.A., 1982, Salt/fresh water interface, ground-water mapping project—Final report to U.I.C. Program: Columbus, Ohio Department of Natural Resources, Division of Water, 15 p., 11 fig., 33 data tables.



Index map of project area showing USDW mapped units.

N

SCALE 1:500 000

Base map derived from Ohio Department of Transportation data sets.
Projection of data is Ohio coordinate system, south zone, North American Datum, 1983.

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