

Potentiometric Surface Map of the Bedrock Aquifers of Spencer County, Indiana

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October 2018

Spencer County, Indiana is located in the southwest part of the state and is within the Ohio River Basin throughout most of the county excluding a small part of the north-central area which is within the Patoka River Basin.

The mapped potentiometric surface contours represent lines of equal elevation relative to the measured groundwater levels in wells. In general, wells completed in a confined aquifer system are bound by impermeable layers and will have static water levels under hydrostatic pressure causing the water level to rise above the elevation of the aquifer resource. In contrast, an unconfined aquifer system is not bound by impermeable layers; therefore, the water level will not be under hydrostatic pressure and will not rise above the aquifer resource.

Static water level measurements in individual wells used to construct the potentiometric surface map are indicative of the water level at the time of well completion. Therefore, current site specific conditions may differ due to local or seasonal variations in measured static water levels.

Coordinate locations of water well records were physically obtained in the field, determined through address geocoding, or reported on water well records. Elevation data were obtained from a digital elevation model. Elevation and location quality control/quality assurance procedures were utilized to refine or remove data where errors were readily apparent.

Wells producing from bedrock are limited in production and are sparse throughout portions of the county. This is primarily due to bedrock as a limited aquifer resource. Therefore, potentiometric surface elevation contours have not been extended through these areas of the county.

Bedrock throughout most of the county includes primarily sandstone and shale of the Pennsylvanian Raccoon Creek Group. To the southwest part of the county bedrock includes shale and sandstone of the Pennsylvanian Carbondale group; and in the extreme northeast part of the county, shale, limestone and sandstone of the Mississippian Buffalo Wallow, Stephensport, and West Baden Groups.

There are 141 located wells that are completed in bedrock and are utilized towards the mapping of the bedrock potentiometric surface. Total well depths range from 45 to 355 feet with depth to the bedrock surface from 1 to 135 feet below surface. Due to the extreme difference in reported static water levels of deeper wells that likely transcend into a different aquifer system, reported

depths of 200 feet or less were considered a priority in the mapping of the contours where such differences are present.

Potentiometric surface elevations range from a high of 450 feet mean sea level (msl) in the northeast part of the county northwest of Saint Meinrad, to a low of 360 feet msl in the west-central part of the county along Little Pigeon Creek.

Generalized groundwater flow direction for the county is towards major drainage relevant to the basin. Therefore, in Spencer County groundwater flow is towards the Ohio River Basin and its tributaries throughout much of the county.