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

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Clark County, Indiana is located in the southeast part of the state and is almost entirely within the Ohio River Basin. Two areas of north-central Clark County are within the East Fork White 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 with parts of the county lacking in data. This is primarily due to bedrock as a limited aquifer resource, and/or available overlying unconsolidated materials. Therefore, potentiometric surface elevation contours have not been extended throughout areas of the county.

Bedrock throughout the county includes shale, limestone and sandstone of the Mississippian Buffalo Wallow, Stephensport, and West Baden Groups; limestone and sandstone of the Mississippian Blue River and Sanders Group; siltstone and shale of the Mississippian Borden Group; the Devonian and Mississippian New Albany Shale; limestone and dolomite of the Silurian and Devonian Carbonates; and shales and limestone of the Ordovician Maquoketa Group.

There are 176 located wells that are completed in bedrock and are utilized towards the mapping of the bedrock potentiometric surface. Total well depths range from 26 to 273 feet with depth to the bedrock surface from 2 to 76 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 760 feet mean sea level (msl) in the northeast area of the county, to a low of 420 feet msl along the Ohio River to the south.

Generalized groundwater flow direction for the county is towards major drainage relevant to the basin. Therefore, in Clark County groundwater flow is towards the Ohio River and its related tributaries.