Potentiometric Surface Map of the Unconsolidated Aquifers of Benton County, Indiana

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January 2015

Benton County, Indiana is located in the northwest part of the state and is within the boundaries of three river basins. The county is generally split along a northeast-southwest trending boundary with the northwestern area within the Kankakee River Basin and the southeastern portion within the Middle Wabash River Basin. However, the northeastern area of the county is located in the Upper Wabash River Basin.

The potentiometric surface mapped (PSM) contour elevations 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 (DEM). Elevation and location quality control/quality assurance procedures were utilized to refine or remove data where errors were readily apparent.

Well depths 100 feet or less were a priority in mapping the potentiometric surface in Benton County. However, deeper wells were used to compliment the mapping in areas where wells at depths of less than 100 feet were sparse. There are 247 unconsolidated located water well records in the county with 176 within the priority depth range.

Potentiometric surface elevations range from a high of 780 feet mean sea level (msl) the in the central part of the county, to a low of 680 feet msl in the southeast corner and along a portion of Big Pine Creek. Portions of Benton County have limited unconsolidated aquifer potential, therefore, potentiometric contours have not been extended throughout these areas.

Generalized groundwater flow direction for the county is towards major drainage relevant to the basin. Therefore, in the Kankakee River Basin groundwater flow is generally to the northwest;

in the Middle Wabash River Basin groundwater flow is to the south-southeast towards Mud Pine Creek and Big Pine Creek; and for the Upper Wabash River Basin, groundwater flow is towards the east.