

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

By
Randal D. Maier
Division of Water, Resource Assessment Section
August 2013

Jay County, Indiana is located in the east-central portion of the state with all of the areal extent of the county situated within 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.

In Jay County well depths 100 feet or less were a priority in mapping the potentiometric surface. However, about 175 deeper wells were used to complement the mapping in areas where wells at depths of less than 100 feet were sparse. There are approximately 200 located unconsolidated water well records in the county that are within the priority depth range. Portions of Jay County are lacking in data and/or are covered by thin or unproductive deposits. Therefore, potentiometric surface elevations contours have not been extended through these areas.

Potentiometric surface elevations range from a high of 1000 feet mean sea level (msl) in the southeast corner of the county, to a low of 830 feet msl in the north-central part of the county. Generalized groundwater flow direction for Jay County is towards major drainage relevant to the basin. Therefore, groundwater flow is northwest towards the Salamonie River for much of the county south of the Salamonie River and north towards Loblolly Creek and Limberlost Creek for the northern third of Jay County.