

# **Potentiometric Surface Map of the Bedrock Aquifers of Wabash County, Indiana**

By

Randal D. Maier

Division of Water, Resource Assessment Section

June 2013

Wabash County, Indiana is located in the north-central portion of the state with all of the areal extent of the county situated within the Upper Wabash River Basin.

The mapped potentiometric surface (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 either obtained from topographic maps or 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 Wabash County depth to bedrock varies from exposure along parts of the Wabash, Mississinewa, and Salamonie rivers; to as much as 400 feet where a bedrock valley cuts across the southern part of the county (Grove, 2007). Wells completed in bedrock are generally completed in carbonate deposits of the Silurian and Devonian Carbonates Aquifer System. There are approximately 671 located wells that are completed in bedrock and utilized towards the mapping of the bedrock potentiometric surface. However, portions of the county are lacking in data and/or covered by more prolific unconsolidated deposits that limit the necessity to complete wells in bedrock. Therefore, potentiometric surface elevations contours have not been extended through these areas.

Potentiometric surface elevations range from a high of 820 feet mean sea level (msl) in the southeast region of the county, to a low of 670 feet msl in the central part of the county along the Wabash River. Generalized groundwater flow direction for Wabash County is towards major drainage relevant to the basin. Therefore, in the Upper Wabash River Basin, groundwater flow is

towards the Wabash River and its major tributaries. These include the Eel River to the north, the Salamonie River in the east-central part of the county, and the Mississinewa River to the south.

Grove, 2007, Bedrock Aquifer Systems of Wabash County, Indiana: Indiana Department of Natural Resources, Division of Water, Aquifer Systems Map 41-B.