

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

By
Randal D. Maier
Division of Water, Resource Assessment Section
May 2014

Henry County, Indiana is located in the east-central portion of the state and is within the boundaries of three river basins. The northern area of the county is within the White and West Fork White River Basin; to the east is the Whitewater River Basin; and the remainder, and largest part of the county, the East Fork White 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. The potentiometric contour lines crossing through Summit Lake Reservoir and Westwood Park Reservoir represent the potentiometric surface of the groundwater in the immediate area, not the water level of the reservoirs, which are man made features.

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 Henry County well depths 100 feet or less were a priority in mapping the potentiometric surface. However, deeper wells were used to compliment the mapping in areas where wells at depths of less than 100 feet were sparse. There are 2605 unconsolidated located water well records in the county with approximately 1760 that are within the priority depth range.

Potentiometric surface elevations range from a high of 1110 feet mean sea level (msl) to the northeast where all three basins converge, to a low of 890 feet msl in the southwest part of the county along a portion of the Big Blue River. Generalized groundwater flow direction for Henry County is towards major drainage relevant to the basin. Therefore, groundwater flow for the White and West Fork White River Basin is generally towards Fall Creek to the northwest, Buck

Creek in the north-central part of the county, and towards Stony Creek for the northeast part of the county. Along the eastern part of the county within the Whitewater River Basin groundwater flow is generally east and southeast towards Nettle Creek and the Whitewater River in nearby Wayne County. The largest areal extent of Henry County is within the East Fork White River Basin. In this area, groundwater flow is towards the Big Blue River and Flatrock River.