

# **Potentiometric Surface Map of the Unconsolidated Aquifers of Adams County, Indiana**

by  
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Adams County, Indiana is located in the northeastern portion of the state and is bounded by the state of Ohio along its eastern border, with Allen, Wells and Jay counties adjacent to the north, west and south. The northern and southeastern portions of the county are situated within the Maumee River Basin, with the southern section, and a relatively small area in the northwest, situated within the Wabash River Basin.

The Potentiometric Surface Map (PSM) of the unconsolidated aquifers of Adams County was mapped by contouring the elevations of 185 static water-levels reported on well records received primarily over a 50 year period. These wells are completed in aquifers at various depths, and typically, under confined conditions (bounded by impermeable layers above and below the water bearing formation). However, some wells were completed under unconfined (not bounded by impermeable layers) settings. The potentiometric surface is a measure of the pressure on water in a water bearing formation. Water in an unconfined aquifer is at atmospheric pressure and will not rise in a well above the top of the water bearing formation, in contrast to water in a confined aquifer which is under hydrostatic pressure and will rise in a well above the top of the water bearing formation.

Static water-level measurements in individual wells used to construct county PSM's are indicative of the water-level at the time of well completion. The groundwater level within an aquifer constantly fluctuates in response to rainfall, evapotranspiration, groundwater movement, and groundwater pumpage. Therefore, measured static water-levels may differ due to local or seasonal variations in measured static water-levels. Because fluctuations in groundwater are typically small, static water-levels can be used to construct a generalized PSM. Groundwater flow is naturally from areas of recharge toward areas of discharge. As a general rule, but certainly not always, groundwater flow approximates the overlying topography and intersects the land surface at major streams.

Universal Transverse Mercator (UTM) coordinates for the water wells were either physically obtained in the field, determined through address geocoding, or reported on water well records; however, the location of the majority of the water wells used to make the PSM were not field verified. Elevation data were either obtained from topographic maps or a digital elevation model. Quality control/quality assurance procedures were utilized to refine or remove data where errors were readily apparent.

Potentiometric surface elevations range from a high of 820 feet mean sea level (msl) in the southern section of the county, to a low of 770 feet msl in the north-central portion.

Groundwater flow direction within the Maumee River Basin is generally from south to north, south of Saint Marys River, and north to south, north of Saint Marys River. Groundwater flow direction within the Wabash River Basin is towards the Wabash River.

The county PSM can be used to define the regional groundwater flow path and to identify significant areas of groundwater recharge and discharge. County PSM's represent overall regional characteristics and are not intended to be a substitute for site-specific studies.