

Unconsolidated Aquifer Systems of Newton County, Indiana

by
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The following is a summary of the availability of groundwater in Newton County and was derived from the Indiana Department of Natural Resources 1990 publication Water Resource Availability in the Kankakee River Basin, Indiana. The full report describes the availability, distribution, quality, and use of groundwater and surface water in the Kankakee River Basin and can be viewed and downloaded at <http://www.in.gov/dnr/water>.

Unconsolidated deposits of glacial sands and gravels are the principle source of groundwater in Newton County. Four unconsolidated aquifer systems have been mapped and defined on the basis of geologic environments and aquifer characteristics: the Kankakee; the Iroquois Moraine; the Iroquois Basin; and the Iroquois Buried Valley.

Kankakee Aquifer System

The Kankakee Aquifer System is an unconfined deposit of fine- to medium-grained sand, which is interbedded with gravel lenses in the tributary valleys. The aquifer system thickness ranges from less than 20 feet where the unit overlies bedrock highs in the southern portion of the county to about 150 feet in the northern portions of the county. However, the thickness is about 30 feet in most areas.

Wells are typically shallow and few exceed depths of 50 feet in the Kankakee River floodplain, and water levels are generally less than 20 feet below the surface. However, in the tributary valleys, the depth to the water table may exceed 50 feet and well depths may exceed 125 feet. Domestic wells commonly produce from 15 to 50 gallons per minutes (gpm).

There are eight registered significant groundwater withdrawal facilities (19 wells) with yields ranging from 50 to 550 gpm. These facilities are used for rural usage, public supply and irrigation. Because of the absence of clay deposits, the Kankakee Aquifer System is highly susceptible to surface contamination.

Iroquois Moraine Aquifer System

The Iroquois Moraine Aquifer System consists of isolated sand and gravel deposits encompassed within thick sections of clay. There are severe limitations to water resources in this aquifer system. Thickness of the discontinuous aquifers range from 3 to 37 feet, but most aquifers are less than 10 feet thick. Fine-grained sand deposits, which occur near the land surface, have limited saturated thickness and therefore have a limited potential. Deeper, and generally thicker,

sand and gravel lenses provide higher quantities of water sufficient for domestic use with yields ranging from 4 to 10 gpm. However, because these aquifers are isolated and not laterally extensive, many wells pass through the unconsolidated deposits to obtain water from the underlying bedrock. Static water levels are most often between 15 and 30 feet below the surface, with reported values ranging from 5 to 80 feet. Well depths range from less than 50 feet to more than 170 feet.

There is one registered significant groundwater withdrawal facility (2 wells) in Newton County with yields of 162 and 221 gpm. This facility is utilized for rural usage. The deeper intertill aquifers are only slightly susceptible to surface contamination because of the surrounding till deposits.

Iroquois Basin Aquifer System

This aquifer system is a mostly clay-rich deposit having scattered intertill sand or gravel lenses, and isolated surface sands. The thickness of the system, which is largely controlled by the underlying bedrock topography, ranges from 12 to 120 feet. The Iroquois Basin Aquifer System consists predominantly of glacial till having thin intertill aquifers and some deeply buried aquifers in bedrock valleys. Lenses of intertill fine- to medium-grained sand, two- to three-foot thick, with local gravel deposits are present in a wide range of depths in this system.

Static water levels in this aquifer system can be as much as 75 feet deep, but generally range from 7 to 20 feet below the surface. A few flowing wells have been reported in stream valleys. Well yields ranging from 4 to 25 gpm are generally adequate for domestic use, but dry holes can occur because of the erratic distribution of the intertill aquifers. Large diameter wells, completed in locally thick, deeper sand and gravel deposits, may be capable of producing from 100 to 400 gpm in this system. There are two registered significant groundwater withdrawal facilities (2 wells) in Newton County with yields of 50 and 225 gpm. These facilities are used for public supply. The surficial sand deposits are highly susceptible to contamination, but the intertill aquifers are moderately susceptible.

Iroquois Buried Valley Aquifer Subsystem

This subsystem of the Iroquois Basin Aquifer System is composed of interbedded till, sand, and gravel in a buried bedrock valley beneath tills of the Iroquois Basin Aquifer System. The thickness of the sand and gravel deposits ranges from about 3 to 40 feet. Well depths to these aquifers range from about 60 to 125 feet, with an average of about 80 feet. Domestic wells produce from 10 to 40 gpm.

There are 2 registered significant groundwater withdrawal facilities (4 wells) in Newton County with yields ranging from 400 to 795 gpm. These facilities are utilized for rural usage and public supply. The Iroquois Buried Valley Aquifer Subsystem is only slightly susceptible to surface contamination.

Registered Significant Groundwater Withdrawal Facilities

There are 13 registered significant groundwater withdrawal facilities (27 wells) using unconsolidated aquifers in Newton county. These wells utilize the Kankakee, Iroquois Moraine and Iroquois Basin aquifer systems, and the Iroquois Buried Valley Aquifer Subsystem. Reported capacities for individual wells range from 50 to 795 gpm. The uses for these facilities are rural usage, public supply and irrigation. Refer to the table for additional well details, and to the map for facility locations.

Map Use and Disclaimer Statement

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