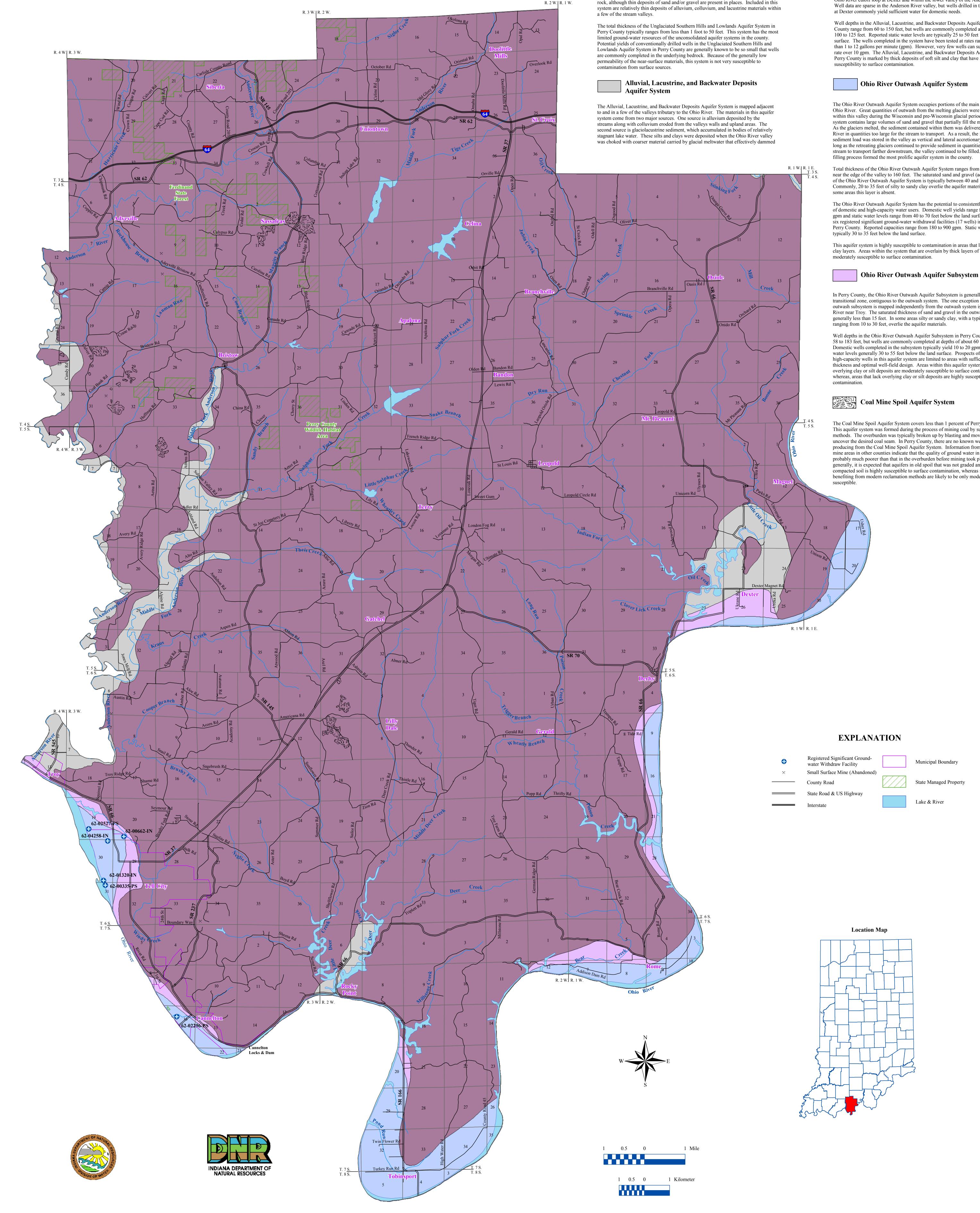
Mitchell E. Daniels, Jr., Governor Department of Natural Resources Kyle J. Hupfer, Director

UNCONSOLIDATED AQUIFER SYSTEMS OF PERRY COUNTY, INDIANA



Unglaciated Southern Hills and Lowlands Aquifer System

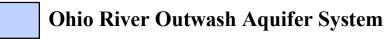
The Unglaciated Southern Hills and Lowlands Aquifer System covers most of Perry County. This aquifer system is relatively high in clay and silt content and fragmented rock, although thin deposits of sand and/or gravel are present in places. Included in this

tributary streams, creating lakes. Thick deposits of silt and clay, sometimes called "slackwater clay," mark the former locations of these glacial lakes.

The Alluvial, Lacustrine, and Backwater Deposits Aquifer System is not regarded as a major ground-water resource in this county. There are areas in this system however where the thickness of unconsolidated materials exceeds 100 feet; for example, in the Ohio River cutoff loop at Dexter and within the lower valley of the Anderson River. Well data are sparse in the Anderson River valley, but wells drilled in the cutoff loop area

Aquifer Systems Map 23-A

Well depths in the Alluvial, Lacustrine, and Backwater Deposits Aquifer System in Perry County range from 60 to 150 feet, but wells are commonly completed at depths of about 100 to 125 feet. Reported static water levels are typically 25 to 50 feet below the land surface. The wells completed in the system have been tested at rates ranging from less than 1 to 12 gallons per minute (gpm). However, very few wells can sustain a pumping rate over 10 gpm. The Alluvial, Lacustrine, and Backwater Deposits Aquifer System in Perry County is marked by thick deposits of soft silt and clay that have a low



The Ohio River Outwash Aquifer System occupies portions of the main valley of the Ohio River. Great quantities of outwash from the melting glaciers were transported within this valley during the Wisconsin and pre-Wisconsin glacial periods. This aquifer system contains large volumes of sand and gravel that partially fill the main river valley. As the glaciers melted, the sediment contained within them was delivered to the Ohio River in quantities too large for the stream to transport. As a result, the increased sediment load was stored in the valley as vertical and lateral accretionary deposits. As long as the retreating glaciers continued to provide sediment in quantities too large for the stream to transport farther downstream, the valley continued to be filled. This valley-

Total thickness of the Ohio River Outwash Aquifer System ranges from about 40 feet near the edge of the valley to 160 feet. The saturated sand and gravel (aquifer) thickness

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of the Ohio River Outwash Aquifer System is typically between 40 and 75 feet. Commonly, 20 to 35 feet of silty to sandy clay overlie the aquifer materials. However, in

The Ohio River Outwash Aquifer System has the potential to consistently meet the needs of domestic and high-capacity water users. Domestic well yields range from 20 to 50 gpm and static water levels range from 40 to 70 feet below the land surface. There are six registered significant ground-water withdrawal facilities (17 wells) in this system in Perry County. Reported capacities range from 180 to 900 gpm. Static water levels are

This aquifer system is highly susceptible to contamination in areas that lack overlying clay layers. Areas within the system that are overlain by thick layers of clay or silt are

In Perry County, the Ohio River Outwash Aquifer Subsystem is generally mapped as a transitional zone, contiguous to the outwash system. The one exception where the outwash subsystem is mapped independently from the outwash system is along the Ohio River near Troy. The saturated thickness of sand and gravel in the outwash subsystem is generally less than 15 feet. In some areas silty or sandy clay, with a typical thickness

Well depths in the Ohio River Outwash Aquifer Subsystem in Perry County range from 58 to 183 feet, but wells are commonly completed at depths of about 60 to 150 feet. Domestic wells completed in the subsystem typically yield 10 to 20 gpm, with static water levels generally 30 to 55 feet below the land surface. Prospects of completing high-capacity wells in this aquifer system are limited to areas with sufficient saturated thickness and optimal well-field design. Areas within this aquifer system that have overlying clay or silt deposits are moderately susceptible to surface contamination; whereas, areas that lack overlying clay or silt deposits are highly susceptible to

The Coal Mine Spoil Aquifer System covers less than 1 percent of Perry County. This aquifer system was formed during the process of mining coal by surface-mining methods. The overburden was typically broken up by blasting and moved aside to uncover the desired coal seam. In Perry County, there are no known wells actually producing from the Coal Mine Spoil Aquifer System. Information from surface coal mine areas in other counties indicate that the quality of ground water in this system is probably much poorer than that in the overburden before mining took place. Very generally, it is expected that aquifers in old spoil that was not graded and capped with compacted soil is highly susceptible to surface contamination, whereas new spoil areas benefiting from modern reclamation methods are likely to be only moderately

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This map was created from several existing shapefiles. Township and Range Lines of Indiana (line shapefile, 20020621), Land Survey Lines of Indiana (polygon shapefile, 20020621) and County Boundaries of Indiana (polygon shapefile, 20020621), were from the Indiana Geological Survey and based on a 1:24,000 scale. Draft road shapefiles, System1 and System2 (line shapefiles, 2003), were from the Indiana Department of Transportation and based on a 1:24,000 scale. Populated Areas in Indiana 2000 (polygon shapefile, 20021000) was from the U.S. Census Bureau and based on a 1:100,000 scale. Streams27 (line shapefile, 20000420) was from the Center for Advanced Applications in GIS at Purdue University. Managed Areas 96 (polygon shapefile, various dates) was from IDNR. Surface Coal Mines in Southwestern Indiana (polygon shapefile, 20001207), Unconsolidated Aquifer Systems coverage (Unterrreiner, 2006) was based on a 1:24,000 scale.

Unconsolidated Aquifer Systems of Perry County, Indiana

Gerald A. Unterreiner Division of Water, Resource Assessment Section February 2006

Map generated by Jennifer K. Mc Millan and Joseph L. Phillips IDNR, Division of Water, Resource Assessment Section