Geological Survey report explores hidden water resources

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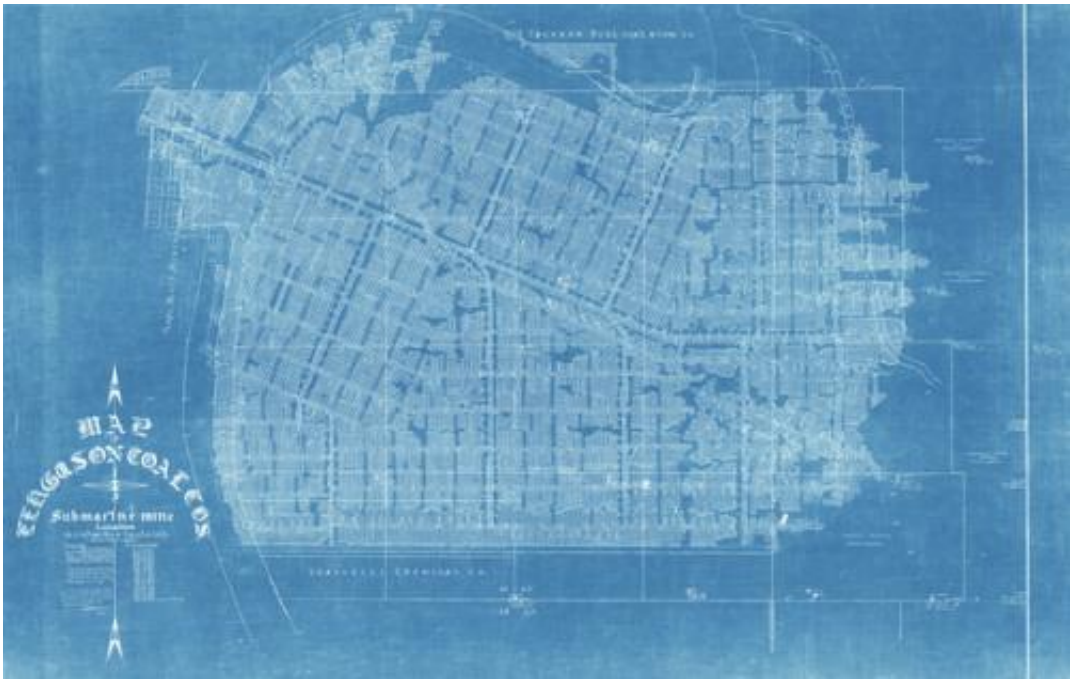

This map shows the underground workings of the Submarine Coal Mine, which operated from 1919-30 in Vigo County, Ind. Credit: Indiana Geological Survey

Abandoned coal mines scattered across southwestern Indiana may be a future source of valuable groundwater that could be used for a variety of purposes, according to a new report published by the Indiana Geological Survey.

More than 194,000 acres of Indiana are underlain by underground coal

mines, and the amount of groundwater that fills the voids of these abandoned mines may be as much as 172 billion gallons, the report says. These potentially high-yielding coal-mine aquifers may represent resources of significant public and commercial value.

"Abandoned underground coal mines have often been forgotten once their intended purpose has been exploited," said John C. Steinmetz, director of the Indiana Geological Survey. "Now, however, with this study, a potential new resource has been revealed. Not only does it document a source of water in the state that has heretofore not even been considered, but it opens possibilities for such other purposes as renewable geothermal heat-pump and cooling systems, and even for energy storage."

At the same time, little is known about the quality of water within flooded coal mines, the mechanisms of recharge and discharge, or the hydrodynamics of individual mine pools. The report, "Characterization of Groundwater in the Coal-Mine Aquifers of Indiana," summarizes the limited data specific to Indiana that are available, and suggests lines of research that promote the future use—and remediation, where necessary—of this potentially valuable resource.

More information: Harper, D. H., Branam, T. D., and Olyphant, G. A., 2011 (in review), "Characterization of groundwater in the coal-mine aquifers of Indiana: Indiana Geological Survey Special Report." igs.indiana.edu/bookstore/deta … ID=2170&Pub_Num=SR73

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