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Mineral Discovery Could Mean Billions for Michigan

By Linda Thrasybule

For more than two decades, researchers, geologists, and investors had no idea they were standing above tremendous wealth. Thousands of feet deep beneath the surface of western Michigan, a potential multibillion-dollar potash deposit was discovered. Potash—a mineral salt containing high levels of potassium—is an ingredient in fertilizer essential for growing crops.

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The deposit is estimated to be worth \$65 billion, which could make it a major source of revenue for the State of Michigan. “If we didn’t have the data preservation program, no one would have known the deposits were here,” said John Yellich, a geologist and the director of the Michigan Geological Survey.

The program Yellich references is the National Geological and Geophysical Data Preservation Program (NGGDPP). Enacted by Congress in 2005, the program was created to promote the archiving and cataloging of geological samples and data in the United States, most of which were acquired during oil, gas, and mineral exploration. Preservation of these materials and data promotes further research and the discovery of valuable resources.

The Value of Preservation

Run by the U.S. Geological Survey (USGS), the program provides funds to State geological agencies to help them preserve and inventory their geological samples and data. This includes digitally cataloging and describing these data and materials into the National Digital Catalog, a centralized database managed by the NGGDPP that is accessible to the public.

“Basically, the database reveals to geologists, researchers, and government agencies where natural resources such as minerals, oil, gas, and fossils could be located,” said Natalie Latysh, associate program coordinator for the USGS’s NGGDPP.

“Not everyone has \$4 million dollars to drill a well to determine what is in the ground,” she said. “Instead, the database can be used to inform users of previous work, including the existence and location of important resources.”

In 2008, Dr. William Harrison, a professor and the director of Western Michigan University’s Michigan Geological Repository for Research and Education (MGRRE), received a call from a potash mining company in Hersey, Michigan, offering to donate rock cores of potash extracted during the 1980s.



William Harrison of Western Michigan University holds a potash core sample. Photograph credit: Mike Lanka, Western Michigan University

The company was preparing to shut-down and could no longer store the 4,000 boxes of core samples. MGRRE houses a comprehensive collection of Michigan’s rock cores and samples and maintains extensive online databases.

“USGS’s funding was the impetus for making [those] data available so that the industry could become aware of the potash deposit,” Yellich said.

Funding from the USGS’s NGGDPP enabled MGRRE to acquire the potash cores and begin compiling the data and logging them into the National Digital Catalog. Annually, NGGDPP funds are awarded to States for proposed preservation projects, like this one, through a competitive grant process.

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Alerting Mining Companies and Investors

Access to the national catalog alerted mining companies and investors about the collection of samples.

One company in particular, Michigan Potash, teamed up with MGRRE in 2013 to analyze the cores and confirm, through chemical tests, the amount of potassium contained in the potash samples. Analysis revealed the richest grade of potash ever produced globally, even richer than deposits produced in Canada and Russia.

“Because of the core samples, we were able to get a geological picture of what was down beneath the surface,” Yellich said.

The mineral deposit composes the Borgen Bed, which lies under 14,500 acres in Mecosta and Osceola Counties in western Michigan. Michigan Potash is working on breaking ground in 2017 on a state-of-the-art manufacturing facility.

“This discovery benefits agriculture, resource development, and the economy in Michigan and beyond, which would have been much more difficult to realize, if at all, were it not for the NGGDPP,” Yellich said.



Potash contains a key plant nutrient, which makes it an important resource for the production of agricultural fertilizer. Photograph credit: Pk Cascio, USGS

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