

E-GeoNews

News from the Indiana Geological Survey

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IGS Research Notes*

Mucking about in soggy compost may not be your idea of a good time, but IGS geochemist Tracy Branam has been in his element this spring and summer. A recent grant from the U.S. Forest Service has him investigating a new method of rejuvenating a failed sulfate-reducing bioreactor, a passive [reclamation](#) treatment that is used to neutralize acid mine drainage run-off from coal mines. This drainage can enter streams and rivers, adversely affecting fish and other aquatic life.

At the Lacy site, an abandoned coal mine in Martin County, he has been injecting glycerol and soybean oil into the bioreactor's substrate of wood chips, compost, and sawdust--the food for the sulfate-reducing bacteria that neutralize the harmful chemicals in the water. Just like our backyard compost heap sometimes stops decomposing if there isn't enough organic matter to fuel it, these large bioreactors can stop working. If this new treatment helps to jumpstart the bacterial action, the Indiana Division of Reclamation may use it to regenerate other stalled bioreactors.

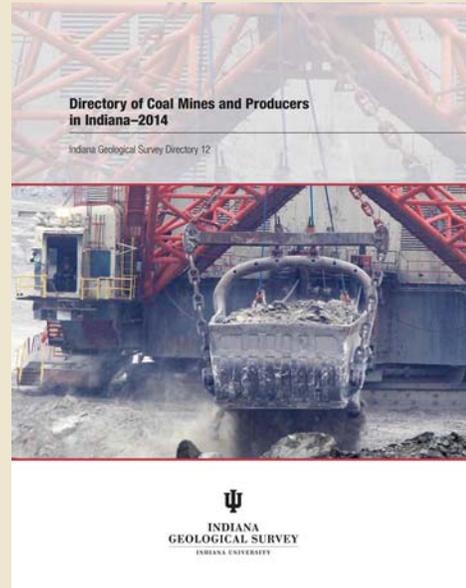


IGS Geochemist Tracy Branam checks outflow chemical levels at the Lacy abandoned coal mine site in Martin County.

* A new feature of *E-GeoNews*, IGS Research Notes will bring you news of the ongoing work of the scientists and technicians of the Indiana Geological Survey. We hope to keep you informed about the research we undertake and how geology can have a direct impact on our lives. If there is an area or study you are interested in hearing about, please let us know! Send an e-mail to IGSinfo@indiana.edu and in the message line add, "To the editor."

New Coal Mine Directory

Available as a free download from the IGS Bookstore, the [Directory of Coal Mines and Producers in Indiana-2014](#) is packed with information about Indiana's active coal mines. It includes county overview maps and coal production tables for each coal-producing county. In addition, a detailed map of each mine shows mined-out areas, locations of active pits, mine offices, and local roads. The directory also features information about mine type, operation dates, mining status, coals mined, ownership, mine contacts, and production. A coil-bound printed version is available for \$15.00.



IGS Participates in National Capstone Program

A 3-year national program and exercise to test emergency preparedness, Capstone 14 worked to strengthen partnerships between local, state, and federal governments in the event of a multi-state emergency.

As part of the exercise, Walter Gray, IGS Outreach Services Head, conducted a 3-day workshop on earthquake hazards in the Midwest. He also acts as a communication link for agencies such as the Indiana Department of Homeland Security and the Central U.S. Earthquake Consortium.

The IGS, through its Quake Cottage Program and other outreach activities, has worked to educate Indiana citizens about seismic risk and earthquake preparedness.



IGS geologists drill cores (see inset) from the bottom of a lake in northern Indiana to determine when the lake formed.

Glacial History of Northern Indiana

A recent collaboration between the IGS and the University of Toledo, with funding from the Great Lakes Geologic Mapping Coalition, took geologists out on the lakes of northern Indiana and southern Michigan this past January to determine the date of lake formation. Goose Pond, Sweet Lake, and Wall Lake are all associated with the Sturgis moraine, a former ice margin of the

Saginaw Lobe.

Radiocarbon dates from the organic lake-bottom material (including a log, complete with bark) will establish a chronology of this moraine and will, in combination with dates collected from other ice margin positions establish a timing of ice retreat from northern Indiana. Researching this glacial history aids in developing computer models that can help us understand climate change in our own time.

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Deborah DeChurch, Editor
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