Penn State Underground Carbon Sequestration Research Receives $2.5 Million DOE Grant

The U.S. Department of Energy has awarded a $2.5 million grant to researchers at Penn State, Lawrence Berkeley Laboratory, and the University of Texas at Austin to study what happens when carbon dioxide (CO2) is stored underground by using a real-time seismic monitoring system to track CO2 movement.

Carbon sequestration occurs to help reduce CO2 in the atmosphere. It is injected under high pressure into a saltwater aquifer or mineral deposit for long-term storage. There is no clear picture of how the CO2 migrates in the reservoir and if leakage can occur.

In 2007, Lawrence Berkeley National Laboratory scientist Tom Daley developed real-time monitoring equipment that is installed during construction of an injection well and emits an energy pulse that vibrates through material. These vibrations are analyzed to help create a picture of the subsurface. CO2 affects seismic waves, and there was no reliable way to track CO2 volume—until Tieyuan Zhu with Penn State Institute of Natural Gas Research discovered the relationship of seismic wave energy loss and CO2 saturation. This knowledge combined with the seismic analysis technique known as waveform inversion will help to accurately mapping underground CO2.

"This new technology that we’re developing is something we couldn’t even imagine five or 10 years ago," said Zhu, principal investigator on the project. "Our goal is to develop new data-processing..."
Industry and seismic data, the team will be able to use the continual addition of data to further verify their underground CO2 storage picture. A 3-D picture of the reservoir can be updated with near-real-time CO2 saturation over a period of time.

Sanjay Srinivasan, head of Penn State’s John and Willie Leone Family department of Energy and Mineral Engineering and Eugene Morgan with Penn State’s Petroleum and Natural Gas Engineering, are co-investigators on the project, along with Jonathan Ajo-Franklin, head of the geophysics department at Lawrence Berkeley National Laboratory, and Alexander Sun, senior research scientist, Bureau of Economic Geology, University of Texas at Austin.

“We are at the cusp of implementing some large-scale carbon-sequestration projects, but what is stopping federal agencies from moving forward is an uncertainty of where the injected carbon dioxide goes,” said Srinivasan. “Our project will go a long way toward developing technologies to not only figure out where the carbon dioxide is going but also to identify potential issues that might arise during the process so that they can be mitigated.”

Posted by David E. Hess at 1:15 PM

No comments:

Post a Comment

Enter your comment...

Comment as: Select profile...

Publish Preview
Gov. Wolf: Saturday April 28 Is Prescription Drug ...
Latest UpStream Newsletter Now Available From Stro...
April 27 Take Five Fridays With Pam From PA Parks …
Natural Lands, Delaware Highlands Conservancy, Con...
DEP Posts 71 Pages Of Permit Actions In April 28 P...
DEP Permits For Brunner Island, Moxie Freedom Natu...
DCNR Signs Submerged Lands Agreement With EQT Dril...
April Environmental Synopsis Newsletter Now Availa...
Friday PA Environmental NewsClips
Exelon Sets Goal Of Further Reducing Greenhouse Ga...
Learn About Planting A Pollinator Garden At Adams …
House Will Again Try To Move 5 Bills Creating New …
House Committee Meets April 30 To Consider Convent...
569 Registered For Central PA Conservancy’s April …
DEP, Local Officials Tour Crazy Aaron’s Putty Worl...
Thursday PA Environmental NewsClips
DEP Celebrates Reuse Of Brownfield Site By AeroAgg...
House Committee To Consider Local Clean Energy Fin...
EPA Announces $2.7 Million In Grants For 7 Brownfi...
Reminder: PRC, Partners Hold Household Hazardous W...
Wednesday PA Environmental NewsClips

Senate Committee Reports Out Pipeline Safety, Cons...
Pittsburgh-Based PPG Reports Sustainability Progre...
Capital Region Water Invites Public For Tour Of De...
Wildlands Conservancy Highlights Education, Other ...

Videos Added: New Statewide Partnership Launches M...
Penn State Behrend Campus Will Connect Erie Compa...

Sen. Yaw Encourages Pennsylvanians To Take Advanta...

Columbia Gas Of PA Latest Sponsor Of KPB's Great A...
PECO Receives Energy Star Partner Of The Year - Su...
Game Commission Biologists Receive Recognition Fro...

Tuesday PA Environmental NewsClips

PA Environmental Professionals Recognize Felicia D...
PA First Lady Unveils Governor's Residence Rain Ga...
Penn State Q&A: Sarah Xenophon: Making Impact On C...

Q&A With Matthew Royer On Penn State's Impact On T...
Penn State Extension: Changing Practices From The ...

Brodhead Watershed Assn. Get Outdoors Poconos Book...
Students See Green: Mock Spill Illustrates Potenti...

South To Christian Street
Revised General Permit...

DEP Sets Hearing May 22 On Sunoco Marcus Hook Term...

Applications For Calendar 2017 Recycling Performan...

DEP Suspends Enforcement Of Low-RVP Gasoline Requi...

Friday PA Environmental NewsClips

Joint State Govt. Commission Concludes PA Environm...

Brodhead Watershed Assn May 5 Hike In Search Of Im...

Public Utility Commission Acts To Remove Barriers ...

House Republicans List House Conventional Oil & Ga...

Pennsylvania Resources Council Distributing Residential Recy...

Celebrate Earth Day By Joining Keep PA Beautiful’s...

Pennsylvania Statewide Envirothon Provides Spring

► March (296)
► February (240)
► January (295)
► 2017 (3129)
► 2016 (3151)
► 2015 (2764)
► 2014 (2129)
► 2013 (817)
► 2012 (725)
► 2011 (887)
► 2010 (836)
► 2009 (755)
► 2008 (166)