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Field tests set on Basin basalt carbon storage

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By Andrew Sirocchi, Herald staff writer

The projections are done. The laboratory tests have been concluded.

Next comes a pilot project that could determine if the Columbia Basin truly holds the potential for storing millions of tons of carbon dioxide emissions inside layers of basalt thousands of feet thick.

"It's exciting on the big picture scale and it's exciting on the regional scale as well because of the resource we walk upon," said Grant Pfeifer, regional director of the state Department of Ecology's Eastern Regional Office.

The project began in 2005 at Pacific Northwest National Laboratories with laboratory fellow and scientist Pete McGrail identifying the Columbia Basin's potential. Now, field tests are planned for early next year.

For those concerned about climate change, an economical way to permanently store carbon dioxide emissions in the ground is hallowed territory.

Globally, carbon sequestration could prove to be the technology of the future for power plants that need to reduce the carbon emissions they release into the air.

Locally, basalt formations encompass 60,000 square miles of the Pacific Northwest and could attract many of those same businesses to the Columbia Basin.

"Geologically, a considerable fraction of the Columbia Plateau is likely suitable," McGrail said.

"That's the objective of the pilot. To get an idea of the suitability."

Legislation approved this year already prevents the construction of new power projects that would emit more carbon dioxide than a modern gas-fired plant, giving the Columbia Basin an invaluable resource in its basalt -- if the pilot proves successful.

The Port of Walla Walla has pounced on the opportunity.

This week, the port approved the \$4 million purchase of 1,900 acres immediately off Highway 12, where the test will be conducted. If the pilot project proves successful, Port Executive Director Jim Kuntz said the port could attract many carbon-based businesses to the property.

A Gig Harbor based-consortium, the Wallula Energy Resource Center, hopes to build a \$2 billion coal gasification plant on the property if it can sequester 65 percent of its carbon dioxide emissions underground.

Meanwhile, Kuntz said other businesses also have expressed interest in the site.

"We are very supportive," Kuntz said. "We think it's a great project and environmentally it has great promise for the future."

The site, which was owned by Boise Cascade, includes a cottonwood plantation the company plans to harvest but not replant, Kuntz said. It also includes a water right of about 4,700 acre-feet per year.

That, in combination with the thick basalt layers under the property, makes it an ideal place for carbon sequestration technology to get its first test in the Columbia Basin.

Ecology and PNNL representatives met this week to establish safeguards for the tests and Pfeifer said those discussions went well. Seismic testing will have to establish whether the location is ideal for drilling a testing well.

If those surveys go well, construction could begin in February 2008.

"We're very comfortable with the plan that is being proposed," he said.

The plan for the test is to inject between 3,000 to 5,000 tons of carbon dioxide into the basalt, a relatively small amount compared to industrial standards.

An injection well would be drilled between 3,000 and 4,000 feet deep. After 18 to 24 months, scientists plan to recover a sample of the basalt to determine if the project was successful and if the carbon dioxide actually does get trapped inside the basalt and turned into limestone.

Supercomputer projections and laboratory experiments say it will, but field tests will tell whether scientists are right.

"The scope is to verify the accuracy of those computer predictions so that this tool could get used for commercial scale deployment, in the Northwest or wherever we have an opportunity," McGrail said.

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