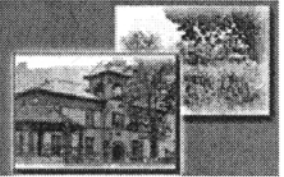




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Carbon Capture Experiment Should Start Later This Month

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Tammy Gray-Searles

Drilling is set to begin soon to reach a deep underground rock formation into which carbon dioxide will be injected as part of a carbon capture experiment.

"We don't have an exact start date, Westcarb Outreach Coordinator Richard Myhre explained, but noted that if everything goes as planned, it will be within the next three weeks.

The carbon capture project is one of many across the nation designed to determine whether it is possible to safely and economically store carbon dioxide underground. If tests prove successful, output from various activities, including coal-based electric production, could be stored underground instead of being released into the atmosphere.

A number of partners are involved in the project, including Arizona Public Service Co. Westcarb includes a group of more than 80 private and public partners.

Work at the test site, which is located approximately one mile northeast of the APS Cholla Power Plant near the plant's ash pond, has already begun. Myhre explained that all of the preparations for drilling have been made, and partners in the project are ready as soon as a drilling rig arrives.

Since drilling will be much deeper than what is required for a water well, the rig will be the type that is used to drill for oil. According to Myhre, a private contractor will be providing the rig from Farmington, N.M., and is awaiting one last Arizona operating permit so that work can start. Permits to drill the well and conduct the test have already been obtained from the state and federal governments.

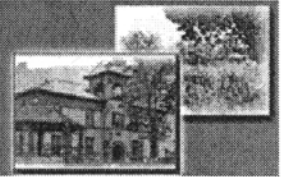
Myhre explained that the drilling process should take a total of three weeks, if everything goes as planned.

"From the time the first bit hits the earth until the bottom of the hole is probably going to be about three weeks," he remarked.

Westcarb officials plan to provide regular updates about the depth of the drill and the layers of earth it will be cutting through on their Web site, www.westcarb.org as work progresses.

"As we do the drilling, we will have daily or regular updates," Myhre said. "it will show how deep, and as we're going through the layers for each formation we're in, how old the formation is, what was going on in Arizona at the time with it, what sort of reptiles, bony fishes, fossils, et cetera were there at the time."

Myhre explained that he hopes the Web site will be an educational tool both for adults and for school children learning about geology and new carbon capture techniques.



Because the hole will be so deep, reaching far below the Coconino aquifer (C-aquifer), it will be drilled in various tapering sizes. Myhre described the planned ape of the well as being similar to a telescope, without the wide part at the top, and the narrowest section at the bottom.

Once the drilling work is complete, scientists will test water and stone at the bottom to make sure that it is as expected. According to Myhre, preliminary research shows that the water at that depth and location should be extremely salty, and not suitable for any purpose, even with treatment.

"We actually want the good salty water. We don't want to be working in an area that could be someone else's resource," he explained.

Stone formations at that level are also expected to be porous sandstone, with sponge-like holes to absorb the carbon dioxide. Myhre noted that a small water injection test will be performed to test the flow into the rock formation before the larger scale carbon dioxide test is completed.

"Carbon dioxide is liquid-like down at that pressure. We want to make sure it flows the way we expect," he said. "We inject the water and make sure it flows through the holes the way we want it to. We want to be sure we really can get it to flow into those holes, and that there are enough holes in the rock formation and they have enough connection."

If the early tests confirm what geologists believe about the formations at the location, carbon dioxide will then be injected and allowed to remain in the formation for a period of time. Then additional testing will take place to determine whether it has remained in the formation as expected and how far it has traveled.

Because the site is only being used for testing and not as a long-term carbon injection site, the hole will be filled with cement and capped at the end of the experiment.

Myhre noted that prior to filling and abandoning the well, researchers may attempt a few additional experiments, including trying to retrieve some of the carbon dioxide from the site.

"Researchers actually question whether or not they can get it back out," Myhre said.

He likened the absorption process to that of a sandstone coaster. Water from a glass is absorbed into the coaster, but cannot be extracted.

"It gets stuck in cracks between the pores due to capillary pressure," he noted. "There is some value to that. This is a small test, but if it were a bigger injection we might worry if it were able to come back out."