INJECTING CARBON DIOXIDE INTO UNCONVENTIONAL RESERVOIRS BUCHANAN COUNTY, VIRGINIA, SITE

www.energy.vt.edu

PROJECT OVERVIEW

Description:	The Virginia Center for Coal and Energy Research (VCCER) was awarded a cooperative agreement from the U.S. Department of Energy's (DOE) National Energy Technology Laboratory (NETL), to accomplish the programmatic research goal of understanding the relationship between carbon dioxide (CO_2) and methane (CH_4) in underground geological formations such as coal and organic shale. Nearly 14,000 tons of CO_2 were injected into wells in the Oakwood coalbed methane field in Buchanan County, Virginia, and are being closely monitored in the post-injection phase of the project.
Project Goals:	The goal of the project is to gain experience and understanding by performing characterization, injection, and monitoring to test storage at various depths of coal seams, and to track the movement of CO_2 throughout the injection and post-injection phases. The primary objective is to test the ability of unmineable coal seams to store CO_2 and the potential for enhanced recovery of the methane in the coal at offset producing gas wells. This was done by subjecting the identified coal seams to injection for one year.
Funding:	The total project cost is approximately $15.5 million, of which $12.2 million is from DOE funds and the remainder from Virginia Tech and the private sector.
CO_2 Source:	Commercial grade CO_2 was purchased from a vendor and was delivered to the site by tractor trailer, small tanker trucks, and an on-site pipeline.
Project Duration:	October 1, 2011 - December 31, 2017
Site Selection and Previous Experience:	Geological characterization performed during earlier projects funded by the DOE/NETL led to the identification of promising areas for storage of CO_2 using existing wells in Buchanan County, Virginia. A previous project performed by the VCCER during January and February of 2009 successfully injected 1,000 tons of CO_2 in Russell County, Virginia.
Regulations:	Permitting for all activities under this project was managed by the VCCER in full compliance with the National Environmental Policy Act, the U.S. Environmental Protection Agency (EPA), and the Commonwealth of Virginia.
Research Partners:	Virginia Center for Coal and Energy Research, Virginia Tech; Virginia Department of Mines, Minerals and Energy; Marshall Miller & Associates; Southern States Energy Board; CONSOL Energy; Geological Survey of Alabama; Sandia Technologies; and Det Norske Veritas

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COMMUNITY BENEFITS

Economic Benefits:	Opportunities for local service providers; greater understanding of local resources that may support future, larger projects and job creation.
Project Recognition:	Promotion of regional energy research initiatives; attraction of visitors including high-profile elected officials, leaders of industry and academia, and other members of the public.
Public Outreach/ Community Voice:	Project representatives from the VCCER and industry partners met with the Buchanan County Board of Supervisors at their regularly scheduled meeting on February 4, 2013, to inform them of the project and answer questions and comments. A public open house, to which relevant citizens and stakeholders were invited, was held September 3, 2014, in Grundy, Virginia, before injection activities commenced. An open house to discuss project results is scheduled for October 13, 2017. Project information is also available on the web at www.energy.vt.edu/carbon-management.html.
Valuing Community Resources:	Data collection on local geology, air, water, soils, and regulations that will be valuable to any future activity bringing larger carbon capture and storage projects to Buchanan County; new maps and graphics to support community initiatives; project designed and scheduled to minimize disturbance to the environment and local activities.

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