



Rhino at The Wilds wildlife sanctuary in Zanesville on a feeding pad constructed of FGD byproducts

Advanced Energy Job Stimulus Program

A key component of Ohio's program to create new jobs and encourage economic development, the \$150 million Advanced Energy Job Stimulus Program is designed to support new technology projects on a fast track toward commercialization. As part of the \$1.57 billion job stimulus package signed into law by Governor Ted Strickland in June 2008, the goal of the program is to employ Ohio workers in the advanced energy jobs of the future.



Project Name:

**Reclamation of Ohio Coal Mine Sites
Using FGD (Flue Gas Desulfurization)
Byproducts: Phase II Demonstration Projects**

Project Location:

Conesville, Ohio (Coshocton County) and Brilliant, Ohio (Jefferson County)

Applicant Information:

This project will be led by three principal investigators: Dr. William Wolfe, Dr. Tarunjit S. Butalia and Dr. Harold Walker, all of the Department of Civil & Environmental Engineering & Geodetic Science. Drs. Wolfe, Butalia and Walker have worked separately and together as co-investigators on a variety of clean coal technology projects that have received Ohio Coal Development Office (OCDO) funding over the years.

Drs. Wolfe and Butalia have been leaders in responding to environmental concerns over the beneficial uses of coal combustion byproducts. They have successfully presented the merits of such usage to the Ohio Department of Transportation and to several county transportation offices. They recently received the "C2P2" Research Award from the U.S. Environmental Protection Agency for their work to demonstrate the beneficial use of fly ash in upgrading highway base layers.

Other partners in this project include American Electric Power (AEP), Ohio American Energy, Inc. (OAEI), the Electric Power Research Institute, the Ohio Department of Natural Resources (ODNR), the U.S. Department of the Interior, the U.S. Environmental Protection Agency, the American and Midwest Coal Ash Associations and the Ohio Mine Land Partnership.



Tour of Ohio Mineland Partnership to AEP Conesville highwall site undergoing reclamation using stabilized FGD material.



FGD-lined lagoon at OARDC, western branch, South Charleston.

Project Description:

This project's primary goals are to demonstrate an innovative method for reclaiming abandoned mine lands around Ohio and to test an environmentally friendly process for using byproducts created during combustion at Ohio's coal-based power plants.

The project will use 1.2 million tons of flue gas desulfurization (FGD) solids to reclaim two mine highwalls* – one near AEP's Conesville power plant in Coshocton County and one near AEP's Cardinal power plant at a mine near Brilliant in Jefferson County operated by OAEI. The solids will be used to eliminate the cliff edges of the highwalls. Successful demonstration of slope stability and ground water quality could lead to the use of five to 10 million tons of FGD solids per year in mine land reclamation.

In Ohio, the increased use of sulfur scrubbers at power plants could cause the amount of FGD solids produced annually to increase from the current 3.5 million tons to as many as 6 million tons by 2015. The project would provide operators of coal-based power plants with an ideal alternative to landfills.

The project will also pilot-test the recovery of additional, unmined coal from seams within the highwalls. The typical final step in the removal of coal from a strip mine is to drill horizontal holes into the highwall to remove coal that otherwise could not have been mined. The project will fill those holes with FGD-based grout to determine if it possesses sufficient strength to hold the highwall intact while any remaining coal between the augur holes is removed.

Funding Request: \$1.5 million

Approved Funding: \$1,436,035

Total Project Investment: \$5,052,397

Jobs Created: 5 new full-time jobs and 6 new part-time jobs, with another 12 full-time jobs retained

Primary Application of Technology: Reclaim mine lands, demonstrate beneficial new use of FGD solids, mine previously unmined coal

* A highwall is a sharp cliff-like exposure that is created during certain mining operations.



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