

The Maryland Initiative to Use Coal Combustion Products to Reduce Acid Mine Drainage

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ABSTRACT

In 1994 the Maryland Power Plant Research Program and Maryland Bureau of Mines started a major Initiative to conduct a series of projects using clean coal combustion products to reduce acid formation and the production acid mine water in abandoned mines in Maryland. The initial technical concept was to use the cementitious properties of FBC material and the flowability properties of fly ash to make a highly flowable grout that could be economically injected into mines, would entomb mine debris and cover exposed pyritic surfaces, and be more or less permanent as a low grade cement or artificial rock replacing coal that had been mined even two centuries earlier. The initial technical demonstration was the Winding Ridge Project in which 5600 cubic yards of grout prepared from 100 percent mine water and coal combustion products was injected into the Frazee Mine in 1996. Three years of monitoring at Winding Ridge proves that we have reduced acid formation in the Mine and the grout is durable in the acid mine environment. There have been no adverse impacts on ground water in the area. Based on these initial observations the Maryland has decided to apply the principles learned to the largest source of acid mine drainage in Maryland, the massive Kempton Complex. This paper presents an overview of the Maryland effort and a description of the strategy that is evolving for the utilization of coal combustion products to reduce one of our major historical environmental problems.