

Reclaiming Western Maryland Abandoned Mines Using Coal Combustion By-Products

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ABSTRACT

Maryland coal-fired power plants produce 2 million tons of fly ash annually. Approximately half is sold to the concrete industry, leaving 1 million tons each year for which a beneficial use is needed. One beneficial use for coal combustion by-products is to create a mine reclamation industry to prevent subsidence and mitigate acid mine drainage (AMD.) Western Maryland is home to both one of the most intensely mined coal basins in the nation and to AES Warrior Run coal-fired power plant, making it a prime site for this industrial development. Georges Creek has been mined since at least 1751, with much of the coal production predating regulation and modern mining techniques. For this reason, many legacy issues remain involving subsidence and AMD. The AES Warrior Run power plant produces a self-cementing fly ash that could be utilized as a grout to treat the subsidence and AMD issues in Georges Creek.

Using GIS and GPS allow for accurate mapping of mines prior to grouting. A review of production records was completed to calculate the minimum amount of coal removed from mines to estimate total void space for the basin. This total was compared with available ash streams from Maryland and the Warrior Run plant alone. Interviews with local residents were conducted to learn about unique characteristics of the mines that would be useful in designing the grouting project. Building on the success of the Winding Ridge demonstration project, this application of coal ash shows potential for grouting Western Maryland mines.

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