

The use of coal combustion products by local watershed groups to seal stream loss zones in Karst topography

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KEYWORDS: flowable fill, stream loss zones, Karst topography, Weathering Block Experiment, local watershed groups, Materials Testing Laboratory, Super Sacks, Coal & Shale Analysis Laboratory, TCLP

Employing local equipment and labor, flowable fill made from 100% coal combustion products (CCP) was successfully used to seal stream loss zones in Hoyes Run located within an area of Karst topography in Garrett County, Maryland. The mix design for the CCP material was based upon the results of an ongoing, long-term Weathering Block Experiment being conducted by the Materials Testing Laboratory at Frostburg State University. This experiment subjects varying mixes of CCP material to a continuous flow of low pH water simulating mine acid flowing over mine pavement covered by a layer of CCP flowable fill.

Different methods were used to transport, mix, and place the grout, keeping the logistical expenses within the means of local watershed groups. A local cement plant was initially used to mix the grout, but later testing will use dry CCP grout material pre-mixed and placed in Super Sacks. These containers can be strapped on pallets and stacked for ease of transportation, storage, and handling. Having bottom spouts to accurately dispense the material, the Super Sacks can be hoisted above a small cement mixer where the material is placed and hydrated.

The maximum particle size of mix designs is being determined for the various sizes and types of pumps available which could be used to accurately place the material. The relative strength of each mix is also being measured, with sample remnants being sent to the Coal & Shale Analysis Laboratory at Frostburg State University for TCLP testing.