

The Use of FBC Coal Combustion Ash for Alkaline Addition at Two Surface Coal Mine Sites in Pennsylvania, Success and Failure

Joseph Schueck¹, Joseph Tarantino², and Timothy Kania³

¹ Pennsylvania Department of Environmental Protection, Bureau of Abandoned Mine Reclamation, P.O. Box 8476, Harrisburg, PA 17105-8476, ² Pennsylvania Department of Environmental Protection, Bureau of Mining and Reclamation, 286 Industrial Park Road, Ebensburg, PA 15931-4119, ³ Pennsylvania Department of Environmental Protection, Bureau of Mining and Reclamation, P.O. Box 669, Knox, PA 16232-0669

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ABSTRACT

It is recognized that surface coal mine sites with an abundance of naturally occurring alkaline strata produce alkaline water. But many sites contain little or no alkaline strata and tend to produce acidic drainage. One approach used in Pennsylvania on alkaline-deficient sites is to import alkaline material and amend the spoil in order to obtain alkaline drainage. The amount of alkaline material needed is determined by an overburden analysis. Highly alkaline FBC coal combustion ash was used to amend the spoils at two surface coal mine sites during mining and reclamation activities. At the first site, which was a re-mining effort, addition of the FBC ash was sufficient to convert acidic ground water discharges to alkaline discharges. At the second site, a virgin mining operation, ground water discharges from the site went from neutral to acidic, despite the addition of the alkaline ash. This paper examines the similarities and differences between the two sites in an effort to suggest reasons why one site was a success and the other a failure.