

# Interactions of Coal Ash Leachate and Mine Spoil

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## ABSTRACT

Reliance on leaching tests alone to determine the potential for the environmental impact of coal ash in a mine environment only tells one part of a much larger story. Leachate chemistry can and often does undergo significant changes in trace element concentrations as it moves through certain types of sediments. Past work at the EERC has demonstrated that interactions of mine spoil and coal ash leachate resulted in trace elements in the leachate being attenuated by sediments from mine settings. The debate of appropriateness of coal ash for use in mine reclamation activities continues, and the EERC is performing laboratory evaluations that will provide valuable information in determining the environmental performance of coal ash in mine settings.

The determination of distribution coefficient ( $K_d$ ) values for different leachate constituents is important to facilitate an improved understanding of the potential for trace elements leached from coal ash to reach a compliance boundary, especially in areas where hydraulic conductivity is too low to allow for field studies in adequate time frames. Even if hydraulic conductivity is not low, the determination of  $K_d$ s can be valuable in determining the rate of transport of various constituents through the subsurface environment.

In ongoing experiments, multiple real-world mine spoil sediments are being used in laboratory sediment attenuation experiments where simulated coal ash leachates were used to determine  $K_d$  of coal ash constituents that are of environmental interest. Results will be detailed, and interpretations provided.

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