

# **Trends in Elemental Leaching from Coal Combustion By-products from Two Stoker Boilers before and After Modernization of the Ash Handling System**

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To assess how elements occur within and leach from coal combustion by-products (CCBs) produced by stoker boilers and begin to quantify the possible risks from CCB use or disposal, CCBs and feed coal were sampled from two stoker boilers before and after the ash handling system was modernized. Both boilers operate below their efficiency window and utilize the same feed coal. Prior to retrofit, emission controls on the systems consisted of multicyclone dust collectors, as well as a single baghouse. Following modernization, the boilers are operating somewhat closer to peak efficiency and have additional pollution controls, namely three diatomaceous-earth lined baghouses that together remove virtually all particulate matter from the combustion gas stream. CCB’s were sampled from multiple points within the systems, including bottom ash, sidestream ash, multicyclone ash, and, where present, baghouse ash. Samples of each ash were shaken for 16 hours in 2% nitric acid to find total leachability. This method was chosen over other methodologies due to the acidity of the local groundwater and lack of results in pilot studies using batch leaching and groundwater leaching techniques. Preliminary results indicate that in terms of ash stability, ashes produced prior to the retrofit have greater total leachability than ashes produced after the retrofit.