

THE IMPACT OF Hg CONTROL TECHNOLOGIES ON THE LEACHING AND THERMAL RELEASE OF Hg, Ni, As, Se Cd, Pb, FROM COAL UTILIZATION BYPRODUCTS

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ABSTRACT

The US DOE is in the process of assessing capabilities of mercury control technologies for coal-fired utilities. Part of this assessment is to examine the fate of the mercury captured by the control technologies. Almost every control technology for mercury will impact the quality of the by-products generated by a coal-fired utility, with an anticipated increase in the concentration of mercury, cadmium, nickel, lead, arsenic, selenium and select halides found in the by-products. Over the next 2 years Frontier has been contracted by the US DOE to perform the necessary studies of the associated mobility pathways for the potential contaminants. These pathways include leachability, volatility and methylation. Leachability studies are being performed using a modified version of the US EPA Method 1312. The modification allows the assessment of any potential secondary mineral formation. The volatility studies have been designed in-house to represent the impact of elevated temperatures from, among other things, landfills, asphalt production, wallboard calcining and cement production. Using sulfate reducing bacteria the production of methyl-mercury, over a 30 day period, will be monitored to assess the methylation potential of by-products impacted by the control technologies. The presentation will give an overview of the different techniques developed to assess each mobility pathway; present the reasons for the design of each technique; and present the results-to-date with a discussion of inferred data trends.

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