

Characteristics of CCP's from Kentucky Power Plants, with Emphasis on Mercury Content

**J. C. Hower, T.L. Robl, C. Anderson, G.A. Thomas,
T. Sakulpitakphon, S.M. Mardon, and W.L. Clark**

University of Kentucky Center for Applied Energy Research, 2540 Research Park Drive,
Lexington, KY 40511

KEYWORDS: Kentucky, coal, coal combustion by-products, fly ash, mercury

ABSTRACT

The Center for Applied Energy Research conducts a survey of Kentucky's coal-fired power plants every five years. The last survey was conducted in 2002 and covered most units at all of the plants in Kentucky. Special emphasis was placed on the spatial distribution of ash products, with each row of ESP's or baghouses samples wherever possible. In this manner, we can track the change in concentration of trace elements with relative temperature of the flue gas. Certain elements, such as Zn, Pb, and As, are known to be temperature dependent. The behavior of Hg, while also temperature dependent, is more complex owing to the adsorption of Hg on fly ash carbon. The survey provides a wide array of coal sources, ESP/baghouse collection temperatures, and fly ash carbon composition, all important in determining the behavior of Hg in the flue gas. In addition, many plants have FGD systems, allowing an assessment of the efficiency of FGD in capturing Hg from the post-ESP flue gas.