

LONG-TERM DEMONSTRATION OF SORBENT ENHANCEMENT ADDITIVE (SEA)
TECHNOLOGY FOR MERCURY CONTROL

Summary Report
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The Babcock & Wilcox Company (B&W), the Energy & Environmental Research Center (EERC), Kansas City Power & Light (KCP&L), and Louisville Gas & Electric Companies (LG&E) have teamed to conduct testing of mercury control technologies. The project will focus on demonstrating mercury control technology options for achieving >90% reduction from baseline mercury removal in plants equipped with selective catalytic reduction (SCR) and scrubbers firing a subbituminous and bituminous coal. The program schedule is 27 months in duration, with a start date of May 31, 2006.

The program focuses on determining the impact of SEA injection to oxidize mercury and/or substantially enhance the capability of PAC sorbents and entrained ash particles to oxidize and/or remove from coal combustion gases to achieve a high level (>90% from baseline) of cost-effective mercury control.

The results of this effort will be applicable to virtually all utilities that burn subbituminous and bituminous coals in the United States and Canada; these results also will build upon previous results. The processes to be tested have been proven at the pilot scale and in full-scale tests with lignite, PRB, and blended PRB-bituminous coal. Additional optimization testing is continuing on these enhancements, and all data point to readiness for long-term field demonstration.

The units proposed for testing in this project include the following:

- 1) KCP&L's Hawthorn Unit 5 (HAW5) located near Kansas City, Missouri, which has an SCR, a SDA, and a FF.
- 2) LG&E's Mill Creek Unit 4 (MC4) located near Louisville, Kentucky, equipped with an SCR, an ESP, and a wet scrubber.

The speciated mercury concentrations in the flue gas will be determined in each system using the OH wet chemical sampling method and CMMs at both sites. At HAW5, OH and CMM sampling will take place at the SDA inlet and the stack. At MC4, OH sampling and CMMs will be located at the ESP inlet and the stack.

At the completion of the parametric portion of the testing, the most effective set of conditions will be tested for 3 months at HAW5. At MC4, a 2-month long-term monitoring period will take place with the SCR in service. During the longer-term test, the mercury removal will primarily be based on the coal mercury level and a CMM located at the stack.