

## REPLACING BROMINATED PACs IN SDA/FF APPLICATION FOR CONSISTENT MERCURY MITIGATION

**Plant Challenge:** Define optimal compliance strategy for consistent mercury (Hg) mitigation where Spray Dry Absorber and Fabric Filter (SDA/FF) are employed.

A western utility approached Carbonxt regarding methods to best achieve MATS compliance with their Activated Carbon Injection system upstream of the SDA/FF system. The utility's compliance strategy included both a fuel additive and PAC to control mercury emissions. The plant faced several challenges meeting required Hg removal levels while adding calcium bromide ( $\text{CaBr}_2$ ) to the coal and injecting a brominated PAC. To become compliant, the plant would have to significantly increase its bromine usage, which would increase cost and the potential threat of corrosion.

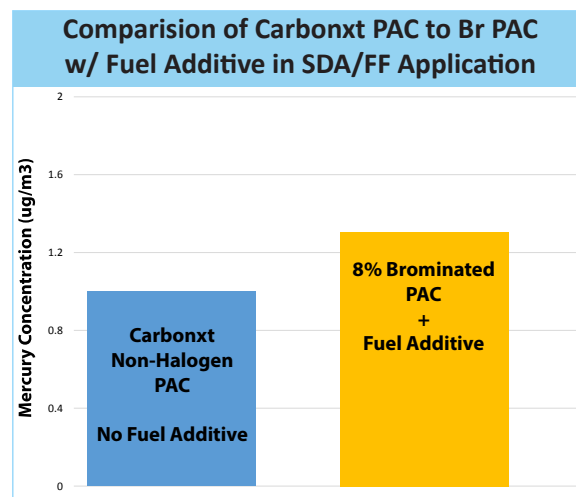
**Carbonxt Solution:** Oxidizing, Non-Halogenated PAC to work in conjunction with fuel additive

In an effort to achieve compliance, Carbonxt Application Engineers and their R&D team conducted a full system analysis to determine optimal Hg capture and PAC usage. Carbonxt performed a carbon mass balance on all units which provided information relative to system performance and potential fluctuations. This allowed the Carbonxt team to develop a unique PAC which would best control Hg and reduce sorbent usage to minimize operational costs. Testing of the specialized PAC and fuel additive proved successful. The data was provided to the utility demonstrating how changes in boiler operations and coal fineness can impact mercury mitigation.

### Result:

The Carbonxt oxidizing, *non-halogenated* PAC outperformed both brominated and other non-brominated sorbents. The Carbonxt solution improved efficiency, increased Hg capture, and lowered operational costs. The plant also realized additional flexibility in their compliance strategy by having ability to adjust the injection rates of both the fuel additive and specialized Carbonxt PAC.

Following the initial award, Carbonxt continued to re-engineer and further optimize the specialized PAC. This translated into an immediate cost savings for the plant of over \$0.05/lb. With an understanding of Carbonxt's technical expertise and proven solution, the utility selected Carbonxt as a long-term PAC supplier and has integrated their non-halogenated PAC into their MATS compliance strategy.



Similar results were achieved in SDA/FF Application without a fuel additive, as shown below.

