

In this issue we investigate
Super Heat Fouling

The Challenge

The Power Plant in this study has two pet coke fired circulating fluidized boilers (CFB) that use limestone injection for sulfur capture and removal. The superheat sections of each boiler would plug off with sulfated limestone agglomeration up to the point that the units had to be brought off line and cleaned. This was a very costly event often costing the company in excess of \$250,000 in lost revenue, contractor fees and employee overtime. Contractors and employees would spend a minimum of ten days in the units with hammers, rods and air lances cleaning the areas between the superheat tubes.

Under normal circumstances a clean superheat section will average a DP of 1.75 INWC and when they get dirty, it would go over 8 INWC.

The Solution

To find a methodology that would allow the plant to operate without having to shut the boilers down once or twice a year to clean out the agglomeration. The solution was to take advantage of Green Shield's ability to prevent the initial sintering that leads to the agglomeration.

The Result...*THE SAVINGS...*

The plant successfully operated for one year after the initial cleaning without any agglomeration issues at all. The ROI on the investment was 6 months. The DP across both boiler superheat sections never went above 2 INWC the entire operating year!

Other gains were a reduction in plant parasitic load due to the ID fans operating at less amperage due to the clean superheat sections. The clean superheat sections also have increased the unit's ability to classify ash, which has resulted in lower limestone use and increased sulfur capture. The fuel feed is also down due to the added heat transfer abilities with the clean tubes versus the tubes coated with thick agglomeration.

Another realized savings was the reduced amount of plant and contract labor needed to remove agglomeration during the annual outages. The agglomeration found on the superheat tubes during the first outage after the cleaning and coating was very soft and came off very easy with dead blow hammers. The amount of debris that was removed from the boilers the following year after the first application of the Green Shield was approximately 80% less than any of the previous years.

Before GreenShield



After GreenShield

