



**Implementation Fitch Fuel Catalyst
Greensboro Plant NC USA
May 2019
Babcock and Wilcox Boiler 75,000 BTU
FHD15-6-4 NG**



Boiler # 3 fuel catalyst placed in operation on 5/16/2019.

- Prior to installation we were not able to turn boiler down below 10,000 lbs per/hour of steam flow as a result of the amount of excess air that was required to burn clean and not emit high levels of CO (carbon monoxide).

@ 15% excess air was required between minimum fire and up to 30% of the boiler capacity. The boiler efficiency ranged between @ 72 - 74% efficiency at these lower ranges.

After installation: Boiler combustion testing was performed and we were able to reduce excess air to 9% set point on minimum fire with no measureable amounts of CO. The excess air required is now reduced as the boiler firing rate is increased with a low of 2.7 % excess air being required at the higher firing rates. The boiler efficiency in the lower firing rates are now @ 80 -82% and as high as 87% on the high firing rates.

Summary:

- We are seeing an increase in the lower firing rates of @ 6% for gas input BTU(s) to steam output BTU(s) as a result of being able to lower the excess air and burn cleanly.
- There was less opportunity in the higher firing rates to see dramatic improvements since we were already operating as high as @ 85% efficient with the recent installation of economizer and thermo charger.
- We are now able to see efficiencies as high as 87% in the higher firing rate for an average of 1.5% to 2% increase over the higher ranges.
- We are now able to run boiler # 3 as low as 8,200 lbs/hr. steam flow at an 80-82% efficiency as opposed to boilers #1 or #2 boiler which averages 68-70% efficiency in these ranges.
- The opportunity to shut off additional steam on weekends to reduce steam demand without losing double digit boiler input/output efficiency as a result of running less efficient smaller boilers can be accomplished.