



Benz Air Engineering Engineering Steam Efficiency

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The University of Texas at Austin sought to reduce NOx emissions to .06 lb/mmBtu NOx. Benz Air Engineering was selected over five other competitors using other technologies, including SCR, burner modifications and burner replacements. Guaranteed emission limits were achieved and boiler controls were implemented to allow the boiler to fire at 0.9 mmBtu/hr, allowing the boiler to stay warm and ready for service while drastically lowering the firing rate.



Boiler # 3 - Emergency Back Up Boiler

The following equipment was identified to reduce NOx while increasing boiler efficiency through a comprehensive boiler plant retrofit. Boiler #3 is a 150,000 lb/hr Babcock & Wilcox "D" type boiler. Boiler #3 uses four Babcock & Wilcox dual fuel gas ring/No. 2 fuel oil gun burners with two 125 hp blower motors on a shared fan wheel. The boiler's ring burners were found in excellent condition.

The modification consisted of:

- 1) Two 125 hp variable speed drives
- 2) PLC-5 based BMS and CCS programming
- 3) Integrated HMIs with RSView32
- 4) 2 Stack Gas Analyzers - NOx, CO and O2
- 5) 10hp Flue Gas Recirculating Fan with a Variable Speed Drive

Estimated Annual Savings

Yearly Fuel Savings \$1,800,000.00
Yearly Electrical Savings \$82,000.00
Yearly CO2 Savings 8,000 tons

Annual Greenhouse Gas Reductions

Metric Tones p/yr of CO2: 2,380

The Greenhouse Gas Reduction is
Equivalent to one of the following:

1,329 passenger cars not being
driven for one year

916 household's electricity
use for one year

186,089 tree seedlings
grown for ten years

2,503 tons of waste recycled
instead of landfilled

823,777 fewer gallons of
gasoline burned

50.6 acres of forest preserved
from deforestation

The technology, the savings, the lower emissions the results have been proven