

Petroleum Refining

New 200,000 lb/hr Boiler & CataStak™ SCR System Helps Refinery Lower Emissions

A 128,000 bpd refinery located in Southwest Texas had to replace aging equipment and lower NOx emissions to demonstrate system-wide compliance. These limits included a NOx reduction at all heaters and boilers, achieved with the installation of ultra low NOx controls sufficient to meet the federal mandated limits.

The refiner selected Nationwide Boiler Inc. as the company's one source supplier for a complete boiler NOx reduction solution that would replace the company's existing equipment with a reliable and efficient boiler solution. Nationwide Boiler was the only supplier that could provide a new, in stock 200,000 lb/hr Babcock and Wilcox FM120-124 750 psig design pressure, 750F superheat design temperature package boiler complete with a low NOx burner available for quick delivery.

To meet NOx levels of 12 ppm (and future single digit NOx requirements), Nationwide Boiler also supplied a 19% Aqueous Ammonia CataStak™ SCR System with a vaporizer and 10,000 gallon aqueous ammonia storage tank with forwarding pumps, unloading station and controls.

A ground-mounted EconoStak economizer, ladder and platforms were also supplied, in addition to an upgraded SIL 2 rated Burner Management System. The refinery also chose to install a refurbished Elliott steam turbine to drive the boiler's force draft (FD) fan, incorporating waste steam and increasing the overall efficiency of the project.

The complete boiler/CataStak™ SCR solution easily exceeded NOx requirements of 12 ppm and start-up results were less than 5 ppm NOx and 5 ppm NH₃ slip. The new boiler and EconoStak economizer also met initial reliability and efficiency expectations. Overall, the solution provided by Nationwide Boiler exceeded the customer's expectations and easily achieved desired NOx levels for complete compliance.



Customer Profile

- Petroleum Refinery
- United States: Southwest Texas
- Total capacity: 128,000 bpd
- Owns/Operates two refineries
- Produces gasoline, diesel, and jet fuel

Supplied Equipment

- New, in stock 200,000 lb/hr Babcock & Wilcox 750 psig design / 750 F superheat design boiler
- 19% Aqueous Ammonia CataStak™ Selective Catalytic Reduction System
- EconoStak economizer
- SIL 2 Rated Burner Management System

CataStak™
Ultra Low NOx Solutions

EconoStak™
Energy Saving Solutions