

Colleges & Universities



Ultra Low NOx Emissions and Improved Efficiency with Environmental E²Stak Solution

Background

The University of California at Riverside (UC Riverside) approached Nationwide Boiler with a need to reduce emissions and improve efficiency of their #4 boiler at the University's steam plant. The plant generates steam for facility uses throughout the large campus.

Problem

UC Riverside required an ultra low NOx, energy savings solution to decrease overall NOx emissions to 5 ppm, which would meet future mandates from the South Coast Air Quality Management District. The University also required a system that was designed to operate as safely as possible.

Solution

Nationwide Boiler retrofitted UC Riverside's 40,000 lb/hr Babcock & Wilcox boiler with an E²Stak solution, comprised of a CataStak™ selective

Summary

- Retrofit existing unit to decrease NOx emissions to < 5ppm
- Optimize performance to improve efficiency
- Meet future mandated NOx emissions limits

catalytic reduction system and an EconoStak economizer. In addition, an ammonia safety system was designed for Nationwide Boiler's ammonia delivery system that included ventilating fans and ammonia detection devices to increase the safe handling of ammonia.

Results

The equipment supplied easily met the 5 ppm ultra low NOx emission requirements, which ensures that the customer will meet future NOx emission limits required by the Air Quality Management District. The EconoStak reduced stack temperature from 450°F to 300°F, resulting in almost a 4% increase to the current boiler's overall efficiency and an immediate energy cost savings.

The customer was satisfied with the overall performance of the system and

plans to install another unit in the near future.

Equipment Used

- A low temperature CataStak Selective Catalytic Reduction System
- Stack-mounted EconoStak economizer on existing 40,000 lb/hr boiler

E²Stak
emissions / efficiency

CataStak
Ultra Low NOx Solutions

EconoStak
Energy Saving Solutions