

Oil & Gas Production

CataStakTM-GT SCR System Upgrade Demonstrates Near Zero NOx Emissions

One of California's largest oil and gas producers required a low NOx retrofit solution for a 1.2 MW Solar Saturn gas turbine compressor set with waste heat recovery, used for the heating of oil during their production process. The unit is part of the company's gasification facility, located in CA and helps in the production of more than 100,000 barrels of oil equivalent per day. In 2002 the facility won the prestigious North American Maintenance Excellence (NAME) Award for its maintenance and reliability program.

In keeping with these high standards of excellence, the company desired a solution that meet the following criteria: reliable performance, fail-proof, lowest NOx reduction, and maintenance free. This solution would also be applied to an identical unit and therefore also had to be easily replicated.

The existing equipment operated at 30-35 ppm NOx (corrected to 15% O₂), above current air quality standards of 5 ppm for turbines under 10 MW. The company required a retrofit solution that would easily bring its equipment into compliance without compromising performance. Selective catalytic reduction (SCR) technology was selected as the most proven and reliable solution to reach the company's goals of near zero emissions.

Nationwide Boiler Inc. offered a CataStakTM-GT SCR system for NOx performance below 5 ppm. The complete SCR system was custom designed to work with their waste heat recovery and low exhaust gas temperature. The final equipment would serve to demonstrate the CataStakTM-GT SCR's



proven performance and reliability, which would later be applied to the second CataStakTM-GT SCR unit.

The CataStakTM-GT SCR system exceeded current air quality standards and performed at 3.8 ppm NOx (corrected to 15% O₂) with ammonia slip of only 0.5 ppm even with the low exhaust gas temperature just above 300°F.

The demonstration unit proved to be a success and it exceeded the company's high quality and performance standards. Nationwide Boiler provided a second identical CataStakTM-GT SCR system which was quickly built, installed and started-up with similar near zero NOx performance results. Both units continue to provide hassle-free operation and will easily meet any single-digit NOx requirements the local air quality management district may impose.

Customer Profile

- Major oil and gas producer
- Bakersfield, CA
- Total capacity: 100,000 boe
- 2002 NAME Recipient

Supplied Equipment

- CataStakTM-GT selective catalytic reduction system for a Solar Saturn gas turbine compressor set
- Anhydrous ammonia delivery system with Nationwide Boiler's NOx reduction control system
- Low temperature and low pressure drop catalyst ideal for back-end retrofits

CataStak-GTTM
Ultra Low NOx Solutions