

## Oil & Gas Production



### CataStak-GT™ SCR System Upgrade Demonstrates Near Zero NOx Emissions

#### Background

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 fail-proof, maintenance free solution that would later be applied to an identical unit in the same facility.

#### Problem

The existing equipment operated at 30-35 ppm NOx (corrected to 15% O<sub>2</sub>), above current air quality standards of 5 ppm for turbines under 10 MW. The

#### Summary

- Demonstrated near zero NOx emissions with the CataStak-GT SCR system
- Proven solution that delivered low maintenance and high reliability
- Achieved with low exhaust gas temperature

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.

#### Solution

Nationwide Environmental Solutions offered a CataStak-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 CataStak-GT SCR's proven performance and reliability, which would later be applied to the second unit.

#### Results

The CataStak-GT SCR system exceeded current air quality standards and performed at 3.8 ppm NOx (corrected to 15% O<sub>2</sub>) 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 Environmental Solutions provided a second identical CataStak-GT SCR system which was quickly built, installed and started-up with similar near zero NOx performance results.

#### Equipment Used

- CataStak-GT Selective Catalytic Reduction system for a Solar Saturn gas turbine compressor set
- Anhydrous ammonia delivery system with Nationwide's Patent Pending NOx Reduction Control System
- Low temperature and low pressure drop catalyst ideal for back-end retrofits

**CataStak-GT™**  
Ultra Low NOx Solutions