

Southern California 900 kW COGEN Project Distributed Generation Power Project

The Problem...

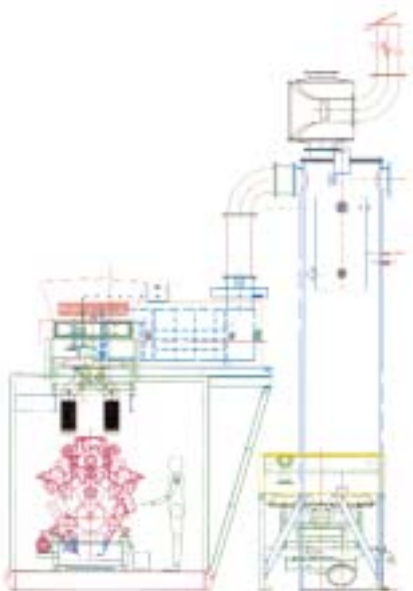
An animal feed manufacturer in Southern California needed reliable and economical electric and steam power as a utility to their production facility. Located in Southern California's South Coast Air Quality Management District (SCAQMD), the center of the most stringent environmental regulations worldwide, the COGEN facility was required to meet BACT for the SCAQMD, including rigorous air emission limits for NO_x, CO & VOC. The problem of abating all three from the exhaust of a Guascor 480GLD, 900 kW, natural gas fired, reciprocating engine was solved by CSM Worldwide, Inc.



The Solution...

The solution employed was the design, manufacture and installation of a custom CSM Model 18B-SCR/CO catalytic abatement system including Selective Catalytic Reduction (SCR) for the removal of NO_x and catalytic oxidation for the destruction of CO and VOC. The uniquely designed catalytic system treats the exhaust from the lean burn Guascor 480GLD, 900 kW, natural gas fired, reciprocating engine.

Utilizing CSM's proprietary Real Time Ammonia Control System, the injection of ammonia is regulated to achieve a precise ratio of ammonia to NO_x prior to the SCR catalyst. With this implementation of sophisticated technology, CSM Worldwide achieved NO_x levels well below the regulated limit of 9 ppm, while maintaining an ammonia slip level well below 5 ppm.



Technical Specifications

Application: COGEN System

Location: Southern California - SCAQMD

Power Production: 900 KiloWatt (kW)

Prime Mover: One (1) Natural Gas Fired
Lean Burn Reciprocating Engines

Engine(s): One (1) Guascor
480 GLD Engine

Controlled Emissions: NO_x, CO & VOC

Performance: < 9 ppm NO_x
< 30 ppm CO
BACT for VOC

Technology: CSM's Catalytic Abatement System
Selective Catalytic Reduction (SCR)
with Catalytic Oxidation for CO

Details: 1. Real Time Ammonia (NH₃) Control
2. Engelhard SCR Catalyst (NO_x)
3. Engelhard Oxidation Catalyst
(CO & Ammonia)

CSM's custom Ammonia Injection Grid (AIG) was used for this "first of a kind" application; the engine exhaust is injected with anhydrous ammonia which is used as the reductant for the SCR reaction, where NO_x and NH₃ react across the SCR catalyst bed, converting to harmless N₂ and H₂O.

Applying technology that here-to-fore was available only in the largest and most sophisticated SCR systems employed in power utilities and chemical plant, CSM uniquely provides this technology for small scale COGEN and Distributed Generation (DG) facilities.

The Result...

CSM achieves the highest of performance standards of less than 9 ppm of NO_x, less than 30 ppm of CO and below current BACT VOC emission levels from the exhaust of this 900 kW, lean burn, natural gas fired, engine. By providing a "seamless solution" to the complex problem of integrating emission control and air permit compliance with the necessity of waste heat recovery through a highly efficient steam boiler, CSM Worldwide helped this facility to exceed all expectations.

COGEN system designers then focused on the implementing other significant, energy recovery features resulting in an overall COGEN design which includes "Tri-Generation" or the concurrent production of electric power, steam and hot water for use at the site.

For More Information:

Sales: 908.233.2882

Fax: 908.233.1064

www.csmworldwide.com

