



## GCS Newsletter: Winter 2013

Feature: Turbocharger Services from 2 authorized locations

MSSH new Turbocharger office in New Orleans meets the demands for authorized turbocharger services in the Gulf Coast. Fully equipped with factory-trained engineers, OEM spare parts and the experience to provide 24/7 service worldwide.

### Are you ready for RICE NESHAP?

**GCS works with you to bring your engines into RICE NESHAP compliance.**

Representing leading manufacturers of emission control and monitoring products, GCS helps you navigate the emissions regulations maze. We guide you through determining the correct equipment to meet your engine operating conditions; backpressure requirements, catalyst sizing, configuration, placement and maintenance, supportive structure, and requirements for continuous monitoring. The GCS Engineering Team translates your emission control requirements into custom systems incorporating the latest in emissions control products, delivering systems tailored to your individual needs.

### EPA Compliance Deadlines – GCS is Your Compliance Partner

RICE NESHAP is the acronym for the US EPA rule: Reciprocating Internal Combustion Engines National Emissions Standards for Hazardous Air Particles. The standards apply to emissions of NO<sub>x</sub>, PM, CO, and NMHC.

These new RICE NESHAP rules are applicable to existing land-based diesel and spark-ignited engines. GCS offers a portal to valuable EPA and RICE NESHAP.

A summary of the RICE NESHAP rule is as follows:

**May 3, 2013 for existing Compression Ignition engines (gas engines)**

**October 19, 2013 for existing Spark Ignited engines (diesel engines)**

Operators of existing stationary diesel engines will be required to:

- Install emissions control equipment that would limit air toxics emissions by up to 70% for stationary, non-emergency engines with a site rating greater than 300 HP
- Perform emissions tests to demonstrate engine performance and compliance with rule requirements
- Burn ultra-low sulfur fuel in stationary non-emergency engines with a site rating greater than 300 HP.

## Air/Fuel Ratio Controls for Emissions Compliance & Improved Performance



Designed to meet RICE NESHAP emissions regulations, Woodward E3 Air-Fuel Ratio Control and Actuation System retrofitted on Caterpillar G3516LE lean burn gas engine-generators at a landfill facility power generation plant.

### Benefits:

- Reduced exhaust emissions
- Improved, consistent engine starting
- Increased reliability
- Diagnostics and engine troubleshooting
- Maximize Fuel Economy



Link photo to [govconsys/pdf/Woodward E3 Air Fuel Ratio Control Landfill Gas.pdf](#)

Photo: [G:\GCS\Engineering\Projects\7400-7499\7474 East Kentucky Power Cooperative - Elizabethtown, KY\Photos\Photos Post Installation\DSCN1462.JPG](#)

**Woodward's** E3 Rich Burn Air-to-Fuel Ratio (AFR) Control System for natural gas engines allows an engine to maintain peak efficiency with varying fuel quality. Using StableSense™ Technology, E3 Rich Burn effectively analyzes, controls and optimizes engine and catalyst functions without continuous readjustment.

### The industry's only oxygen sensor technology specifically developed for natural gas engines.

Designed for rich-burn and lean-burn gas engines, Woodward's E3 system analyzes and controls all of the functions of your engine and catalyst to optimize the amount of time your engine is in compliance. E3 Reduces the Cost of Staying in Compliance

StableSense™ technology provides highly stable, closed-loop control of air-fuel ratio on engines using three-way catalysts. Applications include rich- and lean-burn air-fuel ratio trim systems and full-authority, mass flow metering air-fuel ratio control, including the blending of two different gaseous fuels. Ideal for stoichiometric, spark-ignited natural-gas engines used in gas compression, power generation, pumping, and other stationary applications ranging from <300 kW (400 hp) to 2 MW (2700 hp). It has full authority over spark, fuel, and air. Additionally, diagnostics such as misfire detection and other health monitoring and engine protection functions are integrated into the system.

## Catalytic Converters and Monitoring Systems

DCL oxidation catalysts, three-way catalysts, and SCR systems have become the industry standard for rugged, reliable emissions controls. DCL QUICK-LID® and MINE-X® catalytic converters effectively reduce engine exhaust emissions, including NOx, CO, hydrocarbons, formaldehydes and particulates. With DCL's Siloxane Removal Technology, engines in landfill waste-to-energy sites experience reduced downtime and need less maintenance and repair.



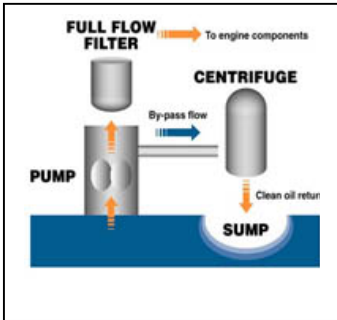
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### Emissions Control System for Utility Emergency Generators

Part of an Emergency Generator System, the EMDs must be available at a moment's notice for backup power if the main utility is brought down due to natural or man-made disasters. DCL QUICK-LID® Catalysts, Heat Blankets and GCS Continuous Parameter Catalyst Monitoring Systems (CMPS) were installed on EMD 20 cylinder engines to bring the utility's 4 engines into compliance with RICE/NESHAP regulations. The CPMS kit is configured for monitoring and data logging specific parameters as required by RICE NESHAP. It is fully configurable and capable of monitoring up to three additional variables. The accuracy of the current, thermocouple, and voltage inputs is +/- 0.2% of full scale. Historic data may be stored or viewed real time through Modbus 485 communication.

## Oil Cleaning Centrifuges

### Protecting Landfill Gas Engines: *Spinner II Centrifuge Dramatically Increases Run Times*



#### Removing contaminants in landfill gas engines

Oil change frequencies for biogas engines are much shorter than those for natural gas engines, due to contaminants in biogas and the high load factors on the engines. Maintaining clean oil and extending drain intervals has a great impact productivity and cost-efficiency. Spinner II centrifuge is a bypass filter, processing 10% of the oil at a time. Spinner II Oil Cleaning Centrifuges remove the most damaging by-products of the combustion process using centrifugal force to spin contaminants out of your oil – including soot and other particles as small as one-tenth of a micron. Removes large particles to prevent catastrophic engine failure; remove small particles to reduce engine wear.

In a landfill operating a large scale waste-to-energy project using Jenbacher J320 Landfill Gas Engines, the gas collected contained high percentages of impurities. When Spinner II Oil Cleaning Centrifuges were installed. The life of the oil and filters were increased by approximately 75%.

## 2013 Training Program – Woodward, Basler

Product training (electrical and mechanical) prepares your team to troubleshoot the controls on your critical equipment. Factory-trained/certified instructors offer practical and theoretical training, including live demos in a closed-loop environment. Woodward engine, turbine and compressor controls and software, basic theory, operation, installation and practical hands-skills.

Our expanded 2013 Training Program includes scheduled classes in our Fort Lauderdale and New Orleans locations.

### GCS Trainers Come to You

Custom classes are available to meet your specific requirements, either in-house or on-site.



Earn Professional Development Hours and Continuing Education Credits. Custom classes available.