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Purpose of Evaluation

Janelle Engineering, Inc. (JEI) of Punta Gorda, FL was retained by EnerTeck Chemical Corporation and the customer to measure and record engine power and fuel consumption data on an in-service Caterpillar diesel generator powering a 3-stage rock crushing installation on a construction site in the Phoenix, AZ area. The diesel engine operated on fuel purchased and stored by the customer. The data will be used by EnerTeck Chemical Corporation and the customer to evaluate the effectiveness the EnerBurn® Diesel Fuel Performance Catalyst.

On September 29, 2009 EnerTeck and Janelle Engineering in conjunction with the customer, conducted a baseline test on an SR-4 Caterpillar Generator used at a rock crushing mine in the Phoenix, Arizona area. The evaluation was being run to prove both the emission and fuel efficiency benefits from utilizing the EnerBurn® Diesel Fuel Performance catalyst.

Product Tested: EnerBurn® Off-Road EC5932A (EnerBurn)

Evaluation For:

A large, big project, construction company. Customer's name withheld at the request of the customer. References available upon request.

Equipment Evaluated

Manufacturer: Caterpillar
Model Number: SR-4
Engine Speed: 1800RPM
Power Output: 1250KVA
Voltage: 480V
Current: 1885A

Evaluation Analyst:

Janelle Engineering Inc.
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2190 Pagoda Lane
Punta Gorda, FL 33983

Evaluation Protocols

In late September 2009 a baseline was measured to establish the fuel consumption at maximum speed in Kilowatt Hours (KW) and at reduced speed (approximately 60% power) and an emission baseline for PM's (Particulate Matter), NOx (Nitrous Oxide) CO2 and HC's. This was accomplished by taking readings during normal equipment usage prior to EnerBurn being introduced. We were successful in achieving a baseline and it was determined we would run the equipment with EnerBurn treatment continuing, until February of 2010 when we would return to do the benchmark analysis.

The time period from late September to February would be sufficient to ensure the engine was fully conditioned with the catalyst and the positive effects of EnerBurn usage would have begun to appear.

The equipment was run in normal field operations throughout the period. EnerBurn treatment to the onsite fuel was monitored by Scott Nielson and his staff to ensure the catalyst was present in all fuel loads delivered onsite.

Evaluation Summary

After benchmarking the equipment on February 22nd & 23rd of 2010, the following results were noted as shown in the table and chart below.

Fuel consumption was reduced at every power setting. The improvement declined slightly as the unit's power was increased. This is normal behavior as our experience with other evaluations has consistently shown additional fuel efficiency at idle speeds. This is important as many pieces of diesel equipment sit at idle speeds for reasonably long periods of time when not in use. The customer estimates this is approximately 40% of the time in a normal work day.

A blended 8.5-9.0% increase in fuel consumption can be expected from normal equipment use based on this evaluation's results.

Settings	Baseline FC grams/Kw/Hr	Benchmark FC grams/Kw/Hr	Percent Improvement in Fuel Consumption
100%	0.628	0.589	6.21%
80%	0.669	0.622	7.03%
60%	0.718	0.657	8.50%
40%	0.756	0.681	9.92%

Table 1 – Summary of Baseline and Benchmark results Cat SR-4 Genset

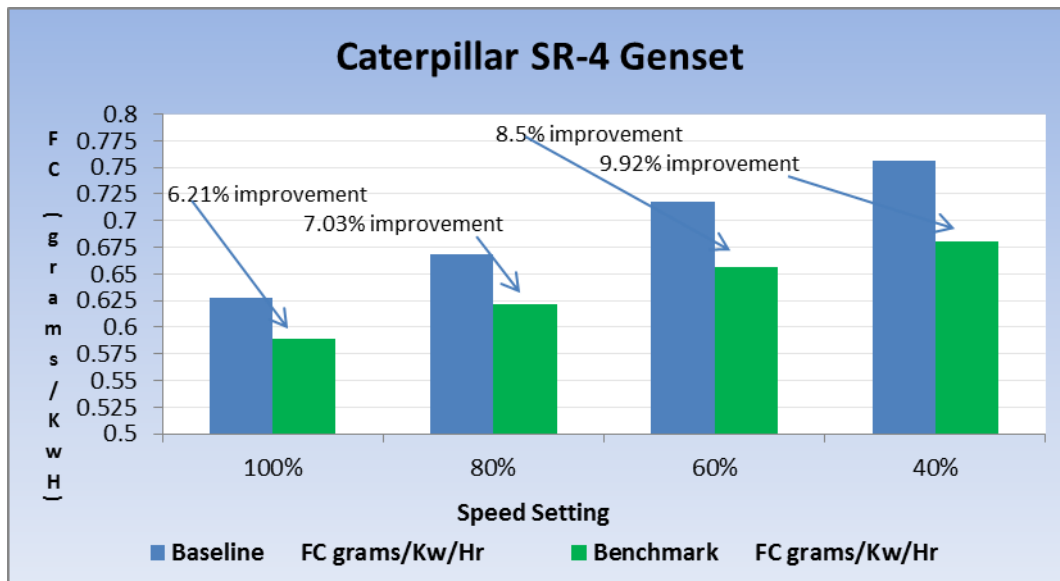


Chart 1 – Improvement in fuel economy Baseline versus Benchmark

Emissions Results

The emissions results from the evaluation are shown below. A Particulate Matter reading could not be taken due to measurement equipment failure and has been removed from the evaluation.

As can be seen in the summary table, an approximate improvement of 17% was proven in reduction of Oxides of Nitrogen. HC's were reduced by an average of 10% and at reduced speeds CO2 was reduced by 7%.

Maximum Speed			
Particulate Type	Baseline	Benchmark	Percent Reduction
NOx ppm	2255	1858	17.6%
HC ppm	60	55	8.3%
CO2 %	7	6.9	1.4%

Table 1 – Max speed emissions results –Caterpillar SR-4 Genset

Reduced Speed			
<i>Particulate Type</i>	<i>Baseline</i>	<i>Benchmark</i>	<i>Percent Reduction</i>
NOx ppm	2100	1750	16.7%
HC ppm	3.4	3	11.8%
CO2 %	7	6.5	7.1%

Table 2 – Reduced speed emissions results – Caterpillar SR-4 Genset

The full Janelle reports on the baseline and benchmark operations can be viewed by clicking [here](#).