



## **DALLAS COUNTY DISTRICT #3 - ROAD AND BRIDGE DUMP TRUCKS**

**Baseline test: JANUARY 12-14, 2007**

**Go Green Hydrogen Enrichment Systems installed and operational: JANUARY 14, 2007**

**1st Emissions test after utilizing Go Green Hydrogen Enrichment: FEBRUARY 22-23, 2007**

**2nd Emissions test after utilizing Go Green Hydrogen Enrichment: MARCH 29-30, 2007**

**3rd Emissions test after utilizing Go Green Hydrogen Enrichment: SEPTEMBER 28, 2007**

Baseline emissions testing were performed January 12-14, 2007 on five Dallas County District #3 Road and Bridge Dump Trucks. Emissions testing were again completed after installation of the Go Green Fuel Hydrogen Enrichment System in February, March and September of 2007. The vehicle mileage and hours of operation are provided on the Test Results Summary pages.

The following Emissions Reduction **Summary Chart** and **Detailed Summary Chart** show detailed and documented overall NO<sub>x</sub> reductions for the five trucks averaging between 38% and 52%, with the greatest individual reduction being 60%. Overall CO reductions averaged between 32% and 44%, with the greatest individual reduction being 60%.

The five trucks tested were **C-111; C-112; C-118; C-119; C-133**. Specifications of each truck are located on the truck data sheets. Truck C118 was not tested on September 28th due to the truck being out of service.

The emission tests were performed with an ECOM AC portable emissions analyzer, and conducted by individuals certified by ECOM America in the use of this analyzer. The ECOM AC Analyzer used is distributed by ECOM America, 1628 Oakbrook Drive, Gainesville, GA, 30507.

All emissions tests were administered after allowing each bus to run at idle for 60 minutes prior to the start of each baseline test and post hydrogen enrichment test. The first test with hydrogen, conducted February 22-23, 2007, consisted of three consecutive, thirty minute tests. The second and third tests, conducted March 29-30 and September 28, 2007, consisted of three consecutive, fifteen minute tests. The analyzer was recalibrated after each test.

The testing documents the ongoing emissions reduction gained by using the Go Green Hydrogen Enrichment System.

**OUR GOALS ARE TO INCREASE FUEL MILEAGE, POWER, PERFORMANCE AND THE LONGEVITY OF THE ENGINE, AND TO REDUCE EMISSIONS, MAINTENANCE COSTS AND DOWNTIME FOR AS MANY VEHICLES AND EQUIPMENT AS POSSIBLE USING OUR GO GREEN PRODUCTS.**

# Dallas County Road & Bridge Emission Reductions Summary

The following summaries document the emissions reductions when compared to the baseline tests performed January 2007.

Testing performed February 22nd and 23rd 2007

<u>Truck #</u>	<u>C-111</u>	<u>C-112</u>	<u>C-118</u>	<u>C-119</u>	<u>C-133</u>	<u>Average</u>
Emissions Gas						
<u>CO</u>	-33%	-57%	-53%	15%	-34%	<u>-33%</u>
<u>NO</u>	-32%	-46%	-49%	-38%	-26%	<u>-38%</u>
<u>NO2</u>	-36%	-50%	-47%	-20%	-24%	<u>-36%</u>
<u>NOx</u>	-32%	-46%	-49%	-36%	-26%	<u>-38%</u>

Testing consisted of a 60 minute idle followed by three thirty minute emissions tests at 7,000 RPM's. Testing was performed with an ECOM AC portable emissions analyzer, and conducted at GGF's headquarters in Lancaster, TX.

Testing performed March 29th and 30th 2007

<u>Truck #</u>	<u>C-111</u>	<u>C-112</u>	<u>C-118</u>	<u>C-119</u>	<u>C-133</u>	<u>Average</u>
Emissions Gas						
<u>CO*</u>	-28%	-38%	-56%	-3% *		<u>-31%</u>
<u>NO</u>	-42%	-57%	-60%	-55%	-59%	<u>-55%</u>
<u>NO2</u>	-45%	-59%	-60%	-41%	79%	<u>-25%</u>
<u>NOx</u>	-42%	-57%	-60%	-54%	-49%	<u>-52%</u>

\* CO sensor malfunction. This reading has been deleted from the summary calculations.

Testing consisted of a 60 minute idle followed by three fifteen minute emissions tests at 7,000 RPM's. Testing was performed with an ECOM AC portable emissions analyzer, and conducted at GGF's headquarters in Lancaster, TX.

Testing performed September 28th 2007

<u>Truck #</u>	<u>C-111</u>	<u>C-112</u>	<u>C-118</u>	<u>C-119</u>	<u>C-133</u>	<u>Average</u>
Emissions Gas						
<u>CO</u>	-48%	-60%		-21%	-47%	<u>-44%</u>
<u>NO</u>	-42%	-50%		-51%	-37%	<u>-45%</u>
<u>NO2</u>	-41%	-47%		-21%	-58%	<u>-42%</u>
<u>NOx</u>	-42%	-50%		-48%	-39%	<u>-44%</u>

**C-118 was not tested due to the truck being out of service.**

Testing consisted of a 60 minute idle followed by three fifteen minute emissions tests at 7,000 RPM's. Testing was performed with an ECOM AC portable emissions analyzer, and conducted at GGF's headquarters in Lancaster, TX.

## Dallas County Road & Bridge District 3 Emissions Testing Detail Summary

### C-111

	<u>Baseline</u>	<u>2/23/2007</u>	<u>%Change</u>	<u>3/30/2007</u>	<u>%Change</u>	<u>9/28/2007</u>	<u>%Change</u>
CO (PPM)	102.707	68.350	-33%	74.194	-28%	53.861	-48%
NO (PPM)	255.762	174.663	-32%	149.125	-42%	148.919	-42%
NO2(PPM)	44.923	28.823	-36%	24.802	-45%	26.429	-41%
NOx(PPM)	300.685	203.486	-32%	173.927	-42%	175.348	-42%

### C-112

	<u>Baseline</u>	<u>2/23/2007</u>	<u>%Change</u>	<u>3/30/2007</u>	<u>%Change</u>	<u>9/28/2007</u>	<u>%Change</u>
CO (PPM)	126.210	53.735	-57%	78.549	-38%	50.707	-60%
NO (PPM)	351.901	191.215	-46%	151.667	-57%	176.004	-50%
NO2(PPM)	63.845	31.615	-50%	26.363	-59%	33.571	-47%
NOx(PPM)	415.746	222.831	-46%	178.029	-57%	209.575	-50%

### C-118

	<u>Baseline</u>	<u>2/23/2007</u>	<u>%Change</u>	<u>3/30/2007</u>	<u>%Change</u>
CO (PPM)	154.890	72.335	-53%	68.615	-56%
NO (PPM)	402.674	205.866	-49%	160.641	-60%
NO2(PPM)	64.138	33.913	-47%	25.960	-60%
NOx(PPM)	466.812	239.779	-49%	186.601	-60%

**C-118 was not tested on 9/28 due the truck being out of service.**

### C-119

	<u>Baseline</u>	<u>2/23/2007</u>	<u>%Change</u>	<u>3/30/2007</u>	<u>%Change</u>	<u>9/28/2007</u>	<u>%Change</u>
CO (PPM)	70.735	81.416	15%	68.736	-3%	55.850	-21%
NO (PPM)	371.762	230.611	-38%	166.641	-55%	181.484	-51%
NO2(PPM)	44.320	35.552	-20%	26.176	-41%	35.037	-21%
NOx(PPM)	416.083	266.164	-36%	192.817	-54%	216.520	-48%

### C-133

	<u>Baseline</u>	<u>2/23/2007</u>	<u>%Change</u>	<u>3/30/2007</u>	<u>%Change</u>	<u>9/28/2007</u>	<u>%Change</u>
CO (PPM)	135.343	88.924	-34%	**see footnote	-34%	71.560	-47%
NO (PPM)	194.337	144.208	-26%	79.879	-59%	122.256	-37%
NO2(PPM)	15.613	11.808	-24%	27.905	79%	6.516	-58%
NOx(PPM)	209.950	156.017	-26%	107.784	-49%	128.773	-39%

\*\*CO sensor malfunction. This reading has been deleted from the summary calculations.

	<u>2/23/2007</u>	<u>3/30/2007</u>	<u>9/28/2007</u>
<b>Average Reduction</b>	<b>CO (PPM) -33%</b>	<b>-32%</b>	<b>-44%</b>
	<b>NO (PPM) -38%</b>	<b>-55%</b>	<b>-45%</b>
	<b>NO2 (PPM) -36%</b>	<b>-25%</b>	<b>-42%</b>
	<b>NOx (PPM) -38%</b>	<b>-52%</b>	<b>-44%</b>