



**Linda S. Adams**  
Secretary for  
Environmental Protection

# Air Resources Board

**Robert F. Sawyer, Ph.D. Chair**  
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**Arnold Schwarzenegger**  
Governor

April 11, 2007

Mr. Tom Miller  
EGR Technologies, LLC.  
1756 53<sup>rd</sup> Loop SE  
Tumwater, Washington 98501

Dear Mr. Miller:

The Air Resources Board (ARB) has reviewed the EGR Technologies LLC/CleanAIR Systems (EGR/CleanAIR) application for a Conditional Verification of their Exhaust Gas Recirculation (EGR)/PERMIT™ Diesel Particulate Filter (DPF) diesel emission control strategy (DECS) system. The EGR/PERMIT™ DPF DECS is hereby granted a Conditional Verification as a Level 3 diesel emission control strategy, subject to the terms and conditions specified below.

This Conditional Verification is based on data showing that the EGR/PERMIT™ DPF DECS system reduces diesel particulate matter (PM) by 85 percent or greater when used on stationary prime and emergency standby generators and pumps or selected diesel-fueled engines emitting 0.4 grams per brake horsepower-hour PM, or less. The selected diesel-fueled engines are listed in the enclosure labeled, "Attachment 1". In addition, the EGR/PERMIT™ DPF DECS will reduce oxides of nitrogen (NO<sub>x</sub>) by approximately 50 percent. This Conditional Verification expires three years from the date of this letter.

Based on the verification application submitted by EGR/CleanAIR in October 2006, and a subsequent meeting between EGR/CleanAIR and ARB staff, the required emissions and durability testing of the EGR/PERMIT™ DPF DECS system are being performed using the testing protocol "Application for Retrofit Verification for EGR/DPF System Stationary Diesel-fueled Equipment" submitted to the ARB and approved in March 2007. To date, an EGR/PERMIT™ DPF DECS with a DPF with a filter volume of 212 in.<sup>3</sup> has completed 690-hours of durability testing. In addition, an EGR/PERMIT™ DPF DECS with a DPF filter volume of 247 in.<sup>3</sup> and 150-hours of durability testing completed was source tested. The results of that source testing demonstrated that the EGR/PERMIT™ DPF DECS has the potential to perform within parameters set forth in the ARB's verification regulation.

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Website: <http://www.arb.ca.gov>.*

California Environmental Protection Agency

EGR/CleanAIR attempted to meet the requirements of the verification process through the efforts described above. Those efforts have not met the requirements set forth in the verification regulation. As such, EGR/CleanAIR must complete additional durability and source testing activities to qualify the EGR/PERMIT™ DPF DECS for full verification. The EGR/PERMIT™ DPF DECS system must also complete and meet the field demonstration requirements set forth in the California Code of Regulations Title 13, Chapter 14, Section 2705.

In a revised verification application dated February 2007, EGR/CleanAIR has committed to complete the ARB's recommended durability cycle of 72 cold starts (which includes an additional 850-hours of operation). The durability procedure EGR/CleanAIR will implement to meet the requirements of the verification regulation are set forth in Table 5 of the revised verification application. In addition, EGR/CleanAIR will provide all the data agreed to in the section 5.3, "Field demonstration" of the revised verification application. That data will be provided for both the stationary generator set and stationary pump demonstrations.

Based on the data provided to date and the commitments made by EGR/CleanAIR in the February 2007 submittal to complete the verification process, ARB staff finds the EGR/ PERMIT™ DPF DECS system eligible for Conditional Verification. The full approval process requires that the EGR/PERMIT™ DPF DECS demonstrate that it performs within performance parameters set forth in the ARB's verification regulation, including completing the ARB's recommended durability cycle and source testing the EGR/ PERMIT™ DPF DECS system using the prescribed methods set forth in the California Code of Regulations Title 13, Chapter 14, Section 2703.

EGR/CleanAIR has chosen to field test the EGR/PERMIT™ DPF DECS system. As such, the conditions set forth above must be satisfied within three years after receiving Conditional Verification. These tests must include installation of the DECS on a pump for a minimum of 200 hours. The Conditional Verification is automatically terminated if these requirements are not met. For the three year time period, Conditional Verification is equivalent to Verification for the purpose of satisfying the requirements of in-use emission control regulations and availability of Carl Moyer funding for select types of stationary engines, subject to local air district discretion.

The Conditional Verification is valid provided the following operational criteria are met:

<b>Parameter</b>	<b>Value</b>
Application	Stationary Prime and Emergency Power Generation or Pumping
Size Range	Less than 600 hp (450 kW)
Engine Type	Diesel-fueled, with turbocharger, emitting 0.4 g/bhp-hr or less of PM
Minimum Exhaust Temperature for Filter Regeneration	The engine must operate at an exhaust temperature of at least 300° C at an engine load of 40 percent or more for at least 30 percent of the operating time.
Maximum Consecutive Minutes Operating Below Passive Regeneration Temperature	240 Minutes
Number of Cold Start and 10 Minute Idle Sessions before Regeneration Required	24
Number of Hours of Operation Before Cleaning of Filter Required	Project specific. 5000 Hours Typical.
Fuel	California diesel fuel with less than or equal to 15 ppm sulfur or a biodiesel blend provided that the biodiesel portion of the blend complies with ASTM D6751 (15 ppm sulfur), the diesel portion of the blend complies with Title 13 (CCR), sections 2281 and 2282 and the blend contains no more than 20 percent biodiesel by volume.
PM Verification Level	Level 3 Verification: At least 85 percent reduction of PM.
Level of NO <sub>x</sub> Reductions	Fifty (50) Percent

In addition, the engine(s) should be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer. EGR/CleanAIR must install the CleanAIR HiBACK unit, a backpressure monitor, on all engines retrofitted with an EGR/PERMIT™ DPF DECS system.

The ARB hereby assigns the EGR/PERMIT™ DPF DECS system the designated family name of:

**CA/EGR/2007/PM3/N50/ST/ERF01**

This identification number should be used in reference to this Conditional Verification as part of the system labeling requirement.

Mr. Tom Miller  
April 11, 2007  
Page 4

Additionally, as stated in the Diesel Emission Control Strategy Verification Procedure, EGR/CleanAIR is responsible for honoring their warranty (Section 2707) and conducting in-use compliance testing (Section 2709).

Thank you for participating in ARB's diesel emission control strategy verification program. Should you have any questions or comments, please contact Mr. Kirk Rosenkranz, Air Pollution Specialist, at (916) 327-7843.

Sincerely,

//s//

Cherie Rainforth, Manager  
Control Strategies Section  
Stationary Source Division

Attachment

cc: Kirk Rosenkranz, Air Pollution Specialist  
Control Strategies Section, SSD