

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER DE-05-002-02

Pursuant to the authority vested in the Air Resources Board (ARB) by Health and Safety Code, Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39616 and Executive Order G-02-003;

Relating to Verification under Sections 2700 through 2710 of Title 13 of the California Code of Regulations

CleanAIR Systems, Inc.
PERMIT™

ARB has reviewed CleanAIR Systems' request for verification of the PERMIT™ diesel particulate filter (DPF). Based on an evaluation of the data provided, and pursuant to the terms and conditions specified below, the Executive Officer of ARB hereby finds that the PERMIT™ DPF reduces emissions of diesel particulate matter (PM) consistent with a Level 3 device (greater than or equal to 85 percent reductions) (Title 13 California Code of Regulations (CCR) Sections 2702 (f) and (g) and Section 2708) and complies with the CARB January 1, 2009, NO₂ limit (CCR, Title 13, Section 2702 (f) and section 2706 (a)). Accordingly, the Executive Officer determines that the system merits verification and, subject to the terms and conditions specified below, classifies the PERMIT™ as a Level 3 Plus system, for use with stationary prime and emergency standby generators using the engine families listed in Attachment 1.

This verification is subject to the following terms and conditions:

- The engines are model years 1996 through 2008 having the engine family names listed in Attachment 1.
- The engine must be in their original certified configuration.
- The engine must not employ exhaust gas recirculation.
- The engine must not have a pre-existing oxidation catalyst.
- The engine must not have a pre-existing diesel particulate filter.
- The engine must be four-stroke.
- The engine can be turbocharged or naturally-aspirated.
- The engine must be certified to meet the ARB off-road engine standards for compression ignition engines.
- The engine must achieve a particulate matter emission level equal or less than 0.2 g/bhp-hr (as tested on an appropriate steady-state certification cycle outlined in the ARB off-road regulations – similar to ISO 8178 D2).
- CleanAIR must review actual operating conditions (duty cycle, baseline emissions, exhaust temperature profiles, and engine backpressure) prior to retrofitting an engine with the PERMIT™ DPF to ensure compatibility.

- The engine should be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.
- The other terms and conditions specified below.

Table 1: Conditions for the PERMIT™

Parameter	Value
Application	Stationary Prime and Emergency Standby Power Generation
Engine Type	Diesel, with or without turbocharger, without Exhaust-Gas Recirculation (EGR), mechanically or electronically controlled, certified Tier 1, Tier 2, or Tier 3 off-road engines that have particulate matter (PM) emissions of less than or equal to 0.2 g/bhp-hr.
Maximum consecutive minutes at idle	240 minutes
Number of 10 minute idle sessions before regeneration is required	Regeneration recommended after 12 consecutive sessions; required after 24
Minimum temperature/load/time requirements for regeneration in 4-stroke engine	300° Celsius for 30% of operating time or 2 hours, whichever is longer. For most engines, 40% load results in temperature of at least 300° Celsius
Number of hours of operation before cleaning/disposal of filter	5000 hours under normal operating conditions
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 Plus Verification: <ul style="list-style-type: none"> • PM – at least 85% reduction • NO₂ – meets January 2009 limit

IT IS ALSO ORDERED AND RESOLVED: That installation of the PERMIT™, manufactured by CleanAIR Systems, 4379 Center Place, Santa Fe, NM 87507, has been found not to reduce the effectiveness of the applicable engine pollution control system.

The PERMIT™ consists of a catalyzed passive diesel particulate filter and a backpressure monitor, HIBACK.

This Executive Order is valid provided that installation instructions for PERMIT™ do not recommend tuning the engine to specifications different from those of the engine manufacturer.

Changes made to the design or operating conditions of PERMIT™, as exempted by ARB, which adversely affect the performance of the engine's pollution control system, shall invalidate this Executive Order.

No changes are permitted to the device. ARB must be notified in writing of any changes to any part of PERMIT™. Any changes to the device must be evaluated and approved by ARB. Failure to do so shall invalidate this Executive Order.

Marketing of the PERMIT™ using identification other than that shown in this Executive Order or for an application other than that listed in this Executive Order shall be prohibited unless prior approval is obtained from ARB.

This Executive Order shall not apply to any PERMIT™ advertised, offered for sale, sold with, or installed on an engine prior to or concurrent with transfer to an ultimate purchaser.

As specified in the Diesel Emission Control Strategy Verification Procedure (Title 13 CCR Section 2706 (g)), the ARB assigns each Diesel Emission Control Strategy a family name. The CleanAIR Systems PERMIT™ designated family name for the verification as outlined above is:

CA/CAS/2003/PM3+/N00/ST/DPF01

Additionally, as stated in the Diesel Emission Control Strategy Verification Procedure, CleanAIR Systems, Inc. is responsible for honoring their warranty (CCR, Title 13, section 2707) and conducting in-use compliance testing (section 2709).

In addition to the foregoing, ARB reserves the right in the future to review this Executive Order and the exemption and verification provided herein to assure that the exempted and verified add-on or modified part continues to meet the standards and procedures of CCR, Title 13, section 2222, et seq and CCR, Title 13, sections 2700 through 2710.

Systems verified under this Executive Order shall conform to all applicable California emissions regulations. This Executive Order does not release CleanAIR Systems, Inc. from complying with all other applicable regulations.

Violation of any of the above conditions shall be grounds for revocation of this Executive Order.

Executive Order DE-05-002-001 is hereby superseded and is of no further force and effect.

Executed at Sacramento, California, this 7th day of October 2008.

James N. Goldstene
Executive Officer
by



Robert D. Fletcher, Chief
Stationary Source Division

Attachment 1: Verified for Stationary Diesel Engines PERMIT™ DPF
Off-Road Certified Engine Family List ($0 \leq 0.2$ g/bhp-hr PM)