



Matthew Rodriguez  
Secretary for  
Environmental Protection

# Air Resources Board

Mary D. Nichols, Chairman  
9480 Telstar Avenue, Suite 4  
El Monte, California 91731 [www.arb.ca.gov](http://www.arb.ca.gov)



Edmund G. Brown Jr.  
Governor

March 3, 2014

Reference No. 13-944-1757

Mr. Ivan Luke  
Nett Technologies Incorporated  
2 - 6707 Goreway Drive  
Mississauga, Ontario, L4V 1P7, Canada

Dear Mr. Luke,

Using the *Verification Procedure, Warranty, and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines*, Title 13, California Code of Regulations (CCR), Sections 2700-2711 (Procedure), Air Resources Board (ARB) staff reviewed Nett Technologies Incorporated's (Nett) application for conditional verification of the VorTEQ™ 100 Diesel Particulate Filter (DPF) for off-road applications. Based on an evaluation of the data provided, and pursuant to the terms and conditions specified below, ARB hereby finds that the VorTEQ™ 100 DPF reduces emissions of diesel particulate matter (PM) consistent with a Level 3 Plus device (greater than or equal to an 85 percent reduction and compliant with the 2009 nitrogen dioxide (NO<sub>2</sub>) standard). ARB also finds that the VorTEQ™ 100 DPF satisfactorily completed at least 33 percent of the durability demonstration period for off-road applications. Accordingly, ARB determines that the system merits conditional verification and, subject to the terms and conditions specified below, classifies the VorTEQ™ 100 DPF as a Level 3 Plus system for certain off-road diesel engines. Engines for which the VorTEQ™ 100 DPF is verified, the verified parts list, verified labels, swapping and re-designation information, and other product information can be found here:

<http://www.arb.ca.gov/diesel/verdev/companies/nett/vorteq100.htm>.

The aforementioned conditional verification is subject to the following terms and conditions:

- The VorTEQ™ 100 DPF is conditionally verified for a period not to exceed two years from the date of this letter.

*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

- For the VorTEQ™ 100 DPF to be considered for full verification, Nett must complete all remaining requirements as specified in the letter Reference Number 13-944-1758 within 2 years of the date of this letter.
- Conditional verification is equivalent to verification for the purposes of satisfying the requirements of in-use emission control regulations.
- Only one system may be installed per engine.
- The engine must be certified for off-road applications. The engine must not be in an on-road truck auxiliary power unit, transport refrigeration unit, gantry crane, stationary application, marine vessel, or locomotive.
- The engine must remain in its original certified configuration.
- The engine must be certified to a PM emission level of at most 0.2 grams per brake horsepower hour (g/bhp-hr), and greater than 0.01 g/bhp-hr.
- The engine must have a displacement no greater than 11.0 liters.
- The engine must be rated to at least 65 horsepower and no more than 175 horsepower.
- The engine must be operated on fuel that has a sulfur content of no more than 15 parts per million by weight.
- The engine must not be certified by ARB as having an exhaust gas recirculation (EGR) system.
- The engine must not have an internal EGR system.
- The engine must not have a pre-existing original equipment manufacturer (OEM) diesel oxidation catalyst (DOC).
- The engine must not have a pre-existing OEM DPF.
- The engine must not have a pre-existing OEM selective catalytic reduction system.
- The engine may be turbocharged or naturally aspirated.
- The engine may be electronically or mechanically controlled.

- The engine must be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.
- Lube oil, or other oil, must not be mixed with the fuel.
- The system must not be operated with fuel additives, as defined in Section 2701 of Title 13, CCR, unless explicitly verified for use with the fuel additive(s).
- The system must be installed with a backpressure monitor that notifies the operator when the backpressure limit is reached. The notification must occur and be clearly visible to the operator while the vehicle or equipment is in use.
- The system must not be used with any other systems or engine modifications without ARB and manufacturer written approval.
- The other terms and conditions specified below.

It is also ordered and resolved that installation of the VorTEQ™ 100 DPF, manufactured by Nett Technologies Inc., 2 - 6707 Goreway Drive, Mississauga, Ontario, L4V 1P7, Canada, has been found not to reduce the effectiveness of the applicable vehicle pollution control system, and therefore, the VorTEQ™ 100 DPF is exempt from the prohibitions in Sections 38390 and 38391 of the *Vehicle Code* for installation on engines from the families on the website listed above. This exemption is only valid provided that the engines meet the aforementioned conditions.

The VorTEQ™ 100 DPF consists of the following major system components, listed in order from exhaust inlet to outlet as they are arranged within the exhaust system of the vehicle: 1 diesel fuel burner and 1 non-catalyzed DPF. The VorTEQ™ 100 DPF system also includes 1 control module, 1 display module, 1 diesel fuel pump module (for the burner), 3 temperature sensors, 1 pressure sensor, 1 engine speed sensor, and 1 mass air flow sensor. The major components of VorTEQ™ 100 DPF system are identified in the parts list. The parts list and schematics of the approved product and engine labels are available on the website shown above.

Channeling exhaust from a single engine through multiple VorTEQ™ 100 DPF systems, deployed in parallel or in series or any combination thereof, is not valid under this conditional verification.

No changes are permitted to the system. ARB must be notified, in writing, of any changes to any part of the VorTEQ™ 100 DPF. Any changes to the system must be

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evaluated and approved in writing by ARB. Failure to do so shall invalidate this conditional verification and be subject to enforcement action.

Changes made to the design or operating conditions of the VorTEQ™ 100 DPF, as exempted by ARB, which adversely affect the performance of the vehicle's pollution control system, shall invalidate this conditional verification.

Marketing of the VorTEQ™ 100 DPF using identification other than that shown in this conditional verification letter or for an application other than that listed in this conditional verification letter shall be prohibited unless prior written approval is obtained from ARB.

This conditional verification is valid provided that installation instructions for the VorTEQ™ 100 DPF system do not recommend tuning the engines to specifications different from those of the engines manufacturer.

Nett must provide each installer with the specific criteria used to determine the compatibility of the VorTEQ™ 100 DPF system with a candidate engine pursuant to Section 2706(t), Title 13, CCR.

Prior to the sale of a VorTEQ™ 100 DPF system, Nett must provide each prospective owner/purchaser with a written estimate of the number of hours of vehicle operation that will typically elapse before regeneration is required. Nett must also provide, in writing, the length of time of a typical regeneration event.

Nett is responsible for ensuring all system filters are correctly sized for each engine.

A copy of this conditional verification letter must be provided to the ultimate purchaser at the time of sale.

As specified in Section 2706(j) (Title 13, CCR) of the Procedure, ARB assigns each diesel emission control strategy a family name. The designated family name for the conditional verification as outlined above is:

**CA/NET/2014/PM3+/N00/OF/DPF01**

Additionally, as stated in the Procedure, Nett Technologies Inc., is responsible for recordkeeping requirements (Section 2702), honoring the required warranty (Section 2707), honoring the recall provisions (Section 2709), and conducting in-use compliance testing (Section 2709).

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This conditional verification is valid provided that the diesel fuel used in conjunction with the device complies with Title 13, CCR, Sections 2281 and 2282, or U.S. EPA diesel fuel compliant with the standards set forth in 40 CFR Part 80, provided the sulfur content of the fuel does not exceed 15 parts per million and if biodiesel is used, the biodiesel blend shall be 20 percent or less subject to the following conditions:

- The biodiesel portion of the blend complies with the American Society for Testing and Materials Specification D6751 applicable for 15 parts per million sulfur content; and
- The diesel fuel portion of the blend complies with Title 13, CCR, Sections 2281 and 2282.

Other alternative diesel fuels such as, but not limited to, ethanol diesel blends and water emulsified diesel fuel are excluded from this conditional verification.

Proper engine maintenance is critical for the proper functioning of the diesel emission control strategy. The owner of the vehicle on which the diesel emission control strategy is installed is strongly advised to adhere to all good engine maintenance practices. Failure to document proper engine maintenance, including keeping records of the engine's oil consumption, may be grounds for denial of a warranty claim.

Use of system parts or replacement parts not authorized by Nett, may be grounds for denial of a warranty claim.

The VorTEQ™ 100 DPF system must not be located over any occupied space (e.g., driver or passenger compartments) or any other location deemed unacceptable by Nett, and must not be installed in a way which would result in noncompliance with any applicable safety standards.

This conditional verification shall not apply to any VorTEQ™ 100 DPF advertised, offered for sale, offered for lease, sold with, leased with, or installed on an engine prior to or concurrent with transfer to an ultimate purchaser.

Nett must ensure that the installation of the VorTEQ™ 100 DPF system conforms to all applicable industrial safety requirements.

The terms and conditions of this conditional verification must be satisfied regardless of where the system is sold in order for the system to be considered verified.

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Systems sold as verified, or which carry an ARB-approved label, must satisfy all the terms and conditions of this conditional verification letter.

Systems conditionally verified in this letter shall conform to all applicable California emissions regulations.

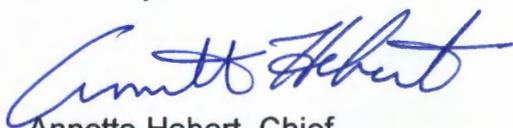
This conditional verification does not release Nett from complying with all other applicable regulations.

Violation of any of the above conditions shall be grounds for revocation of this conditional verification.

In addition to the foregoing, ARB reserves the right in the future to review this conditional verification letter and the exemption provided herein to assure that the exempted and conditionally verified add-on or modified part continues to meet the standards and procedures of Title 13, Sections 2222, et seq, and Sections 2700 through 2711, of the CCR.

Thank you for participating in ARB's diesel emission control strategy verification program. If you have any questions or comments, please contact Ms. Shawn Daley, Manager, at (626) 575-6972, or via email at [sdaley@arb.ca.gov](mailto:sdaley@arb.ca.gov) .

Sincerely,



Annette Hebert, Chief  
Emissions Compliance, Automotive Regulations and Science Division

cc: Shawn Daley, Manager  
Retrofit Assessment Section  
Emissions Compliance, Automotive Regulations and Science Division