



# Air Resources Board

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Matthew Rodriguez  
Secretary for  
Environmental Protection

Mary D. Nichols, Chairman  
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Edmund G. Brown Jr.  
Governor

April 22, 2014

Mr. Daniel Piche  
Product Development Engineer  
MIRATECH  
420 South 145th East Avenue  
Mail Drop A  
Tulsa, Oklahoma 74108-1305

Dear Mr. Piche:

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), section 2700 through 2711, (Procedure), the Air Resources Board (ARB) has reviewed the Miratech Holdings, LLC's (MIRATECH) application for the conditional verification of the Low Temperature Regeneration Diesel Oxidation Catalyst/Diesel Particulate Filter (MIRATECH® LTR™ DOC/DPF) titled, "MIRATECH CARS Conditional Verification Application for the LTR™ DOC/DPF," dated February 7, 2014. Based on the evaluation of the data provided, and pursuant to the terms and conditions specified below, ARB hereby finds that the MIRATECH® LTR™ DOC/DPF reduces emissions of diesel particulate matter (PM) consistent with a Level 3 device (greater or equal to 85-percent PM reduction (CCR, Title 13, sections 2702(f) and section 2708) and complies with the ARB January 1, 2009, nitrogen dioxide (NO<sub>2</sub>) limit (CCR, Title 13, section 2702 (f) and section 2706 (a)).

ARB also finds that the MIRATECH® LTR™ DOC/DPF satisfactorily completed at least 33 percent of the durability demonstration period for stationary emergency standby generators. Accordingly, ARB determines that the system merits conditional verification and, subject to the terms and conditions specified below, classifies the MIRATECH® LTR™ DOC/DPF as a Level 3 plus system for stationary emergency standby generator applications powered by certified Tier 3, 2, or 1, off-road diesel engines. The list of engine families for which the MIRATECH® LTR™ DOC/DPF is conditionally verified, the verified parts list, and verification labels are attached. This information and additional verification information can be found at <http://www.arb.ca.gov/diesel/verdev/vtlstationary.htm>.

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

*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

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- The MIRATECH® LTR™ DOC/DPF is conditionally verified for a period not to exceed one year from the date of this letter. The conditional verification does not receive an executive order. For the MIRATECH® LTR™ DOC/DPF to be considered for full verification, Miratech Holdings, LLC, must complete all remaining requirements as specified in the Procedure (including, but not limited to, successfully finish 500 hours of durability, 200 hours of field testing, and an emissions test after durability) within one year of the date of this letter. If these conditions of full verification are not satisfied within the aforementioned time period, the verification is automatically terminated.
- Conditional verification is equivalent to verification for the purposes of satisfying the requirements of in-use emission control regulations.
- The engine must be used in a stationary application associated with emergency standby generators and rated greater than or equal to 134 hp.
- The engine must be certified for use in California or certified by the United States Environmental Protection Agency and the engine must be in its original certified configuration.
- The engine must be a Tier 1, Tier 2, or Tier 3 certified off-road or stationary diesel engine meeting 0.22 grams per brake horsepower hour (g/bhp-hr) diesel particulate matter (PM) or less based on certification or in-use emissions testing (as tested on an appropriate steady-state certification cycle outlined in the ARB off-road regulations- similar to ISO 8178 02).
- The attached engine family list identifies the certified engines applicable to the MIRATECH® LTR™ DOC/DPF when used in stationary applications associated with emergency standby generators. The engine family list will be posted at: <http://www.arb.ca.gov/diesel/verdev/vtlstationary.htm>.
- 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.

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- Miratech must review actual operating conditions (duty cycle, baseline emissions, and engine exhaust backpressure and temperature profiles, and other pre-installation compatibility assessments as required in section 2706(t) of Title 13, of the CCR) prior to retrofitting an engine with the MIRATECH® LTR™ DOC/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 MIRATECH® LTR™ DOC/DPF must not be operated with fuel additives, as defined in section 2701 of Title 13, of the CCR, unless explicitly verified for use with fuel additive(s).
- The other terms and conditions specified in Table 1 below.

<b>Table 1: Summary of Conditions for the MIRATECHQ!) LTR™ DOC/DPF System</b>	
<b>Parameter</b>	<b>Value</b>
Application	Stationary Emergency Power Generation
Size Range	Diesel engines rated greater than or equal to 134hp
Engine Type	Diesel, with or without turbocharger, without EGR, Tier 1, Tier 2, or Tier 3 certified to 0.22 g/bhp-hr or less of PM.
Minimum Exhaust Temperature for Filter Regeneration	260° Celsius / 500° Fahrenheit. At 550° Fahrenheit, regeneration takes approximately 45 minutes.
Maximum Consecutive Minutes Operating Below Passive Regeneration Temperature	720 Minutes
Number of Cold Start and 40 Minute Idle Sessions before Regeneration Required	18
Number of Hours of Operation Before Cleaning of Filter Required	Application Specific. 2000 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, the diesel portion of the blend complies with Title 13 (CCR), sections 2281 and 2282, and the blend contains no more than 20% biodiesel by volume
PM Verification Level	Level 3 Plus Verification : PM – at least 85% reduction NO2 – meets January 2009 limit

This Conditional Verification is valid provided that installation instructions for MIRATECH® LTR™ DOC/DPF do not recommend tuning the engine to specifications different from those of the engine manufacturer. The product must not be used with any other systems or engine modifications without ARB and manufacturer approval.

The MIRATECH® LTR™ DOC/DPF is a passive diesel exhaust filter system. It consists of a filter housing, DOC, DPF, and monitoring system (backpressure sensor, temperature sensor, and a display unit that provides warnings when the filter becomes clogged or damaged).

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Changes made to the design or operating conditions of MIRATECH® LTR™ DOC/DPF, as exempted by ARB, which adversely affect the performance of the engine's pollution control system, shall invalidate this Conditional Verification.

No changes are permitted to the MIRATECH® LTR™ DOC/DPF without ARB evaluation and approval. ARB must be notified in writing of any changes to any part of MIRATECH® LTR™ DOC/DPF. Failure to do so shall invalidate this Conditional Verification.

Marketing of the MIRATECH® LTR™ DOC/DPF using identification other than that shown in this letter or for an application other than that listed in this letter shall be prohibited unless prior approval is obtained from ARB.

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

As specified in the Diesel Emission Control Strategy Verification Procedure, CCR, title 13, section 2706 U), ARB assigns each Diesel Emission Control Strategy a family name. The designated family name for the conditional verification as outlined above is:

**CA/MES/2014/PM3+/NOO/ST/DPF01**

This designated family name must be used in reference to this Conditional Verification as part of the system labeling requirement. Labels attached to the MIRATECH® LTR™ DOC/DPF and the engine must be identical.

Proper engine maintenance is critical for the proper functioning of the diesel emission control strategy. The owner of the equipment 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.

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 conditionally verified. Systems sold as conditionally 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 MIRATECH from complying with all other applicable regulations.

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In addition to the foregoing, ARB reserves the right in the future to review this conditional verification letter and the conditional verification provided herein to assure that the conditionally verified strategy continues to meet the standards and procedures of title 13, sections 2222, et seq, and sections 2700 through 2711, of the CCR.

Additionally, as stated in the Diesel Emission Control Strategy Verification Procedure, MIRATECH is responsible for honoring their warranty (CCR, Title 13, section 2707), conducting in-use compliance testing (CCR, Title 13, section 2709), and complying with the system labeling requirements (CCR, Title 13, section 2706 U)).

Violation of any of the above conditions shall be grounds for revocation of this Conditional Verification.

Thank you for participating in ARB's diesel emission control strategy verification program. Should you have any questions or comments, please contact Mr. John Lee, Air Resources Engineer, at (916) 327-5975.

Sincerely,

A handwritten signature in blue ink, appearing to read 'C. Marvin', followed by a horizontal line.

Cynthia Marvin, Chief  
Stationary Source Division

Attachment

cc: John Lee  
Air Resources Engineer  
Control Strategies Section