



Air Resources Board



GDA

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Secretary for
Environmental Protection

Mary D. Nichols, Chairman
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Arnold Schwarzenegger
Governor

November 23, 2010

Mr. Garrett Riley
Motive Power Inc.
4600 Apple Street
Boise, Idaho 83716

Dear Mr. Riley:

This letter is in reply to your request dated August 9, 2010, for an Air Resources Board (ARB) verification of the oxides of nitrogen (NOx) and particulate matter (PM) emission levels for Motive Power's (MP) multiple nonroad engine locomotives: MP21 (a three-engine "genset") and MP14 (a two-engine "genset"), but specific engine family AMPIK3.17MES. This verification would be for MP genset switch locomotives that are built with multiple Cummins QSK-19 Tier-3 nonroad engines as the primary diesel engine power.

As you know, in 1998, the BNSF Railway Company (BNSF) and Union Pacific Railroad (UP) Company (Participating Railroads), along with ARB entered into a Memorandum of Mutual Understandings and Agreements¹ (1998 MOU) to reduce locomotive emissions in the South Coast Air Basin. Under the 1998 MOU, beginning no later than 2010, each Participating Railroad must calculate the fleet average for NOx emissions from its locomotive fleet operating in the South Coast Air Basin. The fleet average is calculated using the emission level, as determined pursuant to 40 CFR 92 and 1033 for the line-haul duty cycle, for each locomotive in operation in the South Coast Nonattainment Area. Pursuant to the 1998 MOU, and as verified by the ARB, UP and BNSF can receive ultra-low-emitting locomotive (ULEL) credit for advanced-technology locomotives with NOx emissions levels at or below 3.0 g/bhphr through 2014.

U.S. Environmental Protection Agency (U.S. EPA) issued a certificate of conformity for engine family AMPIK3.17MES on May 25, 2010. However, U.S. EPA did not specify a specific line-haul NOx or PM emission level. As a result, ARB staff (staff) relied on the

¹ MEMORANDUM OF MUTUAL UNDERSTANDINGS AND AGREEMENTS, South Coast Locomotive Fleet Average Emissions Program, July 2, 1998

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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Southwest Research Institute (SWRi) locomotive emission test data used to support the U.S. EPA certificate of conformity and performed pursuant to 40 CFR Part 92 and 1033, for MP two – and - three engine genset switch locomotive engine family AMPIK3.17MES.

Based on the SWRi test data, staff recognizes MP engine family AMPIK3.17MES has line-haul NOx and PM emission levels at or below 3.0 and 0.1 g/bhphr, respectively. The 3.0 g/bhphr NOx emission level for engine family AMPIK3.17MES can be used in calculating the average NOx emissions for a locomotive fleet operating in the South Coast Air Basin.

Alternative technology switcher locomotives funded by the Carl Moyer Program, such as genset locomotives, typically include an existing locomotive frame significantly refurbished with a new engine or engines, electronics, controls, and other equipment. For Carl Moyer Program funding, an alternative technology switcher must achieve a NOx emission rate of 3.5 g/bhp-hr and a PM emission rate of 0.14 g/bhp-hr, based on U.S. EPA locomotive emission testing requirements specified in Title 40 Code of Federal Regulations (CFR) Part 92.

Based on U.S. EPA certificate of conformity AMPIK3.17MES-003, staff recognizes that engine family AMPIK3.17MES has switch-duty-cycle emission levels of 3.5 g/bhphr NOx and 0.14 g/bhphr PM; both of which meet the switch-duty-cycle NOx and PM emissions levels specified for ARB incentive funding programs.

Based on the SWRi fuel specifications, it appears that the SWRi emission testing was performed using U.S. EPA ultra-low-sulfur diesel (15 ppmw) test fuel. We believe that if testing were performed using CARB diesel (or similar TXLED) the switch-duty-cycle emission levels would also potentially meet or exceed the ULEL NOx and PM emission levels of 3.0 and 0.1 g/bhphr, respectively. This assessment is based on other Cummins QSK19 multiple engine switch locomotive emission testing results (pursuant to 40 CFR Part 92).

Both the NOx and PM emission levels listed in this letter will be superseded if U.S. EPA revises the certificate of conformity referenced in this letter.

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If you have any questions please contact Mr. Harold Holmes, Manager, Engineering Evaluation Section, at (916) 322-8029, or at hholmes@arb.ca.gov.

Sincerely,


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Criteria Pollutants Branch

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