



Alan C. Lloyd, Ph.D.
Agency Secretary

Air Resources Board

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

March 2, 2006

Ms. Karen Dzienkowski
RailPower Hybrid Technologies Corporation
2021 Peninsula Drive
Erie, Pennsylvania 16506-2950

Dear Ms Dzienkowski:

This letter is in reply to your January 18, 2006, request for a calculation of the emission level for a Green Goat™ locomotive, model GG20, using a Deutz model 1013 diesel engine, engine family BF6M1013FC. The United States Environmental Protection Agency (U.S. EPA) has certified this Deutz engine family to conform to Tier 2 non-road diesel standards.

As you know, in 1998, the BNSF Railway Company and Union Pacific Railroad Company (Participating Railroads), along with the Air Resources Board (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 oxides of nitrogen (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 Title 40 Code of Federal Regulations Part 92 (40 CFR 92) for the line-haul duty cycle, for each locomotive in operation in the South Coast Nonattainment Area.

We recognize that the Green Goat™ locomotive is unique in its operation and does not currently have the ability to be certified to 40 CFR 92 for the line-haul cycle. Because of this, we have worked with you to determine the best method by which to calculate an equivalent emission level for the Green Goat™ corresponding to its typical operation. The methodology mutually agreed upon uses actual in-use duty cycle information specific to the Green Goat™, along with the corresponding non-road certification data for the Deutz model 1013, as determined per 40 CFR 89 applicable to diesel engines of less than a thousand horsepower. The engine in the Green Goat meets this requirement. Using the above method, the Green Goat™ can be incorporated into the Participating Railroad's fleet average calculation. In support of your request, you

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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submitted approximately four hours of Green Goat™ operational data and the 5-mode emission test results for the above mentioned Deutz model 1013 diesel engine, per 40 CFR 89.

Based on the data provided, we recognize a provisional line-haul NOx emission level of 2.16 g/bhp-hr for the Green Goat™ GG20, using a Deutz model 1013 diesel engine, engine family BF6M1013FC, for use under the 1998 MOU. The recognition of this emission level is not a locomotive certification as provided under 40 CFR 92. Please note that this emission level is slightly higher than what you requested in your January 18, 2006 letter. This is because we agreed in our December 15, 2005 teleconference to use the 5-mode duty cycle emission factor for the model Deutz engine instead of the factors listed on page 3 of your letter.

Recognition of this emission level is valid through December 31, 2006. Since the duty cycle information provided in support of your request is limited, we are requiring that Railpower submit to us actual duty cycle information on two Green Goat™ GG20 locomotives by September 30, 2006 to better justify this emission level. This data is to be based on a protocol and report format to be agreed to by us no later than June 1, 2006, and will be used to subsequently review this emission level for the Green Goat™ GG20 model covered by this letter. Also, the emission level listed in this letter will be superseded if U.S. EPA certifies the GG20 model referenced in this letter under 40 CFR 92.

If you have any questions please direct them to Mr. Dean C. Simeroth, Chief, Criteria Pollutants Branch, at (916) 322-6020, or by email, at dsimerot@arb.ca.gov.

Sincerely,



Robert D. Fletcher, Chief
Stationary Source Division

cc: Mr. Glenn Passavant, Director
Nonroad Center
United States Environmental Protection Agency
2000 Plymouth Road
Ann Arbor, Michigan 48105

Mr. Dean C. Simeroth, Chief
Criteria Pollutants Branch