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NATIONAL VEHICLE AND FUEL EMISSIONS LABORATORY
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OFFICE OF
AIR AND RADIATION

Dear Manufacturer:

CCD-00-21-DC

Subject: Tier 1 to Tier 2 Transition for Nonroad CI Engines

This letter is in response to questions raised in a letter from EMA dated June 29, 2000. We are sharing this response with you as it may affect your 2001 certification plans. Today's letter answers questions concerning Tier 1 to Tier 2 transition. Issues in EMA's letter related to deterioration factors were addressed in a Dear Manufacturer Letter, CCD-00-14, issued on September 6, 2000.

EMA presented three scenarios for certifying a hypothetical engine family that spans two power categories. Here are the hypothetical ratings in the family:

rating "A" 200 kW
rating "B" 220 kW
rating "C" 240 kW
rating "D" 260 kW

In the 2000 model year, all these ratings are subject to the Tier 1 standards and are grouped in the same engine family per 40 CFR § 89.116. In 2001, ratings "C" and "D" will be subject to Tier 2 standards while ratings "A" and "B" will remain subject to Tier 1 standards.

Scenario #1 - all engines become Tier 2

A manufacturer wants to have all the engines in the family become Tier 2 engines in 2001 and is willing not to generate AB&T credits.

Q 1. *Would this be acceptable to EPA even though engines "A" and "B" are not subject to Tier 2 in 2001 (not until 2003 for them)?*

Q 2. *Would this be acceptable even though the standards will differ (6.6 g/kW-hr for "A" and "B" and 6.4 g/kW-hr for "C" and "D") as "A" and "B" are meeting more stringent standards earlier than required ?*

A 1. If all four ratings have similar emission characteristics as defined by § 89.116, they may be grouped in the same family. The applicable emission standards are not a factor considered for grouping engines in the same engine family.

At the same time, EPA will not force manufacturers to group engines in a family in such a way as to require certain engine ratings to meet lower emission standards that don't apply to those ratings. For example, in model years 2003-2005, an engine with a rating of 224 kW may be in a separate family from an engine with a rating of 225 kW since the engine in the lower power rating may be unable to meet the 6.4g/kW-hr NMHC+NOx standard applicable to engines in the higher rating. For information on setting a FEL for families containing Tier 1 and Tier 2 engines, see the answer to question 4 (A 4).

A 2. For the 2001 model year, all four ratings will be in the same family. However, ratings "A" and "B" will be required to meet Tier 1 standards while ratings "C" and "D" will be required to meet Tier 2 standards.

EPA does not issue "Tier 1" and "Tier 2" certificates of conformity. Engines are certified to meet the requirements of 40 CFR Part 89. For ratings "A" and "B" in the 2001 model year, meeting the requirements of 40 CFR Part 89 means being compliant with Tier 1 standards. Although the certification data for the "A" and "B" ratings may be below the Tier 2 standards, EPA can't require these 2001 model year ratings to meet the Tier 2 standards during Selective Enforcement Audits or in an in-use (Recall) test program. Therefore, EPA will not certify these ratings as Tier 2 compliant.

Scenario #2 - family is split between Tier 1 and Tier 2

A manufacturer may want to split engines in the family between Tier 1 and Tier 2

Q 3. *How would a manufacturer avoid the need to conduct another certification test to re-establish a new Tier 1 certification engine? Two options are:*

(i) Allow use of the old cert engine (the old "D" rating engine which was initially used to certify the family for Tier 1),

(ii) Use manufacturer development engine data, on one of the families that remains as a Tier 1 engine.

A 3. Consistent with § 89.119(c), a manufacturer may carryover 2000 certification data, from the old Tier 1 "D" rating in this example, to certify the Tier 1 "A" and "B" ratings for 2001.

EPA will not accept development data on an engine for certification purposes unless the manufacturer can document compliance with all the test requirements of 40 CFR Part 89.

Scenario #3 - credit generation for a split family

Q 4. *Would it be acceptable to EPA for a family that does span two power categories and standards, as described in scenario #1 above, to be allowed to generate credits to two different levels (6.6 - FEL for "A" and "B" and 6.4-FEL for "C" and "D")?*

A 4. It is acceptable to generate credits against two different standard levels based upon one FEL. However, for this example, the two different standard levels are 9.2 g/kW-hr NO_x for ratings "A" and "B" and 6.4 g/kW-hr NMHC+NO_x for ratings "C" and "D." As mentioned in A2 above, ratings "A" and "B" are only required to meet Tier 1 standards.

When setting a NMHC+NO_x FEL for a family containing Tier 1 and Tier 2 engines, the FEL will be treated as a NO_x FEL for the Tier 1 engines and as a NO_x+NMHC FEL for the Tier 2 engines (e.g., a 6.7 NMHC+NO_x FEL for Tier 2 engines and a 6.7 NO_x FEL for Tier 1 engines). This is consistent with § 89.203(b)(5)(i) which allows the use of Tier 1 NO_x credits to address Tier 2 NMHC+NO_x shortfalls. Since there is one FEL for a family with Tier 1 and Tier 2 engines, the upper limit for the FEL can not exceed the upper limit established for Tier 2 engines.

While this letter addresses examples of the Tier 1 to Tier 2 transition for engines with ratings between 130 and 450 kW, the discussion of engine family grouping is applicable to all power ratings, including Tier 1 ratings with different emission standards. For example, it may be possible for a manufacturer to group all Tier 1 engines rated below 19kW in a single engine family. If you have any questions, please contact Greg Orehowsky of my staff on 202-564-9292 or at orehowsky.gregory@epa.gov.

Sincerely,



Gregory A. Green, Director
Certification and Compliance Division
Office of Transportation and Air Quality