

We are requesting comment on this approach, especially with respect to the thresholds. Should we adopt slightly higher thresholds for nonroad engines given their relatively small engine family sizes? Should we focus the defect reporting requirements more on aftertreatment defects since such defects will generally have more significant impacts than other defects? We are also requesting comment on whether these reporting requirements should also apply to the current Tier 2/Tier 3 compliance program, and if so, when these provisions should be applied.

#### *L. Rated Power*

We are proposing to add a definition of "maximum engine power" to the regulations. This term would be used instead of previously undefined terms such as "rated power" or "power rating" to specify the applicability of the standards. The addition of this definition is intended to allow for more objective applicability of the standards. More specifically, we are proposing that:

*Maximum engine power* means the measured maximum brake power output of an engine. The maximum engine power of an engine configuration is the average maximum engine power of the engines within the configuration. The maximum engine power of an engine family is the highest maximum engine power of the engines within the family.

Currently, since rated power and power rating are undefined, they are determined by the engine manufacturer. This makes the applicability of the standards too subjective and confusing. One manufacturer may choose to define rated power as the maximum measured power output, while another may define it as the maximum measured power at a specific engine speed. Using this second approach, an engine's rated power may be somewhat less than the true maximum power output of the engine. Given the importance of engine power in defining which standards an engine must meet and when, we believe that it is critical that a singular power value be determined objectively according to a specific regulatory definition.

We are also adding a clarification to the regulations recognizing that actual engine power will vary to some degree during production. The proposed regulations would require manufacturers to specify a range of actual maximum engine power for each engine configuration. As noted above, we would base the applicability of the standards on the average maximum power of the engines.

#### *M. Hydrocarbon Measurement and Definition*

Both the existing standards and the proposed Tier 4 standards apply to nonmethane hydrocarbons, rather than total hydrocarbons. Methane emissions generally are considered to be nonreactive with respect to ozone, and are not regulated under part 89. However, excluding methane requires that it be separately measured, which complicates the measurement procedures. While we are not proposing to change the standards to total hydrocarbons we are requesting comment on the need to measure methane and the appropriateness of excluding it from our standards.

#### *N. Auxiliary Emission Control Devices and Defeat Devices*

Existing nonroad regulations prohibit the use of a defeat device (*see* 40 CFR 89.107) in nonroad diesel engines. The defeat device prohibition is intended to ensure that engine manufacturers do not use auxiliary emission control devices (AECD) which sense engine operation in a regulatory test procedure and as a result reduce the emission control effectiveness<sup>317</sup> of that procedure. In today's notice we are proposing to supplement existing nonroad test procedures with a transient engine test cycle and NTE emission standards with associated test requirements. As such, the Agency believes that a clarification of the existing nonroad diesel engine regulations regarding defeat devices is required in light of these proposed additional emission test requirements. The defeat device prohibition makes it clear that AECDs which reduce the effectiveness of the emission control system are defeat devices, unless one of several conditions is met. One of these conditions is that an AECD which operates under conditions "included in the test procedure"<sup>318</sup> is not a defeat device. While the existing defeat device definition does contain the term "test procedure", and therefore should be interpreted as including the supplemental testing requirements, we want to make it clear that both the supplemental transient test cycle and

NTE emission test procedures are included within the defeat device regulations as conditions under which an operational AECD will not be considered a defeat device. Therefore, we are proposing to clarify the defeat device regulations by specifying the appropriate test procedures (i.e., the existing steady-state procedures and the supplemental tests).

We are also proposing today to provide clarification regarding the engine manufacturers certification reporting requirements with respect to the description of AECDs. The proposed clarification will aid engine manufacturers in preparing a complete application for certification which will allow EPA to review the application in a timely manner. Under the existing nonroad engine regulations, manufacturers are required to provide a generalized description of how the emissions control system operates and a "detailed" description of each AECD installed on the engine (*See* 40 CFR 89.115(d)(2)). This proposal is intended to clarify what is meant by "detailed."

Under the nonroad diesel Tier 1 standards there was limited use of AECDs. AECDs have begun to be much more common with the Tier 2 standards, and we expect this trend to continue. Engines designed to meet the significantly more stringent Tier 4 standards will certainly rely on sophisticated technologies that will likely employ very complex AECDs. We have seen a similar trend with highway heavy-duty diesel engines. In the late 1980's, few highway HDDEs had electronic controls and most manufacturers relied on in-cylinder techniques to control emissions. However, with the application of technologies such as electronically controlled fuel systems, electronically controlled EGR systems, and variable geometry turbochargers, highway HDDEs now have numerous AECDs which are used both for performance as well as emissions control.

A thorough disclosure of the presence and purpose of AECDs is essential in allowing EPA to evaluate the AECD and determine whether it represents a defeat device. Clearly, any AECD which is not fully identified in the manufacturer's application for certification cannot be appropriately evaluated by EPA and therefore cannot be determined to be acceptable by EPA. Our proposed clarifications to the certification application requirements include additional detail specific to those AECDs which the manufacturer believes are necessary to protect the engine or the equipment in which it is installed against damage or accident ("engine

<sup>317</sup> Auxiliary emission control device is defined at 40 CFR 89.2 as "any element of design that senses temperature, vehicle speed, engine RPM, transmission gear, or any other parameter for the purpose of activating, modulating, delaying or deactivating the operation of any part of the emission control system."

<sup>318</sup> 40 CFR 89.107(b)(1) states "Defeat device includes any auxiliary emission control device (AECD) that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal operation and use unless such conditions are included in the test procedure."