

delivery controls, and some cooling systems, can decline as these systems age. The DF is applied to the certification emission test data to represent emissions at the end of the useful life of the engine. We are proposing that marine diesel engine DFs be determined by engine manufacturers in accordance with good engineering practices. This is more flexible than some more prescriptive approaches that are required for other program. The DFs, however, are subject to EPA approval and must be consistent with in-use test data. Manufacturers must calculate DF values based on the worst-case engine configuration offered within the engine family.

It is not our intent to require a great deal of data gathering on engines that use established technology for which the manufacturers have the experience to develop appropriate DFs. New DF testing may not be needed where sufficient data already exists. However, we are applying the DF requirement to all engines so we can be sure that reasonable methods are being used to determine the capability of engines to meet standards throughout their useful lives. Consistent with other programs, we allow manufacturers the flexibility of using durability emission data from a single engine for other engine families that are being certified to the same standards.

DFs are calculated as an additive value (*i.e.*, the arithmetic difference between the emission level at full useful life and the emission level at the test point) for engines without exhaust aftertreatment devices. In contrast, DFs are calculated as a multiplicative value (*i.e.*, the ratio of the emission level at full useful life to the emission level at the test point) for engines using exhaust aftertreatment devices. This is consistent with the DF requirements applicable to other diesel engines, based on observed patterns of emission deterioration. Given the type of emission controls projected to be used to meet the near-term standards (calibration changes and combustion chamber redesign, but not aftertreatment), it is possible that NO_x emissions may actually decrease with time as the piston rings and cylinder liners wear (thereby reducing peak pressures). In such cases, manufacturers would not be allowed to use a negative DF, and would instead be required to use a DF of zero.

One of the reasons we are adopting a very flexible DF program for this rulemaking is that we do not expect deterioration to be a major problem for these engines. Our history with in-cylinder NO_x control suggests that

engine-out NO_x emissions are relatively stable over time. If we eventually adopt an aftertreatment-forcing standard or a standard for PM, we would likely consider more specific requirements for calculating DFs. For example, it might be appropriate to apply to these engines the more specific DF provisions that have been developed for heavy-duty highway engines (40 CFR 86.004–26).

8. What Requirements Apply to In-Use Maintenance?

In previous rules, we have required manufacturers to furnish the ultimate purchaser of each new nonroad engine with written instructions for the maintenance needed to ensure proper functioning of the emission-control system. (Generally, manufacturers require the owners to perform this maintenance as a condition of their emission warranties.) If such required maintenance is not performed by the engine operator, then in-use emission deterioration can result. We therefore require operators of vessels with Category 3 to perform the emission-related maintenance specified by the manufacturer, which we approve as part of the application for certification. This provision is comparable to our requirement for railroads to perform emission-related maintenance for locomotives (40 CFR 92.1004). In that approach, locomotive owners who fail to properly maintain a locomotive are subject to civil penalties for tampering. For marine engines, we consider rebuilding engines and power assemblies to be a part of emission-related maintenance. We believe these requirements are generally consistent in practice with the provisions specified for ship operators in Technical File required by the NO_x Technical Code.

Unlike our regulation for smaller marine engines, we are not adopting minimum allowable maintenance intervals for Category 3 marine diesel engines. This is also consistent with our approach for locomotives. In both cases, we believe the engine manufacturers, allowing for input from the engine owner, can assess what should be the specific maintenance schedules before completing the sale of the engine. The engine manufacturer will then provide those specific maintenance instructions to the ship operator or owner as part of the required maintenance information.

9. What Requirements Apply to Rebuilding Engines?

We are adopting in-use maintenance provisions that require operators to properly perform emission-related maintenance throughout the service life of the engine. This also applies

whenever an engine or engine subsystem is rebuilt. In general, we require that all rebuilds return the engine to its original certified condition. We consider failure to rebuild an engine to its original certified condition to be tampering with the emission controls. We believe these maintenance and rebuild provisions address the vast majority of in-use servicing of these engines.

10. What Are the Prohibited Acts and Related Requirements?

We are regulating Category 3 engines under 40 CFR part 94. This means that we are extending the general compliance provisions for smaller marine engines to Category 3 marine engines. These include the general prohibition against introducing an uncertified engine into commerce, as well as the tampering and defeat-device prohibitions. These prohibitions are listed in 40 CFR 94.1103. As discussed above, certain prohibitions applying to ship owners and ship operators are also described in this section.

11. What General Exemptions Apply?

We are applying the exemptions for smaller marine engines to Category 3 marine engines. These include, for example, exemptions for the purpose of national security and exemptions for engines built in the United States for export to other countries. These exemptions, described in 40 CFR part 94, subpart J, typically exempt the engines from emission standards and other requirements, but require the manufacturer to keep records and label exempted engines.

12. What Regulations Apply for Imported Engines?

We are extending the current importation provisions found in 40 CFR part 94 for smaller marine engines to Category 3 marine engines. Imported engines are generally subject to the same requirements, based on their date of original manufacture. The existing provisions for smaller engines include permanent and temporary exemptions from this requirement.

13. What Are a Manufacturer's Recall Responsibilities?

Section 207(c)(1) of the Act specifies that manufacturers must recall and repair in-use engines if we determine that a substantial number of them do not comply with the regulations in use. We are proposing to apply the existing provisions for smaller marine engines to Category 3 marine engines. These provisions are described in 40 CFR part 94, subpart H.