

thousand tons/year of VOC in 2020 and 2030 nationally.¹¹³

Tables II.E-7 shows our projection of the reductions in 2020 and 2030 for

VOC emissions that we expect from implementing the proposed NMHC standards. This estimate is based on a

50 state emissions inventory. By 2030, VOC reductions would be reduced by 30 percent.

TABLE II.E-7—ESTIMATED NATIONAL (50 STATE) REDUCTIONS IN VOC EMISSIONS FROM NONROAD LAND-BASED DIESEL ENGINES

Calendar year	VOC without rule [short tons]	VOC with rule [short tons]	VOC reductions with rule [short tons]
2020	97,000	79,000	18,000
2030	98,000	68,000	30,000

Air toxics pollutants are in VOCs and are included in the total land-based nonroad diesel VOC emissions estimate. We base these numbers on the assumption that air toxic emissions are a constant fraction of hydrocarbon exhaust emissions.

Although we are not proposing any specific gaseous air toxics standards, air toxics emissions would nonetheless be reduced through NMHC standards included in the proposed rule. By 2030, we estimate that emissions of air toxics pollutants, such as benzene, formaldehyde, acetaldehyde, 1,3-butadiene, and acrolein, would be reduced by 30 percent from land-based nonroad diesel engines. For specific air toxics reductions please see chapter 3 of the RIA. In section II.B.2 we discuss the health effects of these pollutants.

III. Nonroad Engine Standards

In this section we describe the nonroad diesel emission standards we are proposing in order to address the serious air quality problems discussed in section II. Specifically, we discuss:

- The Clean Air Act and why we are proposing new emission standards.
- The technology opportunity for nonroad diesel emissions control.
- Our proposed engine standards, and our proposed schedule for implementing them.
- Proposals for supplemental test procedures and standards to help control emissions during transient operating modes and engine start-up.
- Proposals to help ensure robust emissions control in use.
- The feasibility of the proposed standards (in conjunction with the proposed low-sulfur nonroad diesel fuel requirement discussed in section IV).
- How diesel fuel sulfur affects an engine's ability to meet the proposed standards.
- Plans for a future reassessment of the technology needed to comply with

proposed standards for engines below 75 hp.

Additional proposed provisions for engine and equipment manufacturers are discussed in detail in section VII. Briefly, these include changes to our engine manufacturer averaging, banking, and trading (ABT) program, changes to our transition program for equipment manufacturers, special provisions to aid small businesses in implementing our requirements, and an incentive program to encourage innovative technologies and the early introduction of new technologies.

We welcome comment on all facets of this discussion, including the levels and timing of the proposed emissions standards and our assessment of technological feasibility, as well as on the supporting analyses contained in the Draft Regulatory Impact Analysis (RIA). We also request comment on the timing of the proposed diesel fuel standard in conjunction with these proposed emission standards. We ask that commenters provide any technical information that supports the points made in their comments.

A. Why Are We Setting New Engine Standards?

1. The Clean Air Act and Air Quality

We believe that Agency action is needed to address the air quality problems discussed in section II. We are therefore proposing new engine standards and related provisions under sections 213(a)(3) and (4) of the Clean Air Act which, among other things, direct us to establish (and from time to time revise) emission standards for new nonroad diesel engines. Because emissions from these engines contribute greatly to a number of serious air pollution problems, especially the health and welfare effects of ozone, PM, and air toxics, we believe that the air quality need for stringent nonroad

diesel standards is well established. This, and our belief that a significant degree of emission reduction from these engines is achievable through the application of diesel emission control technology that will be available in the lead time provided (giving appropriate consideration to cost, noise, safety, and energy factors as required by the Act), along with coordinated reductions in nonroad diesel fuel sulfur levels, leads us to believe that these new emission standards are warranted and appropriate.

We also believe that the proposed engine standards are consistent with the Clean Air Act section 213 requirements on availability of technology and appropriate lead time. The basis for our conclusion is described in this section and in the Draft RIA.

2. The Technology Opportunity for Nonroad Diesel Engines

Substantial progress has been made in recent years in controlling diesel exhaust emissions through the use of robust, high-efficiency catalytic devices placed in the exhaust system. Particularly promising are the catalytic soot filter or particulate trap for PM and hydrocarbon control, and the NO_x adsorber. These technologies are expected to be applied to highway heavy-duty diesel engines (HDDEs) beginning in 2007 to meet stringent new standards for these engines. The final EPA rule establishing those standards contains extensive discussion of how these devices work, how effective they are at reducing emissions, and what their limitations are, particularly their dependence on very-low sulfur diesel fuel to function properly (66 FR 5002, January 18, 2001; *see* especially section III of the preamble starting at 5035). Reviews of ongoing progress in the development of these technologies have recently been performed by EPA and by

¹¹³ VOC emissions remain about the same in 2030 as 2020 because while nonroad diesel emission factors decrease and newer engines continue to be

introduced into the fleet, the engine/equipment population continues to increase. The increase in

engine/equipment population offsets the effect of decreasing emission factors.