National Emission Standards for Hazardous Air Pollutants for Engine Test Cells/Stands – Background Information for Final Standards

Summary of Public Comments and Responses

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U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Emission Standards Division
Research Triangle Park, North Carolina 27711

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Summary

On May 14, 2002, the U. S. Environmental Protection Agency (EPA) proposed national emission standards for hazardous air pollutants (NESHAP) for engine test cells/stands (67 FR 34548) under authority of Section 112 of the Clean Air Act (Act). Public comments were received from 24 sources consisting mainly of automotive, truck, and diesel engine manufacturers; airlines; aircraft and marine engine manufacturers; various industry trade associations; and Government agencies.

All of the comments that were submitted and the responses to these comments are summarized in this document. This summary is the basis for the revisions made to the standards between proposal and promulgation.

1.1 SUMMARY OF CHANGES SINCE PROPOSAL

Several changes have been made since the proposal of these standards. Major changes include: a revised and broader definition of affected source that impacts when new source maximum achievable control technology (MACT) is required for new and reconstructed sources; revised emission limits for new source engine test cells/stands used to test internal combustion (IC) engines with power ratings equal to or above 25 horsepower (hp); addition of parametric monitoring for add-on control devices; and an exemption for reconstructed affected sources used for testing to comply with Title II (mobile source) regulations.

Other changes have been made to clarify portions of the rule that were unclear to the commenters and to reduce the recordkeeping and reporting burden. A summary of the major changes is presented in the following sections.

1.1.1 Applicability

The proposed rule applied to an owner or operator of engine test cells/stands located at major sources of hazardous air pollutant (HAP) emissions. An engine test cell/stand was defined in the proposed rule as any apparatus used for testing uninstalled stationary or uninstalled mobile (motive) engines. However, the proposed rule did not include a definition of "uninstalled engine."

Changes were made to clarify that the final rule is regulating the testing of engines, not the testing of any final product (e.g., automobile, boat, power generator, etc.). If the engine being tested in a test cell/stand is not installed in, or an integrated part of, the final product, then the test cells/stands are considered part of the affected source.

This new definition for "uninstalled" also clarifies the applicability of outboard motors. Outboard motors are considered "installed" when the engine is coupled with the gear drive and propeller. Therefore, a facility with engine testing involving outboard motors, in their vessel-installed configuration, is not an affected source.

Changes were made to add some specific exclusions to the applicability determination. Test cells that are operated to test or evaluate fuels (such as knock engines), transmissions, electronics, etc., are now excluded, as well as research and teaching activities at major source facilities that are not engaged in the development of engines or engine test services for commercial purposes.

1.1.2 Affected Source

The proposed rule defined the affected source as any existing, new, or reconstructed engine test cell/stand used for testing uninstalled stationary or uninstalled mobile (motive) engines that is located at a major source of HAP emissions. The final rule includes a new definition of affected source in accordance with the rationale in the amended General Provisions (67 FR 16588). The new definition of an affected source is the collection of all equipment and activities associated with engine test cells/stands used for testing uninstalled stationary or uninstalled mobile (motive) engines located at a major source of HAP emissions.

1.1.3 Compliance Dates

Several comments noted an inadvertent error in the proposal preamble language. There was a discrepancy between the language in the preamble and the rule concerning the compliance date. The proposal regulatory text was correct. The final rule clarifies the compliance date for existing sources as three years after the effective (promulgation) date, and the compliance date for new sources as the effective date or upon startup, whichever is later.

1.1.4 Modification or Reconstruction

Several comments were made about the diversity of engine test cells/stands and test requirements used by the various types of engine manufacturers and industry sectors. The comments included recommendations on how to define what types of test equipment and support equipment comprise an actual engine test cell/stand (e.g., affected source) or reconstructed source.

Many of these recommendations have been incorporated into the final rule, which includes new language clarifying that changes made to an existing affected source primarily for the purpose of complying with revised engine testing requirements under 40 CFR parts 80, 86, 89, 90, 91, or 92 are not considered a modification or reconstruction. Therefore, those affected sources modified to meet requirements in those parts and subparts will not be subject to new source MACT.

Changes were also made to the final rule to include language that excludes passive measurement and control instrumentation and electronics from the reconstruction evaluation. The final rule preamble also clarifies that movement or relocation of portable (wheeled) test stands within a facility is not considered reconstruction.

1.1.5 New Source MACT

Several comments involved the stringency of the emission limits associated with new source MACT. The new source emission limits have been changed in the final rule to 96 percent reduction for carbon monoxide (CO) or total hydrocarbons (THC) or outlet concentrations of 20 ppmvd CO or THC based on the updated test data, additional test reports, and estimates reflecting the most prevalent

engine test setups and conditions across all engine testing sectors involving engines greater than or equal to 25 hp.

1.1.6 Monitoring Requirements

Based on comments received, the monitoring requirements have been changed in the final rule to allow parameter (temperature) monitoring for thermal oxidizers. In the case of a regenerative thermal oxidizer (RTO), the temperature is monitored during the initial performance test. After the RTO meets the performance test requirements, the operating temperature is continuously monitored to demonstrate compliance with the applicable new source emission limit.

1.1.7 Startup, Shutdown, and Malfunction (SSM)

The proposed rule specifically required affected sources to comply with the applicable emission limitation at all times, including startup, shutdown, and malfunction (SSM). Because the SSM provisions apply to the process as well as the control equipment, the impact of the engine test NESHAP to minimize HAP emissions would be significantly reduced by adopting the SSM provisions.

Based on the comments, the final rule includes SSM provisions for any control equipment and monitoring equipment related to engine test cells/stands emissions. The new language references the General Provisions for SSM procedures related to control equipment and associated monitoring equipment.

1.2 SUMMARY OF IMPACTS OF PROMULGATED REGULATION

The final standards will reduce nationwide emissions of hazardous air pollutants (HAP) from engine test cells/stands by 59.5 megagrams per year (Mg/yr) (65.5 tons per year (tpy)) from projected new or reconstructed sources. No significant adverse secondary air, water, or solid waste impacts are anticipated from the promulgation of these standards.

The implementation of this rule is expected to result in an overall annual cost of $3.2 million. The economic impact analysis shows that the economic impacts from these final standards are insignificant.

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Chapter 2
Summary of Public Comments

A total of 24 letters commenting on the proposed standards and supporting technical memoranda for the proposed standards were received. Comments from the public hearing on the proposed standards were recorded, and a transcript of the hearing was placed in the project docket. A list of commenters, their affiliations, and the EPA docket number assigned to their correspondence are given in Tables 2-1 and 2-2.

For the purpose of orderly presentation, the comments have been categorized under the following topics:

1. Applicability;
2. Affected source;
3. Existing source MACT;
4. New source MACT;
5. Reconstruction;
6. Monitoring requirements;
7. Cost and economic assumptions and impacts;
8. Startup, shutdown, and malfunction (SSM);
9. Compliance procedures;
10. Compliance dates;
11. Averaging; and
12. Miscellaneous.

The comments, the issues they address, and EPA's responses are discussed in the following sections of this chapter.

Table 2-1. List of Commenters on Proposed Standards of Performance for Engine Test Cells/Stands

Docket Item No.[a]	Commenter/Affiliation
IV-D-01	Ms. Janice Bardi Administrative Assistant ASTM International 100 Barr Harbor Drive, P.O. Box C700 W. Conshohocken, PA 19428-2959
IV-D-02	Dr. Robin M. Ridgway Environmental Regulatory Consultant Purdue University REM/Utilities 1662 Civil Engineering Building B173 West Lafayette, IN 47907
IV-D-03	Mr. Joseph L. Suchecki Director, Public Affairs Engine Manufacturers Association Two North LaSalle Street, Suite 2200 Chicago, IL 60602
IV-D-04	Mr. Keith W. Skaggs Anteon Corporation 3211 Jermantown Road, Suite 700 Fairfax, VA 22030
IV-D-05	Mr. Scott F. Belcher Managing Director Environmental Affairs and Assistant General Counsel Air Transport Association of America, Inc. 1301 Pennsylvania Ave., NW, Suite 1100 Washington, DC 20004-1707
IV-D-06	Mr. David C. Foerter Deputy Director Institute of Clean Air Companies, Inc. 1660 L Street, NW, Suite 1100 Washington, DC 20036

Table 2-1. (Continued)

Docket Item No.[a]	Commenter/Affiliation
IV-D-07	Mr. David C. Foerter Deputy Director Institute of Clean Air Companies, Inc. 1660 L Street, NW, Suite 1100 Washington, DC 20036
IV-D-08	Mr. Donald R. Schregardus Deputy Assistant Secretary for Installations and Environment Office of the Assistant Secretary Department of the Navy 1000 Navy Pentagon Washington, DC 20350-1000
IV-D-09	Mr. Lawrence E. Keller Manager, Corporate Environmental Compliance Polaris Industries, Inc. 805 Seminole Avenue Osceola, WI 54020
IV-D-10	Mr. Nicholas Gertler Counsel, Latham & Watkins 555 11th Street, NW, Suite 100 Washington, DC 20004 On behalf of: International Truck and Engine Corporation 455 N. Cityfront Plaza Drive Chicago, IL 60611
IV-D-11	Ms. Thelma R. Norman Senior Engineer American Airlines MD 508, P.O. Box 582809 Tulsa, OK 74159-2809
IV-D-12	Mr. Robert T. Marlow Vice President, Government Division Aerospace Industries Association 1250 Eye Street, NW Washington, DC 20005-3924

Table 2-1. (Continued)

Docket Item No.[a]	Commenter/Affiliation
IV-D-13	Ms. Karen Keyob Associate Chief Engineer, Environmental Honda of America Mfg., Inc. 24000 Honda Parkway Marysville, OH 43040
IV-D-14	Ms. Olga M. Dominguez Director, Environmental Management Division National Aeronautics and Space Administration Headquarters Washington, DC 20546-0001
IV-D-15	Mr. Gregory J. Dana Vice President, Environmental Affairs Alliance of Automobile Manufacturers 1401 H Street, NW, Suite 900 Washington, DC 20005
IV-D-16	Mr. James W. Sumner Manager, Group Environmental Programs GE Aircraft Engines One Neumann Way, Mail Drop T165 Cincinnati, OH 45215-6301
IV-D-17	Ms. Lisa S. Beal Director, Environmental Affairs Interstate Natural Gas Association of America 10 G Street NE, Suite 700 Washington, D.C. 20002
IV-D-18	Mr. Ted Steichen Senior Regulatory Analyst American Petroleum Institute 1220 L Street, NW Washington, DC 20005-4070
IV-D-19	Mr. John McKnight Director, Environmental and Safety Compliance National Marine Manufacturers Association 200 E. Randolph Dr., Suite 5100 Chicago, IL 60601

Table 2-1. (Continued)

Docket Item No.[a]	Commenter/Affiliation
IV-D-20	Mr. Joseph L. Suchecki Director, Public Affairs Engine Manufacturers Association Two North LaSalle Street, Suite 2200 Chicago, IL 60602
IV-D-21	Mr. Andy Lawrence Director, Office of Environmental Policy and Guidance Department of Energy Washington, DC 20585
IV-D-22	Mr. David M. Boyd Corporate Environmental Manager Briggs & Stratton Corporation 12301 W. Wirth Street Wauwatosa, WI 53222-2110
IV-D-23	Mr. Myron Hafele Supervisor – EHS Air Group Kohler Company Kohler, WI 53044
IV-D-24	Mr. Robert W. Stachowicz Senior Development Engineer Waukesha Engine, Dresser, Inc. 1000 West St. Paul Avenue Waukesha, WI 53188-4999

[a] The docket number for the engine test cells/stands NESHAP is A-98-29.

Table 2-2. Individuals Providing Verbal Comments at the Public Hearing of the Proposed NESHAP for Engine Test Cells/Stands

Docket Item No.[a]	Commenter/Affiliation
IV-F-01	Mr. Joseph Suchecki Director of Public Affairs Engine Manufacturers Association

IV-F-02	Mr. Craig Dousharm Senior Environmental Engineer Mercury Marine (Division of Brunswick Corporation) Fond du Lac, Wisconsin On behalf of: National Marine Manufacturers Association
IV-F-03	Ms. Mary Snow-Cooper Senior Regulatory Planning Specialist DaimlerChrysler Corporation On behalf of: Alliance of Automobile Manufacturers

[a] The docket number for the engine test cells/stands NESHAP is A-98-29.

2.1 APPLICABILITY

2.1.1 Comment: Five commenters (IV-D-03, IV-D-08, IV-D-19, IV-D-24, and IV-F-02) requested clarification of "uninstalled engine" versus "installed engine" testing in regards to determining applicability of the final rule.

Response: The affected source is defined as the collection of all equipment and activities associated with engine test cells/stands used for testing uninstalled stationary or uninstalled mobile (motive) engines located at a major source of HAP emissions. We are regulating the testing of engines, not the testing of any final product (e.g., automobile, boat, power generator, etc.). If the engine being tested in a test cell/stand is not installed in, or an integrated part of, the final product, then the test cell(s) or test stand(s) would be considered part of the affected source.

2.1.2 Comment: Three commenters (IV-D-08, IV-D-19, and IV-F-02) made comments concerning the applicability of the rule to marine engines. Commenter IV-D-08 stated that outboard motors operated while detached from a boat should not be considered uninstalled, since "the engine remains coupled to lower unit gear drive and propeller without modification to its vessel-installed configuration." The commenter recommended that EPA either define "uninstalled" or clarify in the preamble that the rule does not affect outboard motors when operated while detached from a boat. Two commenters (IV-D-19 and IV-F-02) stated that recreational marine engines are tested as a complete regulated package with emission controls installed. The rule would therefore require emission

controls on test cells used to test engines that already have emission controls. These two commenters saw no difference between a regulated installed engine (e.g., in an automobile) and a regulated emission controlled uninstalled engine being tested by recreational marine engine manufacturers.

Response: We agree with the commenters and consider outboard motors to be installed engines when the engine is coupled with the gear drive and propeller. Therefore, because the rule applies only to uninstalled engines, outboard motors (in their vessel-installed configuration) are not affected sources.

While it is true that most recreational marine engines have emission controls already installed, the same is true for virtually all engines sold. It is important to note, however, that the emission limits in the rulemaking apply to the engine test cells/stands, and that the engines that are tested do not always comply with their applicable mobile source requirements. For example, engines are sometimes tested without after-treatment, or the electronic controls may not be optimized for lowest emissions. Another important fact to note is that engines have different emission standards to meet depending on the end use. For instance, mobile-source emission standards for automobile engines are different from those for recreational marine engines. This means that emissions from these engines are regulated (e.g., reduced) to very different levels. Thus, the fact that engines may be tested with their emission controls installed does not guarantee that HAP reductions equivalent to the emission limit required in this rulemaking are taking place.

2.1.3 Comment: Several commenters (IV-D-03, IV-D-09, IV-D-10, IV-D-13, IV-D-15, IV-D-16, IV-D-19, IV-D-23, IV-D-24, IV-F-02, and IV-F-03) stated that engine testing required by other regulations (e.g., mobile source rules) should be exempt from this NESHAP. Six of the commenters (IV-D-03, IV-D-09, IV-D-15, IV-D-16, IV-D-23, and IV-D-24) stated that the final rule should not require further treatment when the engines are designed and constructed to be compliant with mobile source (Title II) standards. Commenter IV-D-09 stated that EPA should exempt test cells used to test uninstalled engines pursuant to applicable mobile source emission regulations. The "uninstalled engine" proposal, according to one commenter, should be extended to products covered by vehicle-based emission standards for which testing of fully equipped, uninstalled engines is nevertheless allowed for compliance demonstration purposes, e.g., ATVs. Commenter IV-D-23 stated that it is unreasonable to require the locations that test engines meeting the EPA or California ARG non-

road emission standards to have additional oxidation control and monitoring systems. Commenter IV-D-13 recommended an exemption for engine test cells/stands in which 90 percent or more of the engines being tested meet the mobile source emission standards. Commenter IV-D-10 recommended that EPA exempt on-road diesel engine test cells from the control requirements of the proposed rule because EPA already regulates essentially the same emissions units to the full extent of technological feasibility under the Agency's mobile source regulations. Commenter IV-D-03 requested that the precedent used to exempt installed engine testing from the regulation should be extended to the quality and/or final testing of engines that must comply with Federal or State emissions standards. Commenter IV-D-24 stated that there is no difference between installed and uninstalled engines in the small engine classification. Other commenters from the marine industry similarly stated that much of the engine testing conducted on marine engines is required by other EPA regulations for certification of compliance with mobile source emission limits. Emissions from the testing of such engines should not be subject to additional controls as proposed.

Commenter IV-D-15 recommended that the rule should not require further emission treatment when the engines being tested are constructed to be compliant with mobile source standards or when the engines are powered exclusively by natural gas. The commenter noted that:

> In the preamble of EPA's March 2001 final rule on "Control of Emissions of Hazardous Air Pollutants from Mobile Sources" (66 Fed. Reg. 17230), EPA states that its analysis shows that existing and proposed emission control programs for mobile sources are expected to yield significant reductions of mobile source air toxics. EPA goes on to state that it is not setting additional vehicle-based air toxics controls because the technology-forcing Tier 2 light duty vehicle standards and the new standards for heavy duty engines and vehicles "represent the greatest degree of toxics control achievable at this time considering existing standards, the availability and cost of technology, and noise, energy and safety factors and lead time."

The commenter suggested that an owner or operator might be encouraged to accept a requirement that it not operate any engine in a new or reconstructed test cell/stand that is not served by a thermal oxidizer or similar control device unless the engine has catalytic or other controls designed to achieve Title II standards.

Response: This NESHAP is applicable to engine test cells/stands and not engines. Thus, even though certification testing is conducted in order to determine compliance of some engines with EPA regulations under Title II of the Act and to demonstrate that a given engine meets the established mobile source emission standard, such testing is not applicable to engine test cells/stands per se. Further, although some engines are being tested to demonstrate compliance with a mobile source emission limit, this does not necessarily mean that the facility conducting such testing is not a major source of HAP emissions and should thus be exempt from having to comply with this NESHAP.

New engine test cells/stands used for certification testing are virtually identical to other production test cells/stands and emit the same HAP. In addition, not all test cells/stands are configured to specifically meet the mobile source (Title II) requirements and the mobile source certification testing is often conducted under varying and different testing conditions. Further, the engines tested for certification purposes are required to meet different standards for emissions reduction, which are not equally stringent (i.e. off-road engines vs. on-road engines). The compliance of engines with a mobile source regulation aimed at reducing criteria pollutant emissions does not necessarily mean that the facility in question is not a major source of HAP emissions. A facility may test several hundred engines (which produce HAP emissions) per day, and those emissions combined with other emission sources located at the major source, provide the potential for the facility to emit significant levels of HAP. Therefore, any new engine test cells/stands used for testing internal combustion engines greater than or equal to 25 hp are covered by the final rule.

One of the commenters also mentioned a "precedent used to exempt installed engines" in support of their recommendation to exclude the testing of regulated and uninstalled engines from this regulation. No such precedent exists, and we have not made any determination that exempts the testing of installed engines from this regulation. The testing of installed engines is not covered by this regulation simply because it is not considered part of the "engine test cells/stands" source category that we are required to regulate under the statute.

2.1.4 Comment: Four commenters (IV-D-08, IV-D-09, IV-D-13, and IV-D-14) urged EPA to add an exemption to the control requirements for new/reconstructed engine test cells/stands used for testing engines with very low level of emissions due to their size or method of operation.

Commenter IV-D-08 stated that the rule should include a low-use exemption to prevent insignificant engine testing operations that occur on major HAP source facilities from being subject to the regulation. This commenter recommended that the EPA add the following exemption in section 63.9290:

> A new or reconstructed uninstalled IC engine test stand which is not otherwise exempt does not have to meet the requirements of this subpart and subpart A of this part if the facility-wide fuel consumption of all new or reconstructed uninstalled IC engines test stands is less than 10,000 gallons per year. Facilities shall maintain fuel consumption records to demonstrate that they meet the criteria but shall not be subject to any other provisions of this subpart.

Commenter IV-D-09 suggested a threshold based on actual emissions of greater than 5 tpy from the potentially affected engine test cell/stand. Commenter IV-D-14 stated that since their annual HAP emissions from all engine testing is estimated to be 0.5 tons of combined HAP per year, EPA should consider including a low-use exemption or de minimis use threshold based on hours of operation or amount of fuel consumed.

Response: The HAP emission levels from different types of engines are very different and do not necessarily correlate with the fuel consumption of the engine. In order to set a low-use exemption based on fuel consumption, one would have to establish a correlation between HAP emissions and volume of fuel used. That type of correlation is not unique and varies greatly depending on engine type, size, and fuel type. The commenter did not provide any information that showed what 10,000 gallons of fuel is equivalent to in terms of HAP emissions. Likewise, an exemption based on hours of operation is not appropriate if one follows the same rationale described above. Thus, for these reasons we are not adding a low-use exemption to the final rule. We believe that the definition of major source already provides a threshold that separates facilities that emit significant amounts of HAP from those that do not.

2.1.5 Comment: Four commenters (IV-D-03, IV-D-22, IV-D-23, and IV-F-01) supported an exemption for small engine testing but requested that the cutoff point should be based on cylinder displacement and not horsepower (hp); they specifically requested that the 25 hp limit be replaced with a 1.0-liter displacement. Commenter IV-D-22 encouraged EPA to redefine the subcategory from test

cells/stands for testing internal combustion engines from a rated power of less than 25 hp to test cells/stands for testing internal combustion engines with a displacement equal to or less than 1.0 liter and a rated horsepower of less than 40 hp. All four commenters noted that the EPA currently allows the use of the 1.0-liter cutoff point under the "Small SI Rule" (40 CFR 90.1) and has included a 1.0-liter cutoff point in the "Large SI Rule" proposed in 2001 (FR 66:51097-51272 October 5, 2001).

Response: We evaluated existing and proposed mobile source and engine regulations. Existing EPA and California regulations do not support a definitive engine size cutoff. These regulations include criteria in terms of horsepower and engine displacement, but 25 hp does not always equate to 1.0 liters of engine displacement since it can vary depending on other individual engine characteristics. We found that, in most cases, an internal combustion engine with 1.0 liter of engine displacement correlates to approximately 50 hp. As was explained in the proposal preamble, one of the main distinctions we were trying to make was differentiating between cells/stands used for testing small engines, such as those used in lawn and garden applications, and the larger ones. The 25 hp cutoff is a better criterion for such engine test cells/stands and applications.

2.1.6 Comment: Two commenters (IV-D-03 and IV-F-01) noted that other than exempting small engines, the proposed rule inappropriately applies the same controls to all types and sizes of engines, thus factors such as test facility location, and not environmental protection needs, can trigger an unwarranted burden on some manufacturers. The commenters recommended that the rule and proposed controls consider HAP emissions levels and review the need for controls for engine subcategories.

Response: Section 112 of the Clean Air Act applies to all major sources of HAP emissions. Unless otherwise mentioned in the final rule, any major source facility with engine test cells/stands must comply with the NESHAP requirements.

2.1.7 Comment: Two commenters (IV-D-24 and IV-F-01) were concerned that an engine test cell source should not be defined as major by the traditional potential to emit. Both commenters were concerned that using potential-to-emit criteria overstates HAP emissions from test cells/stands because test cells/stands are not run on a continuous basis.

Commenter IV-D-24 noted that these criteria do not apply because most facilities have more test cells than are normally used because any given cell may be out of use due to instrumentation or hardware maintenance, calibration, or failure. Commenter IV-F-01 added that test cells are generally oversized to allow the testing of the largest engine in production or development, but the largest engines are generally tested in only very small numbers compared to smaller engines in the manufacturer's line.

Both commenters offered recommendations for determination of major source status. Commenter IV-D-24 recommended that EPA devise and adopt a more realistic method of determining potential to emit for engine test cell facilities in order to determine whether they should be classified as a major source for regulation purposes. The commenter had two suggestions: (1) calculate the facility's potential to emit based on a multiple of the highest total horsepower tested at the facility in any single year over the last five years, or (2) calculate the facility's potential to emit based on a multiple of the highest total fuel consumed by the facility for all testing purposes in any single year over the last 5 years. Commenter IV-F-01 recommended using fuel usage, horsepower tested, or other reliable indicators to determine major source status.

Response: The commenters did not consider HAP emissions from other processes and emission points have to be taken into account when making a major source determination. As part of the MACT determination, we are required to consider a facility's potential to emit, which takes into consideration all emissions from all emission sources (e.g., engine testing, painting, fuel storage). Accordingly, we evaluated each facility based on the information and process/emissions data submitted in the individual facility information collection request (ICR) responses. Further, as part of the MACT database follow-up activities prior to the MACT floor determination, we also contacted several facilities in order to verify major source status.

2.1.8 Comment: Two commenters (IV-D-13 and IV-D-15) requested an exemption for natural gas-fired engines. Both commenters urged EPA to exempt the control requirements for new/reconstructed engine test cells/stands used for testing internal combustion engines of 25 hp or more that are powered exclusively by natural gas.

Response: We considered different fuel types when we were developing the MACT floor emissions limits. As stated earlier, the HAP emission levels from different types of engines can be very

different and do not necessarily correlate with the fuel consumption of the engine. We found that test cells/stands may be used to test different types and sizes of engines, as well as engines using different fuels. We did not see any differences with the actual engine test cells/stands configuration. Also, HAPs are still emitted from these different types of engines, and the types of HAP emitted are similar as well.

2.1.9 Comment: One commenter (IV-D-21) requested EPA consider a de minimis level of CO and THC emissions below which emission controls would not be required, regardless of the rated horsepower. The commenter also stated that the proposed new source MACT applied to engine test cells/stands tested intermittently or only for limited periods of time may not be economically feasible.

Response: The outlet concentration limits for CO and THC serve as the minimum applicable limits for the affected sources. If the outlet concentration is below the applicable emission limit, no controls are required to demonstrate compliance. The commenter's suggested de minimis cutoff levels are inconsistent with the Act's prescribed method for determining the MACT floor.

With regards to the commenter's statement concerning economic feasibility of applying new source MACT to test cells/stands that are operated intermittently, we agree that any type of add-on control device will be more expensive (in terms of cost effectiveness) if it is not operated on a continuous basis. However, economic feasibility is not a consideration in the determination of new source MACT, and the Clean Air Act clearly states that sources subject to new source MACT are to be controlled to the same level as the best controlled similar source.

2.1.10 Comment: Several commenters (IV-D-03, IV-D-10, IV-D-17, IV-D-24, and IV-F-03) requested additional subcategories for differing fuel types. Commenter IV-D-10 stated that the proposed MACT floor for new test cells is not applicable to the testing of diesel engines because the best controlled sources on which the floor is based are not similar to diesel test cells within the meaning of §112(d)(3). Two commenters (IV-D-03 and IV-D-24) stated that the same types of controls are not appropriate for diesel and natural gas engines because they have different characteristics. Commenter IV-D-03 specifically included the fact that diesel and natural gas-fired engines have lower HAP emission factors. Commenter IV-D-17 stated:

> EPA wrongly relied exclusively on data from gasoline-fueled engines as the basis for the proposed standard and has failed to reconcile this data with more pertinent emissions

data available to the Agency for natural gas-fired reciprocating internal combustion engines, which suggests a separate subcategory is warranted for engine test cells testing natural gas-fired reciprocating internal combustion engines.

Three commenters (IV-D-15, IV-D-16, and IV-F-01) noted that the emission limits are based on gasoline engines, which are not representative of all engine types.

Response: We disagree with the commenters, in that, all types of internal combustion engine testing are very similar in many aspects, including the fuel combustion process and the types of HAP emitted. In determining the MACT, EPA derived information from the MACT database, which included engine test cells stands used for testing gasoline, diesel engines and natural gas-fired reciprocating internal combustion engines. According to the MACT database, the types of HAP emitted from these engines are very similar but the relative levels of pollutants emitted can vary significantly. For example, natural gas engines emit comparatively lower levels of some HAP than gasoline or diesel engines; however, the natural gas engines typically emit higher levels of aldehyes. The amount of HAP emitted will be determined by the actual number, size, and types of engines being tested by the facility as a whole, and not by individual engines or test cells/stands. Therefore, the information and data provided by the commenters do not justify a subcategorization scheme based on the type of fuel being burned.

2.1.11 Comment: Two commenters (IV-D-10 and IV-F-03) noted that the floor control requirements will cause environmental issues. Commenter IV-D-10 stated that application of the MACT floor control requirements to the de minimis emissions from new on-road diesel engine test cells would likely result in net environmental harms that warrant the exemption of on-road diesel engine testing.

Response: We are aware of the potential emissions that can result from add-on control technologies and have taken those potential emissions into account in our MACT floor determination and the associated impact analysis. The secondary air emissions were estimated/calculated as part of the control costs estimate in sizing the control equipment for new affected sources. Accordingly, we are not exempting on-road diesel engine testing.

2.1.12 Comment: Three commenters (IV-D-03, IV-D-24, and IV-F-03) stated that research and development (R&D) facilities should not be subject to the final rule in light of Section 112(c)(7) of the Act.

Response: The language in Section 112(c)(7) directs us to establish a separate category to assure the equitable treatment of research facilities. Engine test cells/stands used for the purposes of R&D are very similar, if not identical, to engine test cells/stands operated for other uses. Additionally, the HAP species emitted by R&D test cells/stands are identical to the emissions from other test cells/stands.

In follow-up discussions with industry representatives (see docket items IV-E-01 through IV-E-05), we obtained more information about this issue. We learned that the option of exempting research facilities was not viewed as favorably by industry since many companies conduct R&D and production activities in the same facility. This and other information considered led us to conclude that in this particular source category, it is not possible to adequately define R & D testing and distinguish it from other types of testing.

There are, however, a few special cases related to research and/or development testing where it may be appropriate and necessary to exempt certain types of research testing. One example, engine test cells/stands located at universities or other teaching institutions, may be reasonably excluded from this source category since they are not engaged in the development of engines or engine test services for commercial purposes.

2.1.13 Comment: One commenter (IV-D-02) stated that education and teaching activities are specifically exempted in title v rules. The commenter further stated that universities with aviation programs use engine test stands for education purposes and they should be specifically exempted from MACT rules.

Response: As discussed under 2.1.12, we agree that education and teaching activities involving engine test cells/stands are not part of the source category to be regulated. Therefore, we have added language to the final rule preamble that describes research and teaching activities at major source facilities not intended to be covered by the engine test cells/stands NESHAP requirements.

2.1.14 Comment: Two commenters (IV-D-03 and IV-F-03) asked if performance testing could be exempted from the emission limit requirements.

Response: Because performance testing is part of the normal testing done at many facilities, it is considered part of the source category and was included as part of the MACT floor determination. Therefore, performance testing conducted in engine test cells/stands is covered by the final rule.

2.1.15 Comment: Two commenters (IV-D-15 and IV-D-16) recommended that when a minor HAP facility becomes major, the new engine test cell/stand standard should apply only to new or reconstructed affected sources installed after the facility becomes major. The commenters recommended that EPA incorporate the statutory concept of applicability into the regulatory definition and make it clear that engine test cells/stands will be subject to the new source MACT only if construction commenced after the standards were applicable to the cell/stand.

Response: Section 63.6(c)(5) of the General Provisions states that after the effective date (i.e., the date the rule is promulgated), the owner or operator of an unaffected existing area source that increases its HAP emissions such that the source becomes a major source shall comply by the date specified in the standard for existing sources. If no such compliance date is specified in the final rule, the source can have a period of time to comply that is equivalent to that specified for other existing sources. However, if the existing area source becomes a major source by the addition of a new affected source or by reconstructing, the new affected (or reconstructed) source must comply with new source MACT immediately upon startup.

In summary, if an area source facility increases its emissions and becomes a major source after the compliance date, the affected source at that facility will have 3 years to comply with the existing source MACT limits (e.g., no control) and the other final rule requirements. However, if the engine test cells/stands at theexisting area source becomes a major source by reconstructing, the reconstructed affected source is subject to new source MACT emission limits and must comply immediately upon startup.

2.1.16 Comment: One commenter (IV-D-16) recommended that EPA should explicitly note that testing of engines in test cells is within the scope of the rule, even if incidentally produced power is utilized. The preamble to the final rule should clearly state that the only applicable source category for

engine test cells that may have incidental other uses (such as putting energy produced to productive use) is the Engine Test Facility category.

Response: We agree with the commenter and have added language to the final rule preamble to clarify this issue.

2.1.17 Comment: One commenter from the petroleum refinery industry (IV-D-18) stated that the proposed engine test cells/stands standard does not apply to petroleum refinery industry sources and requested that EPA state this explicitly in the final rulemaking. Because knock engines and other devices used for testing fuels and lubricants at refineries do not test the engine per se, but instead test the fuels and lubricants for product quality and development purposes, these engines are not covered by the language of proposed §63.9285(a).

Response: We agree with the commenter that the type of testing described is not part of the affected source. Test cells that are operated to test or evaluate fuels (such as knock engines), transmissions, electronics, etc. are not part of the source category and are not subject to the engine test cells/stands NESHAP requirements.

2.2 AFFECTED SOURCE

2.2.1 Comment: Three commenters (IV-D-15, IV-D-16, and IV-F-03) requested that we reconsider the issue of regulating test facilities versus individual test cells/stands. Two commenters (IV-D-15 and IV-D-16) stated that the definition in the proposed rule of "affected source" must be revised to include all engine test cells/stands located at a major source. Commenter IV-D-16 further explained that the proposed rule contains no explanation for or acknowledgment of this fundamental change from all test cells/stands at a facility to each individual test cell or stand. Typically, test cells/stands are grouped within a common building, often sharing common manifolds. The implication of the proposed definition is most significant with respect to the meaning of "reconstruction" of an "affected source." Under the proposal, the addition of a single test cell within an existing test cell bank would trigger new source requirements.

Response: Even though the name of the source category has changed, we are regulating exactly the same industry sectors and sources of HAP emissions. As part of the background

information gathering and regulatory development activities associated with the proposed rule, we collected information on individual test cells/stands and overall engine test facilities. We found some facilities that engage in testing engines have different numbers of test cells and test various engines for very different purposes. We also found that many facilities control only some of their engine test cells/stands and some facilities control all of their engine test cells/stands. When evaluating the level of HAP control associated with a facility that controls only some of their engine test cells/stands, it is difficult to determine this value because the resulting HAP emissions are dependent on several variables, such as engine size, fuel type, test cycles, and type of test being conducted.

Since the data available could not support that type of analysis (e.g., facility-wide), we decided to use individual test cells/stands as the basis for determining the MACT floor. Although there are several cases in which multiple engine test cells/stands are controlled by a common control device, each test cell/stand was assigned a capture/control efficiency value in the MACT database and was then used as part of the MACT floor determination.

2.2.2 Comment: One commenter (IV-D-08) recommended that the EPA define the affected source to include the collection of all test stands and ancillary components at the facility except for emission controls and fuel distribution equipment. The commenter specifically stated that movement or relocation of portable test stands within a facility should not be considered reconstruction. This commenter noted that EPA has defined the affected source to include the collection of similar processes and their ancillary equipment in many NESHAP in order to prevent the definition of reconstruction from applying prematurely.

Response: We have revised and adopted a broader definition of affected source consistent with the rationale in the amended General Provisions for National Emission Standards for Hazardous Air Pollutants, 67 FR 16582 (April 5, 2002) (General Provisions): "A broader definition of affected source permits emission requirements to apply to a larger group of processes, activities and equipment, and may thereby facilitate more innovative and economically efficient control strategies" (67 FR 16588). The affected source is now defined as the collection of all equipment and activities associated with engine test cells/stands used for testing uninstalled stationary or uninstalled mobile (motive) engines located at a major source of HAP emissions. As explained in 2.2.1, we evaluated MACT on both a

facility-wide collection of all engine test cells/stands basis and on an individual engine test cell/stand basis. We agree with the commenter that movement or relocation of portable test stands within a facility should not be considered reconstruction.

2.2.3 Comment: Four commenters (IV-D-13, IV-D-15, IV-D-16, and IV-F-03) recommended that we evaluate logical groupings of engine test cells as the affected source and believe that the database shows that control devices exist specifically only for groups of four test cells. Two commenters (IV-D-13 and IV-D-16) state that the "best controlled similar source" is a group of engine test cells/stands, not a single engine test cell/stand.

Response: We evaluated several groupings of engine test cells/stands based on the information in the MACT database. Different facilities had different ways of grouping their test cells/stands based on production and existing regulatory requirements. There are also facilities with a single engine test cell and some with several uncontrolled test cells and only one (or a few) controlled test cells. Because of the variability within the facilities comprising the MACT database, we decided that individual test cells/stands is the best approach for the MACT floor determination for the engine test cells/stands source category.

2.2.4 Comment: One commenter (IV-F-01) requested a clarification of the regulated source. Specifically, the commenter wanted to know what needs to be controlled if a single test cell is reconstructed or new.

Response: See response to 2.2.2 for the revised definition of affected source in the final rule. If a single test cell is added or reconstructed at an existing major source facility with several (e.g., more than two) test cells, it is unlikely that new source MACT would be triggered. The amended General Provisions defines reconstruction in terms of a "comparable new source." If the existing facility has multiple test cells/stands as part of its affected source, it is unlikely that a single test cell would cost more than 50 percent of the fixed capital cost that would be required to construct a comparable new source. The owner or operator of a new engine test facility with an affected source that tests any engine with a rated power greater than or equal to 25 hp has to comply with the new source MACT emission limits and all other compliance requirements. (See 2.5.2 for related comments.)

2.2.5 Comment: One commenter (IV-D-04) recommended rewording so that the rule applies to facilities that ". . . own, operate *or intend to construct* . . . located at a major source *or potential major source*. . . ."

Response: We believe the language in the proposed rule is clear and consistent with that in other NESHAP as well as the General Provisions.

2.2.6 Comment: Three commenters (IV-D-13, IV-D-15, and IV-D-16) recommended that the term "engine test cell/stand" should be defined to clarify that a rotary test firing operation that holds numerous engines is only a single engine test cell/stand.

Response: We collected data from several engine test facilities with the type of "carousel testing" setup described by the commenters. We also conducted a site visit to one of these facilities that had approximately 25 engines mounted and tested on each of two different hot test rotating carousels (see site visit trip report in docket A-98-29, item II-B-3). We considered such configurations to be a single test stand for purposes of the engine test cells/stands NESHAP and MACT floor development. However, as discussed under comment 2.2.2, the revised definition of affected source provides for the "collection of all equipment involved in engine testing," which relieves the necessity for specific language regarding carousel testing setups.

2.2.7 Comment: Two commenters (IV-D-15 and IV-D-16) recommended that, to avoid confusion, EPA should eliminate the term "stand" from the definition of an engine test cell.

Response: We realize that some of these terms are used differently by the various industry sectors. However, "test stand" properly describes the test apparatus or test device used at some engine test facilities.

2.2.8 Comment: One commenter (IV-D-19) asked if testing of engines with end-of-pipe controls already installed as part of the test cell/stand configuration would be considered an affected source.

Response: Yes. The affected source includes all test cell(s) and test stand(s) used to test uninstalled engines, with or without add-on controls, including any incorporated end-of-pipe controls.

2.3 EXISTING SOURCE MACT

2.3.1 Comment: Nine commenters (IV-D-03, IV-D-05, IV-D-15, IV-D-16, IV-D-19, IV-D-22, IV-D-23, IV-D-24, and IV-F-03) supported the determination that the MACT floor for existing test cells/stands is "no control." Three commenters (IV-D-05, IV-D-11, and IV-D-12) concurred in EPA's determination that the appropriate MACT floor is "no reduction in HAP emissions" for Combustion Turbine Cells.

Response: No response needed.

2.3.2 Comment: Two commenters (IV-D-15 and IV-F-03) supported EPA's conclusion that above-the-floor controls in existing facilities are not appropriate. Three commenters (IV-D-05, IV-D-12, and IV-D-16) also supported EPA's rejection of a "beyond-the-floor" MACT limit for Combustion Turbine Cells. Commenter IV-D-05 noted "emissions controls at an aircraft engine test cell/stand pose potential safety concerns not fully addressed in the record. Specifically, such emissions controls could potentially compromise flight safety by imposing back pressure on the testing operation." Commenter IV-D-12 supported EPA's conclusion that above-the-floor controls on rocket engines are not appropriate.

Commenter IV-D-16 added specific concerns about the technological feasibility of any turbine controls. The commenter also supported EPA's conclusion that above-the-floor controls on existing facilities in the 25 hp internal combustion engine subcategory are not appropriate. The commenter recommended that EPA revise the preamble discussion to more clearly state that there are no controls on any existing jet engine turbine test cells, and that it is not technologically feasible to control emissions from such test cells.

Response: No response needed.

2.4 NEW SOURCE MACT

2.4.1 Comment: One commenter (IV-D-10) recommended that EPA should acknowledge the inherently low emissions and unique characteristics of on-road diesel engines by providing an alternative standard for the testing of these units: (1) a standard for new diesel engine test cells should be expressed in terms of THC, and (2) the established THC standard should correspond with the HC standard of the 2007 Rule, equivalent to 0.14 g/hp-hr.

Response: As we learned in our discussions with industry representatives during the regulatory development process, we know that some current engine test requirements do not involve HAP or CO measurements, and we have established an alternate THC standard to provide added compliance flexibility. The THC standard included in the final rule is a maximum of 20 parts per million (ppm) outlet concentration or 96 percent reduction. It is not possible to provide an emission limit standard equivalent to the suggested 0.14 g/hp-hr, which is based on power.

2.4.2 Comment: Two commenters (IV-D-11 and IV-D-12) supported EPA's determination that new source controls for Combustion Turbine Engines are not appropriate.

Response: No response needed.

2.4.3 Comment: Several commenters (IV-D-03, IV-D-05, IV-D-08, IV-D-15, IV-D-16, IV-D-17, IV-D-19, IV-D-24, IV-F-01, IV-F-02, and IV-F-03) stated the proposed new source emissions limits (99.9 percent CO emission reduction or 5 ppmv CO outlet concentration) are too stringent or are not attainable. The commenters further stated that the data used as the basis for setting the MACT floor limit are not representative of all engine testing, and the limits should reflect real world applications. Commenter IV-D-17 stated that EPA should revise its analysis for engine test cells/stands testing natural gas-fired reciprocating internal combustion engines based on the levels of reduction achieved in the EPA-sponsored emissions testing at the Colorado State University Engines and Energy Conversion Laboratory.

Some of the commenters encouraged EPA to adopt more reasonable emissions limits. Commenter IV-D-24 recommended a control efficiency between 90 and 95 percent for CO. Commenter IV-F-02 recommended a control efficiency of 95 to 96 percent for CO. Commenter IV-D-19 recommended a CO control efficiency of 95 percent. Commenter IV-D-08 recommended that EPA adjust the emission limits as necessary to ensure that they are achievable on a continuous basis throughout the engine operating envelope at both steady-state and transient operating conditions by the engine(s) being tested. Commenter IV-D-24 recommended that EPA use the catalyst performance data available from the ICCR CSU testing and aftertreatment manufacturer-guaranteed destruction efficiencies for CO and THC to set reasonable and achievable performance requirements for the proposed rule for diesel engines.

Two commenters (IV-D-15 and IV-D-16) recommended that the standard be revised to the following levels and that compliance may be demonstrated through conformance with any one of the four compliance limits: (1) CO control of at least 97 percent, (2) exhaust CO level of 35 ppm or less (dry basis adjusted to 15 percent oxygen, (3) THC control of at least 95.9 percent, or (4) exhaust THC level of 35 ppmvd or less (dry basis adjusted to 15 percent oxygen). Because the effectiveness of catalytic reduction technology varies with the type of engine, one commenter (IV-D-03) recommended that EPA develop a series of applicable CO and THC reduction standards that are based upon engine subcategories being tested and the currently available control technology for each subcategory. The following percentages were recommended for control technologies for both CO and THC: gasoline engines, 90 percent; diesel engines, 90 percent; 2-stroke gaseous engines, 80 percent; and 4-stroke gaseous engines, 90 percent.

Response: In the proposed rule, we used the best information available to us at the time to determine MACT for both new and existing sources. We have reviewed the additional test data submitted during the comment period (see docket item IV-D-19), as well as the various comments describing test conditions that are significantly different from those used in previously submitted test reports. We also evaluated other rules requiring similar combustion control equipment. The Paper and Other Web Coating NESHAP, subpart JJJJ, has an option of meeting overall emission reductions of 98 percent. This destruction efficiency achieved through thermal oxidation was generally accepted as the "level of control achievable on a continuous basis under all normal operating conditions applicable to new sources." Therefore, for that particular source category (which involves coatings and cleaning solvents), EPA determined that thermal oxidation was the best control technology and justified setting the emission limits for thermal oxidizers at 98 percent control efficiency or alternatively, achieve an outlet concentration of 20 ppm or less.

With this control technology limit in mind, we then compared the two source categories for similarities and/or differences that could lead to a comparable level of destruction efficiency for engine test cells/stands. Coating operations covered by the Paper and Other Web Coating NESHAP contain large concentrations of solvents that are easily removed through thermal oxidation. Engine testing by-products, on the other hand, are the result (by-products) of an incomplete combustion process and

HAPs are typically emitted in significantly lower concentrations than surface coating and solvent cleaning emissions. As noted by the commenters, there are a variety of fuels and test conditions used at different sources for several types of engine tests. (A summary of the submitted test reports and emissions data is included in the docket, item IV-B-1.) In reviewing the test data submitted by the commenters, we found that even though some of the test reports showed very high destruction efficiencies for thermal oxidizers, the best controlled facilities were only being required to meet 95 or 96 percent VOC control, based on their operating permit requirements. These levels of control are consistent with the limits recommended by commenters IV-D-15, IV-D-16, IV-D-19, and IV-F-02 and take into consideration differences in operating conditions for engine test cells/stands. After reviewing the comments and information submitted, we conclude that a maximum control level of 96 percent is appropriate once we consider the differences in HAP emission levels from engines tested, the testing conditions, and also the need to account for measurement uncertainties. Therefore, the new source emission limits have been changed in the final rule to 96 percent reduction for CO or THC based on the updated test data, additional test reports, and estimates reflecting the most prevalent engine test setups and conditions across all engine testing sectors involving engines greater than or equal to 25 hp. We also agree with the commenters in that some engine tests have inherently lower CO and THC emission streams. In order to provide additional flexibility to such emission sources while still achieving an acceptable level of control, we are providing an alternate outlet concentration emission limit of 20 ppm for either CO or THC emissions. The 20 ppm outlet concentration limit correlates to the level of control identified in the Paper and Other Web Coatings rule, as well as the specified test method detection limit associated with several of the test reports provided by the commenters.

2.4.4 Comment: One commenter (IV-F-02) made specific comments concerning the test data used to set the emission limits:

> The outlet temperature for the tests ranged between 1000 and 1300 degrees Fahrenheit. Typical exhaust temperatures are less than 500 degrees. Additionally, on one of the units the measured outlet oxygen concentration was greater than the inlet concentration. This is not technically possible, validating our concerns over the validity of the test data.

Response: We have re-evaluated the test data and verified the information noted by the commenter. We have revised the new source MACT emission limits based on updated test data, additional test reports, and estimates reflecting the most prevalent engine test setups and conditions across all engine testing sectors involving engines greater than or equal to 25 hp.

2.4.5 Comment: Several commenters (IV-D-03, IV-D-06, IV-D-09, IV-D-16, IV-D-19, IV-D-24, IV-F-01, and IV-F-02) stated that although oxidation technologies can in practice achieve CO destruction rate efficiencies of 99.9 percent or 5 ppm at 15 percent O_2, typically vendors do not guarantee systems at these levels.

Response: We contacted several control equipment vendors and were quoted CO destruction rate efficiencies ranging from 95 to 99.9 percent. However, the vendors also indicated that the actual value depends on several site-specific and process-specific parameters. This information provided additional support for revising the MACT floor emission limit(s) to reflect real world applications from the various sectors.

2.4.6 Comment: Several commenters (IV-D-05, IV-D-15, and IV-D-16) supported EPA's conclusion that above-the-floor controls on new or reconstructed facilities are not appropriate.

Response: No response needed.

2.4.7 Comment: Several commenters (IV-D-03, IV-D-04, IV-D-13, IV-D-15, IV-D-16, IV-D-23, IV-D-24, IV-F-01, and IV-F-03) endorsed EPA's suggestion that the facility should be allowed the choice of using either CO or THC measurements to demonstrate the performance of the control equipment. Commenter IV-D-16 noted that it would be arbitrary for EPA to refuse to allow the measurement of THC to substitute for the measurement of CO, because EPA's authority rests on the destruction of HAP and not on the destruction of CO.

Response: We appreciate the commenters' concurrence on this issue. The final rule includes provisions for measuring either CO or THC to comply with the emission limits for new or reconstructed engine test cells/stands used to test engines rated at or above 25 hp. The emission limits included in the final rule are expressed in terms of overall control efficiency (percent reduction) or outlet concentration (ppm).

2.5 RECONSTRUCTION

2.5.1 Comment: One commenter (IV-D-04) requested clarification on whether the rule should apply if reconstruction is done in segments costing less than 50 percent per segment but totaling more than 50 percent cumulatively, and if so, what the period of time over which the costs would be applied to the total cumulative cost would be.

Response: Reconstruction costs cannot be broken into phases to avoid triggering new source MACT requirements. This phasing (or fragmentation) of reconstruction activities was previously addressed in the preamble to the proposed amendments to the General Provisions, 66 FR 16318 (March 23, 2001). "Sources cannot phase reconstruction activities to avoid applicable new source requirements . . . activities that are fragmented or phased to stay within the 50 percent of fixed capital cost criteria in item (1) of the definition of "reconstruction" in 63.2 shall be considered together for applying that criteria. Periodic replacement of equipment to maintain production to meet product demands should not be aggregated for determining whether reconstruction has occurred [66 FR 16325]."

Using the above guidance, if the total cost of the reconstruction (even if the work is conducted over a time period of several years) is greater than 50 percent of the original fixed capital cost of the affected source, the reconstructed source would be subject to new source MACT.

2.5.2 Comment: Ten commenters (IV-D-03, IV-D-10, IV-D-14, IV-D-19, IV-D-21, IV-D-23, IV-D-24, IV-F-01, IV-F-02, and IV-F-03) recommended changing the definition of "reconstructed source" and provided specific recommendations. Four of the commenters (IV-D-03, IV-D-23, IV-D-24, and IV-F-01) requested that the definition include only changes to the test cell/stand that result in capacity increases. Five commenters (IV-D-03, IV-D-19, IV-D-24, IV-F-01, and IV-F-02) requested that the definition include changes to test cells/stands that result in HAP emission increases. Two commenters (IV-D-03 and IV-D-19) recommended that EPA include a modified definition of "reconstruction" in the final rule that would add to the General Provisions definition in 40 CFR §63.2 an exclusion for the cost of replacement or modification of components required to demonstrate compliance with EPA's emission regulations contained in 40 CFR part 89, 90, and 91. Commenter IV-D-03 recommended that the definition of reconstructed be changed to reflect

the fact that engine test cells are continuously upgraded in response to EPA certification requirements. The commenter stated that manufacturers may be forced by regulation to invest in new equipment for test cells and fall under the definition of reconstruction in order to comply with new EPA engine requirements, even though such improvements will not change the capacity or emissions from the cell. A specific definition of reconstruction needs to be applied to engine test cells that only counts costs incurred to increase capacity or if the modification results in increased HAP emissions. The commenter further stated that EPA has previously recognized this problem and adopted a reasonable approach in the final Large Municipal Waste Combustor rule (40 CFR 60.50a(f) and 60.50b(d)), and that the same reasoning could be applied to engine test cells.

Commenter IV-D-10 indicated that EPA should be careful in its definition of the affected source to avoid unintended consequences that would lead to costly compliance measures without any environmental benefit. For existing test cells, only replacement of a dynamometer to increase the size of the engine that can be tested should constitute a major modification triggering MACT. Commenter IV-D-14 requested that EPA provide a clear definition for "reconstructed source," and consider reconfiguration of equipment and the extent of support equipment included. Commenter IV-D-24 recommended that EPA consider the unique aspects of engine test cells/stands and define "reconstructed" to include only those changes that result in increased capacity or emissions potential of the test cell/stand in the 50 percent cost benchmark, and specifically exclude passive measurement and control instrumentation and electronics. Commenter IV-D-03 recommended that the definition of new/reconstructed be changed to reflect the fact that engine test cells are continuously upgraded in response to EPA requirements, thus the definition should only count costs incurred to increase capacity or modifications that result in increased HAP emissions. Commenter IV-D-24 recommended that EPA clarify what it would consider "technologically and economically feasible." The commenter stated that it may be difficult or expensive as a practical matter to isolate "reconstructed" test cells/stands from pre-existing ones (e.g., test cells configured with a manifold ventilation system).

Response: In our amendments to the General Provisions, we addressed the definition of "reconstruction" (66 FR 16582) (April 5, 2002). Therefore, the definition of "reconstruction" is beyond the scope of this rulemaking. This response is to provide clarification and thereby explain the

applicability of "reconstruction" to the engine test cell/stand standard. We are not reopening the definition of "reconstruction" in this rule.

In the amended General Provisions, "Reconstruction, unless otherwise defined in a relevant standard, means the replacement of components of an affected or previously nonaffected source to such an extent that:

(1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source; and

(2) It is technologically and economically feasible for the reconstructed source to meet the relevant standard(s) established by the Administrator (or a State) pursuant to Section 112 of the Act. Upon reconstruction, an affected source, or a stationary source that becomes an affected source, is subject to relevant standards for new sources, including compliance dates, irrespective of any change in emissions of HAPs from that source (see also, 40 CFR §63.2 (2002))."

Because of the diversity of engine test cells/stands and test requirements used by the various types of engine manufacturers and industry sectors, it is difficult to define what types of test equipment and support equipment comprise an actual engine test cell/stand (e.g., affected source) or reconstructed source. We cannot limit or define reconstruction to include only those changes that will increase capacity or HAP emissions associated with the engine test cell/stand because there is no way of knowing how the engine test cell/stand will be used in the future. However, we do not consider equipment reconfiguration to be reconstruction.

In response to these comments we have included new language in the final rule clarifying that changes made to an existing engine test cell/stand primarily for the purpose of complying with revisions to the engine testing requirements under 40 CFR parts 80, 86, 89, 90, 91, or 92 are not considered a modification or reconstruction. Many existing engine test cells are used to comply with regulations for mobile sources under Title 40 of the Code of Federal Regulations. These provisions outline the test procedures that are to be followed to determine compliance with the applicable mobile-source emission standard. The test procedures periodically undergo revisions that may result in modifications to the engine test cells and the test equipment therein. Changes to the test procedures are usually

incorporated to accommodate the use of new test equipment. In addition, changes may be made to ensure the accurate measurement of exhaust emissions as a result of a more stringent emission standard.

We agree with the commenter that it is appropriate to exclude existing affected sources that are modified to meet revisions under Title 40 provisions. We believe that it is unnecessary to require these existing affected sources to install emission control devices when modifications are due to changes to the federal mobile source regulations and since those improvements will not increase the capacity or the emissions from the affected source.

In support of their position commenters cite the regulations for Large Municipal Waste Combustors in 40 CFR 60.50a(f) and 60.50b(d) which establish that physical or operational changes made to an existing unit primarily for the purpose of complying with emission guidelines under subpart Cb are not considered a modification or reconstruction. We recognize the precedent set by these provisions with respect to the exclusion of costs for required modifications to comply with other EPA regulations. We have reviewed the regulatory language in these regulations and conclude that it is appropriate to provide a similar level of flexibility to engine test cells/stands. Therefore, existing affected sources modified to meet revisions to the requirements in those parts cited above will not be subject to new source MACT.

2.5.3 Comment: One commenter (IV-D-21) requested clarification regarding the replacement of existing engines with different engines (which is part of the normal testing cycle) and whether that could be interpreted as "reconstruction."

Response: For purposes of determining reconstruction, the engines being tested in the test cell/stand are not considered part of the affected source. The replacement of engines in an engine test cell/stand is part of the normal test process. Some QA/QC tests will require only that the engine be run (tested) for a few minutes, whereas other durability tests could run for several hours or months. Therefore, engine replacement activities would not be considered as reconstruction.

2.6 MONITORING REQUIREMENTS

2.6.1 Comment: Several commenters (IV-D-03, IV-D-10, IV-D-13, IV-D-15, IV-D-16, IV-D-17, IV-D-19, IV-D-23, IV-D-24, IV-F-01, IV-F-02, and IV-F-03) requested that the

continuous emissions monitoring systems (CEMS) requirements be eliminated or changed to parametric monitoring. The commenters stated that CEMS are too expensive and do not provide any meaningful environmental benefit to justify the capital costs to install them on engine test stands. They also pointed out that in other permitting decisions and guidance documents, EPA has determined that initial stack tests followed by monitoring of operating temperature is a proven and cost-effective way of monitoring oxidizer performance.

Commenter IV-D-24 stated that exhaust stream composition, temperature, and flow rate from test engine cells/stands vary considerably due to the variety of engines tested, and there is a significantly higher number of start/stop cycles compared to any other CEMS application. Commenters IV-D-19 and IV-F-02 cited vendor comments concerning the ability and reliability of a CEMS to accurately measure the proposed concentrations.

Response: We have reviewed the monitoring requirements for the proposal and compared them with other similar emission sources. The HAP emitted by engine test cells are the result of byproducts of incomplete combustion. Thermal destruction of these HAP occurs at temperatures between 590°C and 650°C (1,100°F and 1200°F), thus making temperature an appropriate parameter to monitor the destruction of HAP. In the case of monitoring an RTO, the temperature is monitored during the initial performance test. After the RTO meets the performance test requirements and demonstrates compliance with the applicable emission limit, the operating temperature is continuously monitored to verify the performance of the RTO. As a result, we have concluded that parametric monitoring is adequate for ensuring compliance with the emission limit. Thus, we have changed the monitoring requirements in the final rule to allow parameter (temperature) monitoring for thermal oxidizers. Since some facilities may already have existing continuous monitoring equipment in place, CEMS are still included in the final rule as a monitoring option.

2.6.2 Comment: One commenter (IV-D-17) offered input regarding the current capabilities of CO CEMS technology and the feasibility of CO CEMS. The commenter stated that we indicated CEMS are available to accurately measure CO emissions at the low concentrations found in the exhaust stream of an engine test cell/stand following an emission control device, such as oxidation emission controls, but did not reference any materials in the Air Docket to support the assertion.

According to the commenter, vendor claims for CO CEMS and CO instrumental analyzers, unless accompanied by test data obtained under known and controlled conditions, should not be considered adequate proof of availability and performance.

The commenter cautioned EPA to consider carefully comments from instrumentation vendors due to the obvious commercial interests and the fact that, when those claims must be tested in a regulatory context (including performance specifications for daily calibrations, quarterly audits, and annual performance certification), those claims often fall short. The commenter also provided specific examples of technical issues related to the proposed test methods. One of the examples involved: "Equipment-specific technical hurdles affect the feasibility of CO CEMS, including the ability of the system to perform adequately with the pulsating exhaust flow typical for reciprocating engines, and the ability of a CEMS to adequately sample, condition, convey to the CO monitor, and analyze a representative exhaust sample."

Response: In response to the commenter's concern about the CEMS requirement(s), the final rule now allows the use of continuous parametric monitoring systems (CPMS) to demonstrate compliance with either emission limit (percent reduction or outlet concentration). At most facilities, the parameter used to demonstrate compliance will be the operating temperature for the thermal oxidizer, which will be correlated to the suitable operating temperature range derived during performance testing. CEMS are still included in the final rule as a monitoring option, as described under the response to comment 2.6.1. We have also revised the emission limits for new or reconstructed engine test cells testing engines with power ratings greater than or equal to 25 hp. The revised limits are 96 percent reduction in CO or THC emissions or an outlet concentration limit of 20 ppm corrected to 15 percent oxygen.

Revising the limit to 20 ppm corrected to 15 percent oxygen eliminates concerns with measuring low emission levels by bringing the limit into the normal working range of Method 10. Performance specification 4A was specifically designed for CO CEMS regulated in this range and incorporates the alternate provision for low-concentration accuracy determination noted by the commenter. There are a number of regulated industries (mostly under State permits) that currently test and monitor CO at the 20 ppm level. Tests at these sources have shown that Methods 10 and 3A,

Performance Specifications 2 and 4, and Procedure 1 of Appendix F are adequate for determining compliance at this revised level.

2.6.3 Comment: Commenter IV-D-17 requested EPA revise Reference Method for CO and Performance Protocols for CO CEMS.

> The use of CEMS is complicated by the fact that CEMS application for measurement of emission levels commensurate with the proposed standard is unproven and beyond the scope of the requisite federal performance protocols in 40 CFR 60, Appendices A, B, and F.
>
> In the Engine Test Cell MACT proposal, EPA recognizes the inadequacies of Performance Specification 4A (PS4A) for CO CEMS and Method 10. However, EPA has failed to mention the inadequacies of Performance Specification 3 (PS3) for O_2 CEMS, Reference Method 3A for O_2 measurements, and Appendix F, Procedure 1 (QA procedures for CEMS used for compliance monitoring) as they would apply to measuring CO emissions from engine test cells/stands.
>
> A number of examples are possible to indicate the problems associated with existing procedures. One example will be discussed regarding Appendix F, Procedure 1. The CO concentration limit proposed in the Engine Test Cell MACT is expressed in terms of ppmvd CO corrected to 15% O_2. The O_2 correction factor is $5.9/(20.9 - \%O_2)$. It can easily be seen that as O_2 approaches 20.9%, the correction factor increases exponentially. This means that the measurement of O_2 directly affects the final determination of compliance. The performance specifications in PS3 and Reference Method 3A and the out-of-control specifications of Procedure 1 allow large amounts of error so as to make the determination of compliance uncertain. For example, PS3 allowed drift is 0.5% O_2. This would introduce an uncertainty of 8.5% in the CO concentration at an O_2 concentration of 15%. In PS3, the relative accuracy specification is 1% O_2. This relative accuracy specification would introduce an uncertainty of 16.9% in the corrected CO concentration. The uncertainty based on the present performance specifications in Reference Method 3A has been estimated to be 4.29% of span or 1.07% O_2 for a span of 25% O_2. At 15% O_2, a ±1.07% O_2 uncertainty results in ±18.14% uncertainty in the corrected CO concentration and this does not include the uncertainties involved with the actual measurement of CO. This discussion, that considers only issues associated with O_2 measurement allowances inherent to the technologies and procedures, indicates the type of issues that exist.
>
> EPA also notes that, although Method 10 is specified in the Engine Test Cell MACT proposal as the reference method to certify the performance of the CO CEMS, the performance criteria in addenda A of Method 10 have not been revised recently and

are not suitable for CEMS at the CO concentrations necessary to demonstrate compliance with the proposed Engine Test Cell MACT. EPA indicates that the Agency believes the range and minimum detectable sensitivity should be changed to reflect target concentrations as low as 1 ppm CO in some cases. However, EPA provides no information to support that assertion. Also, EPA does not reference any materials in the Air Docket to support the assertion. Rather, the Agency requests input regarding the changes that should be made to the performance criteria in Method 10. In order to develop low-level CO measurement methods, EPA will have to develop technology-specific procedures to determine and demonstrate minimal detection limits and practical quantification limits as well as the accuracy and precision of the final measurement methods. These have proven to be very difficult demonstrations. For example, for NO_x, there are still unresolved issues for the measurement of low concentrations, which has been an area of study for a number of years.

As proposed, Method 10, PS4A, Method 3A, PS3, and QA Procedure 1 are integral parts of the rule. It is inappropriate that these protocols, with the deficiencies noted by EPA and above, are included in the Engine Test Cell MACT proposal prior to an opportunity for affected parties to review and comment on the changes that would have to be made to correct the numerous deficiencies. The changes necessary to correct these deficiencies would require rulemaking (proposal and promulgation) and would delay the promulgation of the emission standards.

Response: We agree with the commenter that accuracy and uncertainty concerns exist when current test methods and performance specifications are applied to CO concentrations around 5 ppm. The concerns are compounded when oxygen measurements are also made to correct the concentration to a reference level.

Revising the limit to 20 ppm corrected to 15 percent oxygen reduces these concerns by bringing the limit into the normal working range of Method 10. Performance specification 4A was specifically designed for CO CEMS regulated in this range and incorporates the alternate provision for low-concentration accuracy determination noted by the commented. There are a number of regulated industries (mostly under State permits) that currently test and monitor CO at the 20 ppm level. Tests at these sources have shown that Methods 10 and 3A, Performance Specifications 2 and 4, and Procedure 1 of Appendix F are adequate for determining compliance at this revised level.

2.7 COST AND ECONOMIC ASSUMPTIONS AND IMPACTS

2.7.1 Comment: One commenter (IV-D-06) stated that although EPA estimated the annual monitoring reporting and recordkeeping burden for the rule at 9,600 labor hours per year at a total annual cost of $440,888, turbine oxidation catalyst owners and vendors uniformly allow for less than 0.5 hour per day required for operating and maintaining an oxidation catalyst.

Response: In determining the cost impacts associated with complying with the proposed engine test cells/stands NESHAP requirements, we used a high-end estimate of the labor hours for monitoring activities. These labor estimates are consistent with other rules with similar monitoring requirements.

2.7.2 Comment: One commenter (IV-D-19) stated the proposed rule underestimates costs because it fails to account for those existing sources that will have to comply with new source MACT due to compliance with other emission control regulations.

Response: We believe the cost estimates are appropriate and represent the impacts to the overall industry. With the revised definition of "affected source" in the final rule, we estimate that fewer facilities that add or modify existing engine test cells/stands are likely to be subject to the new source MACT requirements. Furthermore, any existing affected source that is modified or reconstructed to comply with certification testing requirements related to mobile source (Title II) regulations will not be impacted by the final rule and this will result in fewer affected sources with control requirements and a lower overall cost impact. Section 63.9290(a)(3) of the final rule states "Changes made to an existing affected source primarily for the purpose of complying with engine testing requirements under 40 CFR parts 80, 86, 89, 90, 91, or 92 are not considered a modification or reconstruction. In addition, passive measurement and control instrumentation and electronics are not included as part of any affected source reconstruction evaluation."

2.7.3 Comment: One commenter (IV-D-06) stated that EPA's expectation that the rule will reduce air toxic emissions by 135 tpy at a national annual cost of $7.4 million — or approximately $55,000 per ton reduction each year — seems very high, particularly when considering the simplicity of an oxidation catalyst. The commenter stated that the cost for an oxidation catalyst can be greatly distorted by applying generic and more complex cost factors for other pollution control technologies.

Response: The estimated costs were based on the most recent EPA cost procedures, as referenced in the Engine Testing Control Costs memorandum (docket item II-B-17). We evaluated the

cost of various control devices and collected information from those facilities with existing controls. The cost effectiveness value is driven by the HAP reduction more so than the capital and operational costs of the control equipment, which are in-line with similar equipment requirements of several other rules.

As a result of the revised definition of "affected source" in the final rule, we estimate that there will be fewer affected source facilities (18 instead of 37) and the corresponding HAP emissions reduction is now estimated to be 65.5 tpy (instead of 135 tpy). The estimated cost is now $3.2 million (instead of $7.4 million).

2.8 STARTUP, SHUTDOWN, AND MALFUNCTION (SSM)

2.8.1 Comment: Several commenters (IV-D-03, IV-D-15, IV-D-16, IV-D-17, IV-D-24, IV-F-01, and IV-F-03) recommended that the SSM provisions under 63.6(e)(3) and 63.6(f)(1) extend to the final engine test cells/stands rule. Commenter IV-D-03 noted that rather than being a steady-state operation, as is the case for other stationary sources, engine tests involve a continuum of startup and shutdown as well as different operating and emissions conditions, and manufacturers and test cell operators need the flexibility allowed by the general provisions in order to operate successfully. Commenter IV-D-17 recommended that EPA include the MACT General Provisions for SSM so that deviations during a period of SSM are not violations of the Engine Test Cell MACT if the source is operated in accordance with the SSM plan (SSMP). Commenter IV-D-24 recommended that EPA should specifically adopt those sections of the General Provisions allowing an SSMP to minimize emissions from engine test cells/stands during those phases of their operation.

Response: We agree with the commenters' point that "engine tests involve a continuum of startup and shutdown as well as different operating and emissions conditions." The engine testing process is different than most steady-state processes, and this difference serves as the main reason we did not adopt the SSM provisions from the General Provisions. If we were to adopt the SSM provisions, most of the emissions from engine test cells/stands would not be covered by the emission limits but would instead fall under the SSM provisions. This would likely result in increased HAP emission levels from engine test cells/stands. One example of HAP emissions that we want to control and minimize involves engine endurance testing. The purpose of endurance testing (which is typically

conducted over several days or months) is to run an engine until failure, which can result in an emissions spike. Because the engine failure is an expected event under some conditions (at some point in time), the associated emissions spike is also an expected event, and we want to capture and control those HAP emissions.

2.8.2 Comment: One commenter (IV-D-15) requested that the General Provisions SSM provisions be applied to the engine test rule. The commenter wants to use the option of complying with catalytic oxidizers and wants the startup period during which the catalytic oxidizer comes up to operating temperature excluded. The commenter also provided examples of issues involving oxidizer malfunctions: (1) engines cannot be shut off instantaneously, and excess emissions can occur in the time that it takes to complete an orderly and safe shutdown, and (2) there are certain tests that must be redone at large cost if they are interrupted. An example piston scuff test was described by the commenter as taking about 90 minutes, and if the engine is shutdown, the engine must be rebuilt and the test rerun. In the case of an oxidizer malfunction when such a test is in progress, the operator should be able to complete the test that is under way without risk of enforcement action.

Response: Although the commenter makes valid points regarding SSM provisions, the majority of emissions from engine testing occur during the times covered by SSM provisions. Regarding the time required for a catalytic oxidizer to come up to operating temperature, no engine testing should be conducted before the minimum operating temperature (determined during the initial performance test) is achieved. Because the SSM provisions apply to the process as well as the control equipment, the impact of the engine test NESHAP to minimize HAP emissions would be significantly reduced by adopting the SSM provisions. However, based on the above comments, we decided to include SSM provisions for any control equipment and monitoring equipment related to engine test cells/stands emissions. New language has been added to the final rule that references the General Provisions for SSM procedures related to control equipment and associated monitoring equipment. Table 6 (Applicability of General Provisions to Subpart PPPPP of Part 63), located at the end of the final rule, has also been updated to reflect this change.

2.9 COMPLIANCE PROCEDURES

2.9.1 Comment: One commenter (IV-D-10) recommended that EPA should extend the averaging time for demonstrating compliance to 1 month because the proposed 4-hour rolling average compliance fails to accommodate the inherent variability of emissions from diesel engine test stands. In addition, the low risk posed by emissions from test cells further warrants an expansion of the averaging period.

Response: Based on the data used to establish the emission limits, a 4-hour averaging time is appropriate. The 4-hour rolling average time period required to demonstrate compliance is based on the MACT database information, which came from submitted test data using an average of three 1-hour test runs. The initial performance test requirement for this rule also requires three 1-hour test runs.

2.9.2 Comment: Two commenters (IV-D-15 and IV-D-16) stated that EPA should allow the use of either the standard methods of measurement under stationary source rules or those of mobile source rules when demonstrating compliance in the initial stack test, given that many of the engines that will be subject to this standard are being tested for CO and THC levels in order to comply with the requirements established under Title II of the Act.

Response: The initial performance testing requirements may or may not be the same as the testing required by another regulation. The testing may have different test conditions (now or in the future), and the results may not correlate with the regular stack test results. The engine test final rule applies only to stationary sources located at major source facilities, and only the emission limits and test requirements from the final engine test cells/stands NESHAP are applicable.

2.10 COMPLIANCE DATES

2.10.1 Comment: One commenter (IV-D-09) requested that EPA reconcile the differences regarding compliance dates that exist between the preamble language and the proposed regulatory text in favor of the approach described in the preamble (this in addition to the flexibility afforded to projects that were already under contract on the date the rule was proposed). This commenter supported the 3-years-from-promulgation compliance deadline for projects initiated after the proposal date.

One commenter (IV-D-04) recommended adding a time frame of 3 years for compliance after the date the final rule is published in the Federal Register. Commenter IV-D-04 stated that "3 years would allow ample time to fine tune the equipment and reinforce procedures before regulatory scrutiny begins." Then, "new start ups could take effect immediately."

Response: We made an inadvertent error in the proposal preamble concerning the compliance time period. The proposal preamble language was incorrect, and the proposal regulatory text was correct. We have reconciled the noted differences in the final rule. Existing affected sources have 3 years after the effective (promulgation) date to comply with the final rule requirements. New sources will have to comply on the effective date or upon startup, whichever is later.

2.10.2 Comment: One commenter (IV-D-17) discussed the need for a compliance deadline longer than 3 years. The commenter stated that, typically, new or reconstructed sources must comply with MACT requirements upon startup or upon promulgation of the final rule. The commenter also pointed out the proposed MACT rule provides no relief for owner/operators if the Agency fails to address the deficiencies in the performance protocols prior to the compliance deadline. The commenter cited examples in which development of new or revised test methods has taken 3 to 5 years. In addition, EPA typically requires extensive technical laboratory and field evaluations to assess test method performance. Therefore, the process to make revisions to the EPA protocols will require more than the 3 years contemplated in the proposed rule.

Response: The final rule includes new emission limits that do not require modifications to any existing test protocols. Therefore, we are not deviating from our previous determination for any of the required testing or test methods.

2.11 AVERAGING

2.11.1 Comment: Eight commenters (IV-D-03, IV-D-08, IV-D-09, IV-D-10, IV-D-13, IV-D-15, IV-D-16, and IV-D-19) recommended that averaging provisions be included in the final rule. Commenter IV-D-19 stated that emissions averaging is good policy that should be included in the final rule and recommended two options: (1) allow averaging across all engine test cells at a facility to comply with the new source MACT limit and (2) average across the entire facility, allowing reductions

at other HAP-emitting operations to offset a new or reconstructed source. Commenter IV-D-09 stated that emissions averaging between existing and affected units is an essential element of any commonsense approach to the engine testing MACT because emission units with intermittent activity (such as those used for design development and emission testing) are often located at the same site as emission units operated under more steady-state conditions (e.g., endurance test stands). Commenter IV-D-10 supported averaging emissions across processes as a compliance option, which would result in reduced cost and environmental burden. Two commenters (IV-D-15 and IV-D-16) strongly supported the concept in Section V of the preamble of averaging emissions across processes throughout the entire major source and allowing reductions from emission points within the facility covered by other MACT standards to be counted towards the emissions limitations in this proposed rule.

Response: We have looked at existing rules that include averaging provisions such as the Petroleum Refineries NESHAP (subpart CC), the Aluminum Reduction Plants NESHAP (subpart LL), and the Group IV Polymers and Resins NESHAP (subpart JJJ), and found that these rules allow averaging only between emission sources covered under each specific rule. In reviewing the comments and considering different averaging options there were several issues taken into account. First, in all previous regulations that implemented an averaging scheme, only processes within the same source category were considered and accounted for. In other words, the concept of emissions averaging has always been considered and implemented within a given source category, and not across source categories. Second, only existing sources have been allowed to take part in this type of flexibility option. This decision to not allow new sources to average their emissions is consistent with the direction outlined in the statute where new sources are expected to reduce their emissions to a level equivalent to that of the best controlled similar source. Many facilities that operate engine test cells/stands also conduct other processes that emit HAP. However, these other processes, such as coating and cleaning, are not part of the engine test cells/stands source category and are already regulated under other NESHAP. For these reasons we have concluded that averaging emissions is not an appropriate option for this source category.

2.11.2 Comment: One commenter (IV-D-08) noted that any averaging scheme must ensure that facility-wide emissions of the four predominant HAPs emitted by engine test facilities (benzene,

toluene, xylene isomers, and 1,3-butadiene) are decreased by the amount that they would have been if the affected test stands met the emission reduction percentage or emission concentration. The commenter also noted that an averaging scheme must ensure the facility does not increase emissions of other HAPs in its effort to decrease emissions of the four HAPs targeted by the rule. The commenter described concepts averaging emissions with: (1) other engine test stands, (2) other stationary combustion sources, (3) mobile sources, and (4) all sources. The commenter recommended that EPA consider the averaging concepts discussed and allow facilities to comply with this rule by averaging emission reductions from affected test stands and other air emission units.

Response: The specific HAP emitted by engine test cells/stands and the fact that most other processes present at engine test facilities emit different HAPs was another consideration in our decision not to include an averaging provision in the final rule. As the commenter argued, an averaging scheme must consider the fact that HAP emissions may increase under some conditions and the fact that a facility may be decreasing emissions of one pollutant while increasing emissions of another, more toxic one. The suggestions provided by the commenter, however, do not show how they address the questions raised here and under the response to comment 2.11.1. Therefore, averaging provisions are not included in the final rule.

2.11.3 Comment: Two commenters (IV-D-15 and IV-D-16) recommended that HAP emission reductions from emissions points within the facility but not covered by other MACT standards should be counted towards the emissions limitations in the proposed rule, along with emission reductions from emission points that are covered by other MACT standards.

Response: We considered this as part of the development of the proposed rule but decided that only other emission sources subject to the same MACT standards could be used in any averaging provisions in order to make the MACT requirements consistent, understandable, and enforceable.

2.11.4 Comment: Two commenters (IV-D-15 and IV-D-16) provided guidance on the implementation of the averaging provisions. Both commenters suggested that averaging be implemented through title V permits, with otherwise unregulated emissions points subject to enforceable permit limitations in order to ensure that the reductions are real and that they at least fully offset the foregone reductions.

Response: Because of differences between States and permitting programs, we decided that any attempt by EPA to coordinate MACT through title V permits to somehow allow emissions averaging would be too difficult and confusing to implement. The title V program incorporates all relevant MACT requirements and the averaging provisions included in the final engine test rule should be incorporated into all applicable title V permits.

2.12 MISCELLANEOUS

2.12.1 Comment: One commenter (IV-D-04) noted that in the supporting text on page 34552, question G, the reference for CO PEMS performance specification reads, "40 CFR part 60, *appendix A*," but should read "*appendix B*." The commenter also pointed out that there is no *Sec. 63.9345(f)* as referenced in Sec. 63.9330(b). The reference should be *Sec. 63.9345(c)*.

Response: We acknowledge both of the typographical errors in the proposed rule identified by the commenter. The reference to 63.9345(f) has been corrected in the final rule to read 63.9345(c).

2.12.2 Comment: One commenter (IV-D-04) requested clarification on the text addressing "the non-air health, environmental and energy impacts" where reference is made to ". . . a very small increase in fuel consumption resulting from back pressure caused by the emission control system." The commenter asked what the effects on the actual emissions are and how this will affect emissions estimates and engine certification?

Response: The effects on actual emissions caused by the add-on control device are insignificant and do not affect emissions estimates.

2.12.3 Comment: Two commenters (IV-D-12 and IV-D-16) pointed out an inconsistency between the statement in the preamble that the typical air flow from a cell/stand used to test the typical automobile engine is 500 dscfm (67 Federal Register at 34552) and the statement in the memorandum "Model Plants and HAP Emission Factors" from Icenhour and Clapsaddle (Midwest Research Institute) to Pagan (EPA), February 14, 2001 (II-B-7), that the typical air flow from such a unit is 500 acfm.

Response: We agree with the commenter and acknowledge the typographical error in the proposed rule preamble. The typical air flow from a cell/stand used to test the typical automobile engine is approximately 500 acfm.

2.12.4 Comment: One commenter (IV-D-01) informed us that two of the ASTM standards referenced in the proposed rule have been updated: D 3154-91 (1995) is now D 3154-00, and D 5835-95 is now D 5835-95 (2001).

Response: We acknowledge and appreciate the updated information provided by the commenter. These test methods were discussed in the preamble of the rule as potential alternate test methods (with regard to voluntary consensus standards review), however, were determined to be inappropriate for this rule.

2.12.5 Comment: One commenter (IV-D-15) had a specific question concerning the data used in the MACT floor determination involving Briggs & Stratton engine test cells used for testing engines between 25 hp and 50 hp. The commenter stated, "Table 1 of the Access database lists 70 test cells that are equal to or between 25 hp and 50 hp, but at least 43 of those test cells were not included in the MACT database for the 25 hp and greater subcategory. Those 43 test cells are at Briggs & Stratton facilities (ETF0009), but no Briggs & Stratton facility is included in the table of MACT floor facilities with test cells used for testing engines with 25 hp or more. See Memorandum for Icenhour to Pagan, "MACT floors and Above the Floor Options for the Engine Test Cells/Stands NESHAP," February 14, 2001, Table 3 (II-B-8).

Response: Table 1 of the MACT database shows the capacity of the individual engine test cell/stand, not the actual size of engine that is tested in the test cell/stand. Table 2 of the MACT database shows the actual size of the engine tested in the test cell/stand at the specific facility (as reported in the facility's ICR response). Although the test cells at this Briggs & Stratton have the capacity to test engines greater than 25 hp, the largest engine size actually tested was 22 hp.

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15. SUPPLEMENTARY NOTES

16. ABSTRACT

On May 14, 2002, the U. S. Environmental Protection Agency (EPA) proposed national emission standards for hazardous air pollutants (NESHAP) for engine test cells/stands (67 FR 34548) under authority of Section 112 of the Clean Air Act (Act). Public comments were received from 24 sources consisting mainly of automotive, truck, and diesel engine manufacturers; airlines; aircraft and marine engine manufacturers; various industry trade associations; and Government agencies. All of the comments that were submitted and the responses to these comments are summarized in this document. This summary is the basis for the revisions made to the standards between proposal and promulgation.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Acetaldehyde Carbon adsorber Combustion Engine testing Monitoring Reciprocating IC engines Turbines	Air Pollution Control Engine Testing Hazardous Air Pollutants NESHAP Combustion Sources	

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