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Washington, D.C. 20002

October 11, 2006

Air and Radiation Docket and Information Center
U.S. Environmental Protection Agency
Attention: Docket ID No. EPA-HQ-OAR-2005-0030
Mailcode-6102T
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Dear Sir or Madam:

The Interstate Natural Gas Association of America (INGAA), a trade association of the interstate natural gas pipeline industry, submits these comments on the U.S. EPA's proposed rule Standards of Performance (New Source Performance Standards (NSPS)) for Stationary Spark Ignition Internal Combustion Engines and National Emission Standards for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines. The spark ignition internal combustion engine NSPS is proposed as 40 CFR Part 60, Subpart JJJJ and the NESHAP is proposed as revisions to 40 CFR Part 63, Subpart ZZZZ. The proposal was published in the Federal Register on June 12, 2006, at 71 FR 33804. Hereinafter, the combined NSPS and NESHAP proposal will be referred to as the "IC Engine Proposed Rules".

INGAA member companies transport more than 90 percent of the nation's natural gas, through some 180,000 miles of interstate natural gas pipelines. INGAA member companies operate over 6,000 stationary natural gas-fired spark ignition IC engines, which are installed at compressor stations along the pipelines to transport natural gas to residential, commercial, industrial and electric utility customers.

INGAA member companies have a history of working with the U.S. EPA Office of Air Quality Planning and Standards (OAQPS) on standards that affect equipment used in natural gas transmission, including stationary spark ignited IC engines and combustion turbines. Recently, INGAA member companies provided comments and background material to support development of the new combustion turbine NSPS, 40 CFR Part 60, Subpart KKKK. In addition, representatives from INGAA member companies served on the Federal Advisory Committee, known as the Coordinating Committee, established for the Industrial Combustion Coordinated Rulemaking (ICCR) for the development of the combustion MACT standards. INGAA members served on the Combustion Turbine MACT Work Group, and also served as Chair of the Reciprocating Internal Combustion Engine Work Group under ICCR, and as a member of the Boilers/Process Heaters Work Group. In supporting the development of MACT

standards and more recent EPA NSPS rulemakings, INGAA members have provided data and input integral to the technical foundation of these important regulations.

Although INGAA supports a rule that provides additional flexibility and compliance options, the certification provisions cause serious concern. The IC Engine Proposed Rules rely extensively on mobile source and nonroad regulations for IC engines, which is not a well-established approach for stationary sources or natural gas-fired units. This is acknowledged in the proposed standard through the use of a voluntary certification program for natural gas-fired equipment larger than 25 horsepower. However, by modeling this stationary source rulemaking after mobile and nonroad standards, EPA has introduced concepts and requirements that are ill-conceived for stationary sources and, if not revised, will surely result in confusion and conflicting requirements when the standards are implemented at the state and regional level.

There are many examples of differences between mobile source "consumer product" engines and stationary source engines that are not adequately considered in the Proposed Rule. For example:

- Certification-based emissions from test cell testing, which allows "engine adjustment", is not the same as "not to exceed" compliance tests conducted in the field and does not consider factors such as operating conditions (e.g., application), fuel quality, and environmental factors (e.g., elevation). Margins for certified emissions relative to permitted "not to exceed" limits are not considered in the Proposed Rule.
- Manufacturer based O&M procedures designed for consumer product approaches are inappropriate for industrial applications. They do not consider the wealth of experience that industrial operators have integrated into owner/operator O&M procedures over decades of engine operation for a breadth of industrial applications and processes. In addition, manufacturers do not have the capacity (or willingness based on corporate risk management) to properly consider alternative procedures.
- The concept of "useful life" has application in the mobile source sector; however, a stationary source useful life is well in excess of 8,000 hours – the maximum "useful life" in the proposal. While 8,000 hours corresponds to about 150,000 to 400,0000 miles or more for a vehicle (i.e., a significant portion of the practical life), it only corresponds to eleven months of continuous stationary source operation – which is a very small percentage of the anticipated life for a stationary gas-fired engine. This concept is flawed and entirely inappropriate for stationary sources, where engine "useful life" is measured in years or decades, not hours.
- Certified mobile source engines are not tested "in use" in most cases. In addition, subsequent mobile engine tests are completed in a different regulatory context that does not include rigorous and punitive enforcement. Even if certified, many stationary engines affected by the Proposed Rule will be tested due to Federal, state or local requirements. These tests will be completed under a strict enforcement regimen enforcement that is not consistent with the mobile source arena.
- Fuel quality is typically specified or controlled in mobile applications. This is not the case for gas-fired stationary engines, which are the *vast* majority of engines affected by the proposed NSPS.
- Pollutants of interest vary. NMHC emissions are regulated under mobile source rules and VOCs are regulated for stationary sources. The definition of these hydrocarbon categories,

their measurement, and consideration of species such as aldehydes can have considerable impact on the feasibility of the proposed emission limit – especially for gas-fired engines that have a limited mobile source regulatory legacy.

The Proposed Rule focuses on engine certification as the primary means of demonstrating compliance and does not include a clear compliance pathway for owners/operators of engines without mandated certification. As discussed in the comments that follow, INGAA recommends that the rule include a more conventional NSPS approach based on periodic testing and operator-defined operating and maintenance (O&M) practices that meet 40 CFR Part 60, Subpart A criteria. The rule should be revised to reflect two equally valid means of demonstrating compliance, namely the use of "certified" engines and the use of "verified" engines which meet the 40 CFR 60 Subpart A requirements and are tested. INGAA also believes that the rules should not grant undue empowerment to engine manufacturers to affect how established industries operate and maintain their equipment. These issues and others are discussed in the comments that follow.

INGAA comments are detailed in the document that follows this letter, and our comments address the following issues:

<u>Rule Structure and Mobile Source Link</u>:

1. Based on factors including certification levels versus in-use emissions and the required test cycle, certification *does not ensure* emissions compliance in the field. Data on emissions performance when migrating from lab certification to field applications are lacking for gas-fired equipment, and this issue must be addressed.
2. Compliance requirements are not clear for uncertified engines, or for certified engines during the “useful life” and after the useful life expires. The rules should be revised to clearly identify requirements and include an additional option to validate ongoing compliance for units without mandated certification. Requirements that should be addressed include:
    a. For certified engines, based on the plain language meaning of the words, the term “useful life” as defined in the proposal is completely inappropriate for stationary sources – and will surely result in outyear implementation issues. EPA should recognize the difference between mobile and stationary applications, and replace this term with “certification period.” In addition, EPA should more clearly define ongoing compliance requirements after the “certification period” – and consider these costs in its economic analysis.
    b. For certified engines, EPA implies in the rule and docket background material that compliance tests will not be required. Practical experience, along with a limited “certification period”, clearly indicates that this is unlikely, especially for larger engines. Thus, EPA’s presumed benefit will not be realized and costs will be greater than forecast. EPA should clearly define and more strongly advocate a subset of engines (e.g., 500 horsepower and smaller) that does not require compliance tests.
    c. The rule should include a clear compliance pathway for owners/operators of engines without mandated certification that follows a more conventional NSPS approach based on periodic testing and operator defined operating and maintenance (O&M) practices that

meet 40 CFR 60 Subpart A criteria. This compliance pathway should be available for both uncertified engines and certified engines that do not have mandated certification. Consistent with the certified engines requirements, EPA should clearly define a subset of engines (e.g., 500 horsepower and smaller) that only require an initial performance test and should not require subsequent compliance tests.

d. Adherence to manufacturer O&M requirements (or manufacturer approval of owner O&M) should only be required for certified engines that elect not to perform periodic tests. For engines without mandated certification that conduct periodic testing, owners/operators should be allowed to follow owner/operator O&M practices that meet the 40 CFR 60 Subpart A General Provisions requirements.

3. A compliance monitoring option for units without mandated certification should be addressed by revising and supplementing compliance monitoring requirements.

4. The proposal frequently references mobile source and nonroad standards, which are unfamiliar to the affected community and related industry support infrastructure and also add unnecessary ambiguity. EPA should eliminate or limit such references and include pertinent regulatory criteria and requirements within the Part 60 and Part 63 regulations, rather than including by reference.

5. By modeling the rule after mobile source standards, EPA has unnecessarily added complexity that is unusual for New Source Performance Standards for stationary sources, including:

   a. Regulation of equipment much smaller than typical for Part 60 standards.

   b. Incorporation of related nonroad standards into a stationary source standard, such as the General Compliance Provisions for Nonroad Engines, which are foreign to stationary source operators.

   c. Introduction of mobile source concepts such as "useful life" which include time constraints (e.g., run time of *LESS THAN ONE YEAR*) related to mobile operation and suggest inappropriate limitations for engines at stationary sources.

6. Requirements that owners/operators must follow manufacturer operating and maintenance (O&M) procedures for uncertified engines is onerous – especially when considering that IC engine operators often have existing O&M practices that may differ from vendor recommendations but are designed to address the specific challenges and rigor of the application.

NSPS and NESHAP Link:

7. The NESHAP and NSPS should be better harmonized. For units affected by both standards, this can best be accomplished by identifying the regulatory criteria in the NSPS, with the NESHAP simply stating that compliance with the NSPS fulfills NESHAP requirements. Alternatively, EPA could choose not to adopt a NESHAP, based on an analysis that concludes that the emission criteria are being addressed in the NSPS and no additional requirements are warranted. For this approach, one possible exception is the class of new

and reconstructed 4-stroke lean burn engines at major sources, which require controls analogous to the current RICE MACT.

8. EPA implies that the NSPS requirements result in little additional impact under the NESHAP. This fails to recognize onerous reporting and recordkeeping requirements in the General Provisions for Part 63. EPA should clarify that Part 63 reporting and recordkeeping do not apply – or conduct additional background analysis that considers the costs and associated benefit associated with the NESHAP criteria triggered for engines regardless of size.
9. The emergency engine definition in the existing RICE MACT (40 CFR Part 63, Subpart ZZZZ) was developed based on input and review from a broad stakeholder group. The proposed revision *does not* offer the additional benefit described by EPA and is more restrictive than the RICE MACT consensus definition. This proposed revision should not be pursued and the emergency engine definition in the current RICE MACT should be retained. If not, EPA must conduct additional analysis to properly consider the costs and impacts associated with the proposed revision – including emission and reliability issues.
10. The 500 horsepower size threshold is inconsistently applied in the standards as it pertains to separating "smaller" from "larger" engines. Under the existing RICE MACT, units larger than 500 hp are regulated. For consistency and to avoid confusion, the 500 hp inclusive threshold should be consistently applied for the subset of "smaller" engines.
11. Reconstructed units are treated differently in the NSPS and NESHAP, resulting in different emission limits. A reconstructed subcategory should be added to the NESHAP.

Applicability:

12. For the NESHAP, area source requirements should only apply to facilities in proximity to an urban area. Precedent from the area source standard for dehydrators should be reviewed as a viable alternative. Thorough analyses demonstrating the need for area source controls should be presented to support the proposed rule.
13. For both the NSPS and NESHAP, the docket material provides minimal support for inclusion of very small engines. The standards should be revised to reflect a 100 horsepower minimum size threshold, or additional analysis should be completed to characterize the economic impact and environmental benefit.
14. INGAA supports the conclusion for the NESHAP that existing units do not warrant control under Subpart ZZZZ.
15. INGAA supports the conclusion that Title V permits are not warranted for affected area source units. EPA should consider the implication of minor source permit requirements.

Inconsistencies and Clarifications:

16. Based on information provided in Table 4 of the preamble versus the text in the rule, the applicable date for 4-stroke lean burn engines from 250 to 500 hp at major sources is unclear. Please clarify.

17. There is an apparent mistake in Table 6 of the NESHAP, which does not include the initial (Stage 1) NMHC limit, and implies that only the lower, Stage 2 limit applies. Please clarify or correct if this is an oversight.
18. Clarification is needed regarding the initial applicable date for emission limits and other requirements such as reporting and recordkeeping for potentially affected units under the Proposed Rule.

Emissions Limits and Subcategories:

19. INGAA supports the first stage of NOx emission limits proposed for the NSPS, with the exception of those for emergency engines and certain reconstructed/modified units. Best demonstrated technology criteria need to be considered for 2010/2011 limits.
20. Alternative emission limits or a 400 hp exemption threshold should be defined for emergency engines.
21. NSPS emission limits for CO and NMHC are not warranted, and EPA has not provided analysis to justify standards for these pollutants.
22. If the NSPS includes an emission limit for hydrocarbon species, the limit should be for VOCs and not NMHC.
23. If a NMHC (or VOC) emission limit is included in the NSPS and NESHAP, the standard should clearly indicate that the limit does not include aldehydes or other oxygenated species – unless EPA provides data and analysis to the contrary. In addition, consistent treatment of included species is required for the test methods. For example, EPA Method 25 should not be used for determination of NMHC or VOC (see Comment 32).
24. EPA should include a concentration-based alternative standard, at least for units without mandated certification that are mechanical drive units.
25. INGAA supports the inclusion of an NSPS subcategory for reconstructed/modified units. However, the NESHAP should be revised to also include a subcategory for reconstructed units.
26. INGAA supports the EPA conclusion that NSPS emission standards for particulate matter and SO_2 are not warranted.
27. INGAA supports the EPA selection of low emission combustion for lean burn engines and nonselective catalytic reduction (NSCR) for rich burn engines as the basis for the NSPS for natural gas-fired IC engines.
28. INGAA supports the EPA conclusion that selective catalytic reduction (SCR) is not a cost-effective technology and not a proven technology for application to industrial units such as those used in natural gas transmission.
29. Consistent with the existing RICE MACT and recent Turbine NSPS, EPA should specify in the final rule that the emission standards only apply at full load and specify that performance tests and periodic testing be conducted at 90 to 110% of peak load or the maximum load achieved in practice. Alternatively, EPA should provide data and analysis supporting the applicability of the emission limits at partial load.

30. EPA should revise the standard temperature in the proposal from 25 ^{o}C to 20 ^{o}C to be consistent with the commonly applied standard and the definition in the Part 60 and Part 63 General Provisions (i.e., 293 K (68 ^{o}F) and 101.3 kilopascals (29.92 in Hg)).

Monitoring and Performance Tests:

31. Requirements that owners/operators must follow manufacturer operating and maintenance (O&M) procedures are onerous – especially when considering that IC engine operators often have existing O&M practices that may differ from vendor recommendations but are designed to address the specific challenges and rigor of the application.
32. The proposed test methods for NMHC measurement are inadequate for natural gas-fired units. For NMHC testing, EPA should propose Method 18 to measure individual primary NMHC species and determine NMHC emissions as the sum of the NMHC species. The method should specifically exclude aldehydes. Extractive FTIR testing should also be accepted for gas-fired sources, with NMHC based on the sum of the relevant hydrocarbon species.
33. INGAA supports performance testing for validating compliance with emission limits, and use of "full load" testing for compliance assurance should be more broadly accepted in the Proposed Rule.
34. EPA should clearly indicate that a field performance test or any subsequent performance testing is not required for units 500 hp and smaller that have been certified and follow manufacturer recommended O&M procedures.
35. INGAA supports the inclusion of EPA Method 7E, Method 10 and ASTM Method D6522-00 for performance tests.
36. Additional test methods are needed to determine emission rates. Standard test methods should be added to the rule for converting concentration measurements to emission rates, including EPA Method 19 for determination of emission rates and EPA Method 3A or ASTM 6522-00 for diluent measurement.
37. The rule should clarify that horsepower for performance tests used to determine g/bhp-hr emission rates should be based on methods and a report provided by the owner/operator.
38. EPA should revise the final rule to include ASTM Method D6348 and EPA Method 320 as acceptable methods for performance tests. These are extractive Fourier Transform Infrared (FTIR) test methods provide for measurement of NOx, CO, and diluent emissions.
39. INGAA supports the EPA conclusion that performance testing for compliance assurance is appropriate for uncertified engines.
40. Section 60.4245(d) requires test reports to be submitted within 30 days of completion of the test. This should be revised to 60 days after completion of the test, which is consistent with NESHAP requirements.
41. For major source engines with catalytic control, the NESHAP requires monthly pressure drop (ΔP) monitoring across the catalyst (see NESHAP Table 7). EPA should revise this requirement to clarify owner/operator requirements during months when a subject engines does not run or runs minimally.

Definitions:

42. As discussed in Comment 9, the definition of Emergency Engine should be revised to be consistent with the current definition in the RICE MACT.
43. The definition of NMHC and THC need to be revised consistent with the basis of the emission standard and methods allowed for performance tests.
44. EPA should clarify the definition of manufacturer, as multiple parties can be involved with siting an engine and this could cause confusion with defining manufacturer O&M requirements.
45. The definition of "maximum engine power" is drawn from nonroad regulations and should be limited to certified engines. To avoid confusion, stationary source ratings should be based on the definition of "site rated horsepower" consistent with the current RICE MACT, with a standard reference temperature and pressure added to the definition.

INGAA appreciates the opportunity to comment on this rulemaking. We offer our assistance to EPA in understanding our concerns with proposed Part 60 Subpart JJJJ and Part 63 Subpart ZZZZ revisions, and clarifying EPA questions regarding these comments. If you have any questions, please feel free to contact us.

Sincerely,

Lisa S. Beal

Lisa Beal
Director, Environment and Construction Policy
Interstate Natural Gas Association of America

cc: Jaime Pagan, U.S. EPA, Combustion Group, Emission Standards Division (C439-01), U.S. EPA, Research Triangle Park, NC 27711

Attachment: INGAA Comments on the Proposed NSPS, Part 60, Subpart JJJJ and revisions to the NESHAP, Part 63, Subpart ZZZZ

COMMENTS ON THE PROPOSED
NEW SOURCE PERFORMANCE STANDARD AND
NATIONAL EMISSION STANDARD FOR HAZARDOUS AIR POLLUTANTS

Standards of Performance for Stationary Spark Ignition Internal Combustion Engines and National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines

71 Federal Register 33804, June 12, 2006

Submitted by:
Interstate Natural Gas Association of America (INGAA)
10G Street, N.E., Suite 700
Washington, D.C. 20002

Submitted to:
Docket ID No. EPA-HQ-OAR-2005-0030
Air and Radiation Docket and Information Center
U.S. Environmental Protection Agency
Mailcode-6102T
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October 11, 2006

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INTRODUCTION

The Interstate Natural Gas Association of America (INGAA), a trade association of the interstate natural gas pipeline industry, submits these comments on the U.S. EPA's proposed rule Standards of Performance (New Source Performance Standards (NSPS)) for Stationary Spark Ignition Internal Combustion (IC) Engines and National Emission Standards for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines (referred to hereinafter as the Proposed Rule). The spark ignition IC engine NSPS is proposed as 40 CFR Part 60, Subpart JJJJ and the NESHAP is proposed as revisions to 40 CFR Part 63, Subpart ZZZZ. The proposal was published in the Federal Register on June 12, 2006, at 71 FR 33804.

INGAA member companies transport more than 90 percent of the nation's natural gas, through some 180,000 miles of interstate natural gas pipelines. INGAA member companies operate over 6,000 stationary natural gas-fired spark ignited reciprocating internal combustion (IC) engines, which are installed at compressor stations and storage facilities along the pipelines to transport natural gas to residential, commercial, industrial and electric utility customers. INGAA member companies have a history of working with the U.S. EPA Office of Air Quality Planning and Standards (OAQPS) on standards that effect equipment used in natural gas transmission and storage, including stationary spark ignited IC engines and combustion turbines. Recently, INGAA member companies provided comments and background material to support development of the new combustion turbine NSPS, 40 CFR Part 60, Subpart KKKK. In addition, representatives from INGAA member companies served on the Federal Advisory Committee, known as the Coordinating Committee, established for the Industrial Combustion Coordinated Rulemaking (ICCR) for the development of the combustion (Maximum Achievable Control Technology) MACT standards. INGAA members served on the Combustion Turbine MACT Work Group, and also served as Chair of the ICCR Reciprocating Internal Combustion Engine Work Group, and as a member of the ICCR Boilers/Process Heaters Work Group. In supporting the development of MACT standards and more recent EPA NSPS rulemakings, INGAA members have provided data and input that have assisted in forming the technical foundation of these important regulations.

The detailed comments that follow discuss numerous issues, and the issues are frequently integrally linked. Although INGAA supports a rule that provides flexibility and compliance options, the Proposed Rule introduces unnecessary confusion that will surely result in complications during implementation. EPA has chosen to model this stationary source proposal on mobile and nonroad standards. However, the gaseous-fired engines that comprise the vast majority of affected equipment do not have a certification-based parallel, and EPA has introduced concepts and requirements that are ill-conceived for this category of equipment. In addition, there are serious issues regarding nominal emissions performance for certification of engine families versus in-use "not to exceed" emission limits for individual units.

INGAA recommends that EPA more rigorously consider these issues, especially implementation issues and the relationship of the proposal to existing State and regional requirements, discussed in the comments that follow. INGAA also recommends that ambiguity and compliance uncertainty should be eliminated from the rule, and that a clear path for compliance should be identified for affected engines. This should include owner/operator flexibility to address compliance monitoring with

periodic tests and relief from engine manufacturer control over established industry operating and maintenance practices.

An itemized list of the comments is provided in the cover letter and Table of Contents. INGAA's detailed comments on Proposed Subpart JJJJ of Part 60, and proposed revisions to Subpart ZZZZ of Part 63 follow.

DETAILED COMMENTS

Rule Structure and Mobile Source Link:

1. **Based on factors including certification levels versus in-use emissions and the required test cycle, certification *does not ensure* emissions compliance in the field. Data on emissions performance when migrating from lab certification to field applications are lacking for gas-fired equipment, and this issue must be addressed.**

Based on factors including the difference between emissions from certification versus in-use emissions in the field and differences between certification and in-use test cycles, emission levels determined in certification testing are not an appropriate basis for determining engine compliance in the field. This is acknowledged in other regulations using "not-to-exceed" factors that add a compliance margin to the certification standard for in-use testing. Specifically, emission limits in the Proposed Rule for certification of an engine family certification should not be applicable as "not-to-exceed" limits for in-use performance at facilities. Yet, INGAA strongly believes that the emission limits in the Proposed Rule would be implemented as permitted "not to exceed" limits for in-use performance in the field – consistent with the legacy of NSPS and stationary source permitting. EPA has not addressed this important factor in the proposed NSPS, and analysis should be conducted and the standard revised to include an emissions increment for field performance. Since data on migration from lab certification to field applications may be lacking for gas-fired equipment, this issue could unravel the proposed mobile source-related certification concept that is inherent to the Proposed Rule. EPA must consider several issues and select an approach that:

- Indicates that the proposed emission standards are nominal levels for certification and NOT indicative of field performance. Thus, emission limits in the NSPS should not be integrated into permits and EPA should specifically indicate this as appropriate. This approach would be contrary to the existing regulatory paradigm for NSPS;
- Identifies an "increment" or margin to add to the certification-based levels and include these "not-to-exceed" limits in the NSPS for in-use performance in the field and stationary source permit limits; OR
- Revises the certification program and instead require that the emission levels in the Proposed Rule are "not-to-exceed" limits for both certification and field applications. This is: contrary to current engine manufacturer certification programs; implies unit-specific certification testing which would dramatically impact costs; would need to be more thoroughly investigated to address issues such as operating cycles, environmental effects, engine aging, and fuel effects; and, would likely cause issues with the timing, cost and feasibility for implementing certification.

Regardless of the NSPS standards meaning (e.g., not-to-exceed in-use performance or nominal certification levels), the proposed certification test cycle includes low load operation and is not indicative of typical in-use operating profiles in the field. In addition, certification includes engine adjustment during testing if performance issues exist. This is contrary to how field compliance tests are conducted, where no such adjustment is allowed and punitive enforcement actions would typically result.

The Proposed Rule is silent on these important issues. It is imperative that these issues are discussed and addressed, because the emissions limits and relationship between certification and field in-use emissions is a basic underpinning of the Proposed Rule and how the rule will be implemented.

Historically, NSPS limits are not-to-exceed limits for equipment in-use at a facility, but EPA's introduction of certification has established a different paradigm that is based on emissions associated with certification – and NOT in-use "not-to-exceed" limits. In fact, a very simple principle is undefined and unclear in the Proposed Rule: Are manufacturers certifying and/or guaranteeing emissions as nominal levels for an engine family certification, certifying that the engine achieves these limits as "not-to-exceed" limits during its "useful life" in the field, or both? If the intent is for certification to equate to in-use performance, under what operating conditions are the limits expected to be maintained? It is imperative that EPA consider these questions, the implication of the answers on rule requirements, and address the issues and implications in the final rule.

A concern of owner/operators is that certified engines will not comply with the emission limits after the "useful life" expires. In addition, there is concern that certified emission levels are only commensurate with nominal emissions or test cell not-to-exceed limits, and do not ensure that the engine meets the NSPS standards when placed at the facility – even when the engine is new. Reasons for this concern include:

- The engine operating conditions during a certification test are based on a mobile source operating profile and differ from stationary source performance test operating conditions; therefore, emissions during a performance test may be different and higher than during a certification test;
- It is not clear to INGAA, but appears that certification programs are structured such that an engine family can be certified even if emissions from tested production line engines exceed the emission limits. Even if this is not the case, the manufacturer has the opportunity to adjust the engine during certification tests to address emission issues. Therefore, there is no certainty that a new engine would pass a performance test, much less an engine that has been in operation;
- Existing certification programs are premised on "consumer product" type of engines, where certification provides assurance that equipment emissions, on average, are at or below the limit. This provides assurances that the national emissions inventory, on average, is achieving a defined level. "Nominal emissions performance" across engines families, not "not-to-exceed" levels, are thus characteristic of a certification program;
- Test methods for mobile source certification testing differ from field performance test methods in their equipment calibration and other requirements;

- Fuel fired during a performance test will likely have different properties than fuel fired during a certification test and fuel properties can impact emissions. In addition, gas quality can vary on an ongoing basis in field applications; and
- EPA includes not-to-exceed limits in 40 CFR 60 Subpart IIII "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines NSPS." The not-to-exceed limits apply to engines that are field performance tested rather than certification tested in a laboratory setting. Not-to-exceed limits are 1.25 or 1.5 times higher than the engine certification limits and are based on EPA's recognition that in-use performance differs from engine emissions performance in a laboratory setting. This factor has not been applied to Subpart JJJJ or NMHC limits under Subpart ZZZZ. In addition, there are not data from an existing certification program to substantiate the basis for a not-to-exceed factor; however, this issue cannot be ignored.

Further discussion on this topic follows.

Engine operating conditions during a certification test are based on mobile source operation and differ from stationary source performance test operating conditions. For certification testing of engines greater than 25 hp, §60.4241(b) states "Manufacturers must certify their stationary SI ICE using the certification procedures required in 40 CFR part 1048, subpart C, and must follow the same test procedures that apply to large SI nonroad engines under 40 CFR part 1048, but must use the D-2 cycle of International Organization of Standardization 8178-4 specified in Table 3 to 40 CFR 1048.505." The D-2 duty cycle includes five testing modes of not less than 3 minutes each. The modes and weighting factors are:

1. Max test speed, 100% torque (5%);
2. Max test speed, 75% torque (25%);
3. Max test speed, 50% torque (30%);
4. Max test speed, 25% torque (30%); and
5. Max test speed, 10% torque (10%).

For performance testing, engine operation requirements (§60.4244) do not appear to be specified beyond do "not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §60.8(c)." However, subpart ZZZZ requires engine operation between 90 and 110% of full load (§63.6620 (b)). This same operating load criterion is recommended by INGAA in Comment 29. Due to very different engine operating conditions, emissions during a performance test may be different (and higher) than during a certification test, both on an exhaust gas concentration basis and on a g/hp-hr basis. It may be that EPA intended to reference a different certification test cycle that is based on operation at 75% and 100% load. However, even at these two loads emissions can differ and the basis of the emissions relative to a single, full load compliance test needs to be addressed. For in-use testing, operators typically do not have the flexibility to "adjust" load so that an engine can be tested at different, discrete load conditions. Finally, even if the certification test cycle is representative of field use, there are still numerous issues related to nominal versus not to exceed emissions criteria that must be addressed.

An engine family can be certified even if emissions from tested production line engines exceed the emission limits. §60.4231(d) and Table 1 specify voluntary manufacturer certification emission standards for engines greater than 25 hp that do not use gasoline and are not rich burn engines that use LPG. These engines must meet the emission standards during their "useful life" (§60.4232). §60.4241(b) states "Manufacturers must certify their stationary SI ICE using the certification procedures required in 40 CFR part 1048, subpart C, and must follow the same test procedures that apply to large SI nonroad engines under 40 CFR part 1048." 1048 Subpart D specifies requirements for "Testing Production Line Engines." Per 1048.315, individual tested production line engines can exceed the emission limits, but the engine family can retain its certification of conformity. Under these circumstances, it can be expected that some new engines would not be able to pass a performance test and thus would also likely fail subsequent field performance tests after the engine is placed in service – i.e., there is not a guarantee or even a supposition that an individual "certified" engine will conform to certification or "not-to-exceed" levels when installed in the field. With NSPS limits likely to be imposed as permit limits, this issue must be addressed.

Mobile source certification test methods differ from field performance test methods in their equipment calibration and other requirements. Stationary source test methods are used for performance testing and mobile source test methods are used for certification testing. NOx, O_2, and CO can be measured using EPA methods (e.g., from 40 CFR 60, Appendix A) or by portable analyzer (ASTM D6522-00 (2005)) during performance testing. Part 60 test methods are used to measure NMHC during performance tests. In contrast, mobile source test methods in 40 CFR 1065 are used for certification testing of NOx, CO, and NMHC. These test methods have different calibration (e.g. zero and span cal error), interference, stability, and other requirements that can impact measurements; therefore, emissions test data collected using the different methods may not be directly comparable. INGAA is not aware of any study or available data that has investigated potential differences in results from Part 60 versus Part 1065 methods, and it should not be presumed that exact equivalency will occur in practice.

Other differences may impact emission rate (g/hp-hr) determinations. For example, the certification testing prescribes test methods for engine flue gas flow rate that have specific QA checks (linearity accuracy, etc) while the Proposed Rule performance testing requirements do not specify the test methods for measuring engine exhaust gas rate. The certification testing also prescribes methods for engine speed and torque (hp-hr), accessible for measurement in a test cell environment, that have specific QA checks (linearity accuracy, etc.), while the performance testing criteria in the Proposed Rule do not identify the methods for converting from ppmv to an emission rate. INGAA provides recommendations in Comments 36 and 37 on performance test flue gas flow rate and engine horsepower criteria. Consistent with the emissions test methods differences noted above, differences between accepted mobile versus stationary source test methods for flue gas flow rate and engine horsepower have not been reported in the literature. Note that it is inappropriate to consider the lab certification methods for field use.

Fuel fired during a performance test will likely have different properties than fuel fired during a certification test and fuel properties can impact emissions. Fuel composition can impact fuel heating value, ignition energy requirements, air-to-fuel ratio, and chemical kinetic paths. All of these parameters in turn can impact NOx, CO, and NMHC emissions. Heating value and air-to-

fuel ratio impact flame speed and temperature, which affect the formation and emissions of NOx and products of incomplete combustion (i.e., CO, NMHC). Ignition energy requirements impact flame stability and emissions. Chemical kinetic paths determine products of incomplete combustion. Fuels with different methane, ethane, propane, and diluents (e.g. CO_2, N_2, H_2O) concentrations are likely to differ to some degree in all these parameters and emissions. Consequently, emissions test results for an engine certified with one fuel and performance tested with another fuel are very likely to differ. The Proposed Rule considers that a manufacturer can adjust an engine when siting it in the field, but the rule does not consider fuel variability within the constraints of the definition of natural gas or how future adjustments can be implemented. In fact, the operator ability to make adjustments may be limited due to O&M constraints required by the Proposed Rule.

For these reasons, emissions measured during a performance test may differ from certification test and certified engine emissions.

EPA's inclusion of not-to-exceed limits in 40 CFR 60 Subpart IIII "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines NSPS" is recognition that engine operation in the field during a performance test can differ from certification testing engine operating conditions and that these differences can impact emissions. The not-to-exceed limits apply to engines that are "in-use" performance tested rather than certification tested in a laboratory setting and not-to-exceed limits are 1.25 or 1.5 times higher than the engine certification limits (see §60.4212). The not-to-exceed limits are based on EPA's recognition that field testing engine operating conditions differ from engine operating conditions in a laboratory setting. The EPA "Response to Public Comments on Proposed Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (EPA Docket EPA-HQ-OAR-2005-0029)" notes that,

> "The not-to-exceed standards are less stringent than the standards that apply to certified engines, to allow for the fact that testing may occur over different use conditions than the specific conditions required for certification testing."

EPA does not address this issue in the Proposed Rule and EPA's position on certification versus in-use emissions is unclear. It is very troubling that this issue – which is at the very foundation of the regulatory requirements of the Proposed Rule – has been ignored by EPA in the Proposed Rule. With a legacy of certification programs including margins for in-use emissions, it is imperative that EPA provide data documenting any such differences or lack thereof, especially if EPA proceeds with a rule that does not introduce a margin for in-use performance.

INGAA is uncertain regarding EPA's intent in the Proposed Rule in consideration of emissions associated with certification versus not-to-exceed limits in the field. INGAA did not find discussion in the preamble or docket material that explores this topic. Recent discussions with engine manufacturers have only exacerbated this concern. It is imperative that EPA clarify the intent of emissions limits. If EPA presumes that certification equates to field performance, data and analysis must be provided to substantiate such an important claim – for each of the NSPS pollutants and for various size categories and fuels. Without available data from the docket or clarity on EPA's intent, INGAA can not offer concrete suggestions for improvement at this

point. However, INGAA is willing to provide additional input on this important issue as EPA reviews comments and considers revisions to the Proposed Rule.

2. **Compliance requirements are not clear for uncertified engines, or for certified engines during the "useful life" and after the "useful life" expires. The rules should be revised to clearly identify requirements and include an additional option to validate ongoing compliance for units without mandated certification. Requirements that should be addressed include:**

   a. **For certified engines, based on the plain language meaning of the words, the term "useful life" as defined in the proposal is completely inappropriate for stationary sources – and will surely result in outyear implementation issues. EPA should recognize the difference between mobile and stationary applications, and replace this term with "certification period." In addition, EPA should more clearly define ongoing compliance requirements after the "certification period" – and consider these costs in its economic analysis.**

   b. **For certified engines, EPA implies in the rule and docket background material that compliance tests will not be required. Practical experience, along with a limited "certification period", clearly indicates that this is unlikely, especially for larger engines. Thus, EPA's presumed benefit will not be realized and costs will be greater than forecast. EPA should clearly define and more strongly advocate a subset of engines (e.g., 500 horsepower and smaller) that does not require compliance tests.**

   c. **The rule should include a clear compliance pathway for owners/operators of engines without mandated certification that follows a more conventional NSPS approach based on periodic testing and operator defined operating and maintenance (O&M) practices that meet 40 CFR 60 Subpart A criteria. This compliance pathway should be available for both uncertified engines and certified engines that do not have mandated certification. Consistent with the certified engines requirements, EPA should clearly define a subset of engines (e.g., 500 horsepower and smaller) that only require an initial performance test and should not require subsequent compliance tests.**

   d. **Adherence to manufacturer O&M requirements (or manufacturer approval of owner O&M) should only be required for certified engines that elect not to perform periodic tests. For engines without mandated certification that conduct periodic testing, owners/operators should be allowed to follow owner/operator O&M practices that meet the 40 CFR 60 Subpart A General Provisions requirements.**

INGAA understands that EPA is attempting to harmonize the Proposed Rule with existing mobile source and nonroad standards and that EPA believes that a certification based rule results in less regulatory burden for owner/operators. However, based on practical experience and regulatory requirements at the Federal, State and local level, INGAA strongly believes that the Proposed Rule would result in extensive, unnecessary burden to owners/operators that EPA has not considered in the rulemaking. In addition, INGAA believes that the Proposed Rule requires clarification regarding requirements for certified engines, certified engines after the "useful life" expires, and uncertified engines. This is especially important because EPA's own estimates indicate that more than 80% of affected units are likely to be engines that currently do not have a

certification approach for nonroad / mobile engines. While INGAA cannot forecast the future likelihood of engine certification for natural gas-fired engines, we strongly believe that the Proposed Rule will result in significant implementation issues, especially for larger units. To address this, EPA should revise the Proposed Rule to include:

- For certified engines, based on the plain language meaning of the words, the term "useful life" as defined in the proposal is completely inappropriate for stationary sources – and will surely result in out-year implementation issues. EPA should recognize the difference between mobile and stationary applications, and replace this term with "certification period." In addition, EPA should more clearly define ongoing compliance requirements after the "certification period" – and consider these costs in its economic analysis.
- For certified engines, EPA implies in the rule and docket background material that compliance tests will not be required. Practical experience, along with a limited "certification period", clearly indicates that this is unlikely, especially for larger engines. There are numerous other state and federal regulatory programs that may still require initial and on going performance testing. For example, the existing RICE MACT requires emission tests for engines larger than 500 hp at major sources. Thus, EPA's presumed benefit will not be realized and costs will be greater than forecast. EPA should clearly define a subset of engines (e.g., 500 horsepower and smaller) that should not require future compliance tests.
- The rule should include a clear compliance pathway for owners/operators of engines without mandated certification that follows a more conventional NSPS approach based on periodic testing and operator defined operating and maintenance (O&M) practices that meet 40 CFR 60 Subpart A criteria. This compliance pathway should be available for both uncertified engines and certified engines where certification is voluntary. Consistent with the certified engines requirements, EPA should clearly define a subset of engines (e.g., 500 horsepower and smaller) that only require an initial performance test and should not require subsequent compliance tests.
- Adherence to manufacturer O&M requirements (or manufacturer approval of owner O&M) should only be required for certified engines that elect not to perform periodic tests. For engines without mandated certification that conduct periodic testing, owners/operators should be allowed to elect to follow owner/operator O&M practices that meet the 40 CFR 60 Subpart A General Provisions requirements.

These issues are discussed in more detail in the following sections.

Replace "Useful Life" with "Certification Period"

The Proposed Rule includes provisions related to the "useful life", a term adapted from mobile source/nonroad engine regulations. Based on the plain language meaning of the words, the term "useful life" as defined Subpart JJJJ is completely inappropriate for stationary sources – and will surely result in out-year implementation issues. EPA should recognize the difference between mobile and stationary applications, and replace this term with "certification period". In addition, EPA should more clearly define ongoing compliance requirements after the "certification period" – and consider these costs in its economic analysis.

The proposed definition in Subpart JJJJ (and similar definition in the proposed Subpart ZZZZ amendments) indicates,

> *"Useful life* means the period during which the engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. The values for useful life for stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP) are given in 40 CFR 90.105. The values for useful life for stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) certified to 40 CFR part 1048 are given in 40 CFR 1048.101(g). **The useful life for stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) certified under the voluntary manufacturer certification program of this subpart is 8,000 hours or 10 years, whichever comes first."** [Emphasis added]

For the Proposed Rule, the term and the definition are based on nonroad/mobile standards. This presents an obvious incongruity, in that the operating hours associated with "useful life" are more typical of the equipment life (or a significant percentage) for mobile applications and even for diesel generators under the compression ignition standard. The 8,000 hours operating time associated with useful life in the Proposed Rule is a small percentage of typical stationary equipment operation life. For example, an engine life of 20 years, 30 years or longer is *expected*, while the operating limit of 8,000 hours for useful life is less than *11 months* of continuous operation. Importantly, natural gas-fired applications may operate continuously, so this scenario is not unusual. In this case, the "useful life" will be less than 5% of the actual equipment life. This will surely cause future problems with agencies or the public questioning the ongoing use of equipment that has exceeded its "useful life" by such a large margin. In addition, the lead-in sentence to the definition implies that "major" maintenance may be required to sustain engine performance after 8,000 hours. Experience indicates that this is not typically the case for stationary engines. Again, future questions will surely arise regarding confusion over the regulatory definition and real-world performance for stationary units.

EPA may attempt to minimize the burden this may impose and INGAA cannot be certain of its impact. However, the controversy can be avoided by simply using terminology that more appropriately reflects the intent of the term. Other than familiarity, there is no significant reason to maintain terminology consistent with mobile source regulations. INGAA recommends that "useful life" be renamed "certification period" in the regulation. Based on the plain English meaning of the terms, "useful life" is not appropriate while "certification period" reflects exactly what the time period identified encompasses – that period of time for which the manufacturer's commitment to emissions performance applies under the certification program. Nothing is lost by making this change, while unnecessary future confusion and compliance burden can be avoided.

Clearly Identify Compliance Monitoring Requirements after a Certified Engine's "Useful Life"

The engine status after the useful life must be more clearly defined. Subpart JJJJ does not address nor does background material discuss requirements after the useful life, while the preamble indicates that emissions conformance is no longer assured. This raises the likelihood

that State and local agencies will attempt to address implementation questions associated with ongoing compliance for this equipment – or attempt to limit engine operation past its useful life.

The failure to clearly address this issue comes at the expense of the owner/operator and other agencies that will need to continue to address these implementation issues in the years ahead. As discussed throughout these comments, EPA should more carefully consider the implication of integrating mobile source requirements into a stationary source standard, including the burden, confusion, and complexity that will arise during implementation. As discussed below, a number of revisions can help address this, including adding performance test-based compliance, acknowledging the fact that testing is likely for larger units, and more strongly advocating no testing for a subset of "smaller" engines; that is, EPA should more clearly define and advocate a subset of engines (e.g., 500 horsepower and smaller) that do not require future compliance tests.

The preamble indicates that an engine status changes after the useful life expiration. This is a compelling issue and indicates a failing of the "mobile source model" that EPA has attempted to implement in Subpart JJJJ, because many spark ignited IC engines in industrial applications run extensively – and a unit in continuous operation will reach its regulatory defined useful life in *eleven months*. The practical useful life of the engine may continue for decades – i.e., the useful life is a very small percentage of the practical life for many industrial units that will be subject to Subpart JJJJ. This is not the case for "certified" engines in mobile/nonroad applications. Preamble quotes regarding certification and compliance status include:

> "It is assumed that the engine will remain in compliance with the emission standards for the useful life of the engine, if the engine is operated and maintained properly." (71 FR 33821)

- The clear implication is that one cannot assume emissions compliance after the useful life, regardless of O&M. However, EPA must consider that owner/operators have an obligation to comply with emission limits for in-use equipment. Unless EPA clearly indicates that the limits only apply for certification and not "in-use" at the facility, this will pose problems. This issue was discussed in Comment 1, i.e., nominal emissions for certification versus not to exceed limits and in-use performance.

> "For certified engines, the testing performed by engine manufacturers during the certification process serves to demonstrate compliance with the emission limitations on an initial and ongoing basis until the end of the engine's useful life." (71 FR 33823)

- Once again, the clear implication is that emissions compliance is only assured for the useful life – or as little as 11 months. Ongoing emissions compliance issues have been ignored by EPA and this issue needs to be addressed. In addition, this preamble statement fails to consider nominal emissions versus not to exceed limits.

> "The testing that manufacturers conduct during the certification process for such engines will ensure that the engine is in compliance throughout its useful life. EPA believes relying on engine certification is appropriate and no additional testing is being proposed for certified engines." (71 FR 33824)

- This raises the same question as the earlier quotes. Collectively, these statements could lead to the conclusion that an engine is no longer "certified" to comply with the emission limits after the useful life, which is a small percentage of the practical life of a stationary

> spark ignited engine in an industrial application. In fact, stakeholders who have reviewed the Proposed Rule have reached this conclusion. In response, to ensure ongoing compliance with emission limits, implementing agencies and the public may presume that emission tests are warranted. The EPA conclusion that certification only assures emission performance for the useful life does not dissuade one from reaching such a conclusion.

In summary, post-useful life compliance monitoring requirements for certified engines are not clearly defined in the Proposed Rule and will likely be backfilled by State and local agencies – resulting in a wide range of compliance requirements for affected companies and thus increasing the regulatory burden. To avoid this potential outcome, EPA should clearly specify the requirements for the "practical" or actual life of the engine. The likelihood of in-use compliance testing requirements for both certified and uncertified engines is discussed in the following section.

Periodic In-Use Compliance Testing

For certified engines, EPA indicates that in-use compliance testing is not required and docket background material implies that such tests will not occur. Thus, regulatory costs do not reflect emissions tests for certified engines. However, this is a naïve presumption by EPA and not practical based on current requirements by State and local agencies and EPA's existing regulations. While EPA may attempt to address this issue by citing the ability of state/local agencies to institute requirements beyond the Federal mandate, it is inappropriate for EPA to ignore this basic and obvious issue when considering the burden, cost, and impacts of the Proposed Rule. In addition, based on information in the docket, both engine manufacturers and industrial operators repeatedly indicated to EPA that testing will be likely in many cases – regardless of the EPA's perspective.

Practical experience with State and local agencies, along with a limited "useful life", clearly indicates that testing will continue to be required, especially for larger engines. With this as a predetermined outcome that should not be ignored by EPA, a primary benefit of certification envisioned by EPA will not be realized in practice. Thus, it is important that EPA consider compliance monitoring based on periodic testing. For certified engines, INGAA believes that periodic testing is likely after an engine's useful life expiration for engines above a certain size level (e.g., 500 hp). For uncertified engines an initial performance test and subsequent periodic testing for engines above a certain size level (e.g. 500 hp) will be required. In reviewing this issue, EPA should consider associated ongoing compliance requirements and model these requirements after a more conventional NSPS approach – such as the compliance monitoring requirements in the recently adopted NSPS for turbines, Subpart KKKK.

INGAA's perspective on the likelihood of periodic in-use compliance tests is supported by several facts:

- Existing federal requirements for testing. For example, the existing RICE MACT (as well as proposed amendments to Subpart ZZZZ) requires tests for most new engines at major HAPs sources. These engines will require testing under MACT for other emissions (including CO, which is an NSPS pollutant), which increases the likelihood of complementing the tests with NOx or NMHC measurements. In fact, a new *certified* gas-fired engine larger than 500 hp

installed at a HAP major source would still require initial and semi-annual testing for CO emission reduction under the MACT regulation. The initial testing would be due within the "useful life" of the engine.

- New engines will frequently be sited at industrial locations that include similar equipment with existing testing requirements. The existing test criteria will likely apply to new engines, or it may be desirable for similar requirements to avoid confusion – i.e., if a bank of engines already requires testing, it is unlikely that a new engine sited at the same facility would have less rigorous monitoring requirements in the permit. Records of such requirements are available to EPA through review of existing permits.
- Many state and local agencies require tests for engines. Attachment 1 includes additional information on state or local agency testing requirements for IC engines**.** In many cases, test requirements are defined in the permit rather than by rule. A survey of state regulations determined that for the majority of the states, the minimum engine size that requires testing is 500+ hp or the minimum size is not listed. However, for the states surveyed, emission tests "by rule" for units less than 500 hp are required in some cases. Collectively, this information supports the assertion that many existing state programs currently require tests either by rule or through permitting requirements. EPA material in the docket (Docket Document No. OAR-2005-0030-0052) also indicates state testing requirements for engines.

  In addition, EPA has information provided by INGAA and included in the docket that documents the prevalence or periodic testing for IC engine compliance monitoring (Docket Documents No. OAR-2005-0030-0046 and -0109). EPA requested information from INGAA regarding compliance monitoring for spark ignited IC engines in existing permits, and INGAA conducted a study to provide this material to EPA. The results indicate that performance tests/periodic testing is the primary compliance monitoring method for IC engines in gas transmission, with most permitted new units (or existing units with retrofit NOx control) requiring compliance tests. Testing is prevalent and far exceeds any other compliance monitoring approach. As noted, INGAA provided this information at EPA's request and expended resources to collect and report this data on permit requirements for compliance monitoring. By not properly considering the legacy of emission testing and its likelihood during rule implementation, it is not apparent that EPA has appropriately considered this INGAA effort.
- For certified engines, the Proposed Rule requires emission tests for units that undergo major repair or maintenance or are rebuilt. These criteria are not defined, thus the trigger will likely be interpreted differently across the U.S.
- Compliance is only certified for the "useful life" for certified engines (see quotes from preamble above). For other regulations that use "useful life", the applicable period is a significant percentage of the equipments operating life (i.e., close to its practical life). However, for natural gas-fired engines with a life expectancy of 20 to 30 years or more, the defined useful life is as little as eleven months. This leaves an open-ended question regarding ongoing emissions status, and increases the likelihood that tests will be required by State or local agencies – or demanded by the public.
- Under Title V, owners/operators must certify compliance. As discussed in comments below, "certification" per the Proposed Rule does not necessarily ensure emissions performance,

even under optimal conditions. Thus, owners/operators may prefer to test to ensure conformance with operating permit compliance certification.

In addition, if the rule maintains applicability for all engines regardless of size, there is a subset of smaller engines that are more likely to avoid testing. Based on the information discussed above, while requirements differ throughout the U.S., a reasonable threshold for testing is 500 hp. In considering testing requirements (as discussed above), EPA should clearly advocate a strong federal position indicating that all small engines (500 hp and smaller), both certified engines and uncertified engines that have passed an initial performance test, do not warrant periodic testing or any further requirements for compliance. This is discussed further in Comment 34.

Compliance Monitoring Alterative Based on Emission Tests and Owner/Operator O&M

The Proposed Rule includes requirements for certified engines and uncertified engines, but focuses on engine certification as the primary means of demonstrating compliance and does not include a clear compliance pathway for owners/operators of engines without mandated certification. INGAA recommends that the rule include a more conventional NSPS approach based on periodic testing and operator-defined operating and maintenance (O&M) practices that meet 40 CFR Part 60, Subpart A criteria. The rule should be revised to reflect two equally valid means of demonstrating compliance, namely the use of "certified" engines and the use of "verified" engines which meet the 40 CFR 60 Subpart A requirements and are tested.

Rule revisions should clarify that certification is not a preferred approach, and that compliance based on certification versus purchase of an uncertified engine or field verification have equal standing under Subpart JJJJ and Subpart ZZZZ. In addition, the rule should clearly identify the compliance path for an uncertified engine, where performance is verified in the field. This "verification" approach to compliance should also be allowed for an engine certified under the voluntary program (i.e., operator-defined O&M practices used rather than manufacturer O&M as discussed below).

To address the ongoing compliance issue and clarify ongoing compliance requirements, INGAA supports adding a compliance monitoring option for units that do not have mandated certification – i.e., for gas-fired and lean burn LPG units larger than 25 horsepower (hp). This compliance monitoring option is warranted due to several issues:

- For gas transmission companies, engines are most typically sited at major sources that require compliance certification under Title V. Based on the EPA's statements above and the limitations in manufacturer responsibility, it is apparent that a responsible company official will need to consider additional measures in order to certify compliance.
- As discussed above, periodic in-use testing will likely be required for some engines. Existing federal and state programs already require emissions tests, which increases the likelihood that tests will be conducted for NSPS-affected engines. For example, the existing RICE MACT includes periodic testing requirements for new engines larger than 500 hp at major sources. In addition, "larger" new engines typically require testing under state or local programs. It is naïve for EPA to presume that this testing will not continue. The practical basis and examples of state testing criteria are discussed above.

INGAA supports a compliance option that is similar to requirements in the Proposed Rule that require performance tests and adherence to O&M practices. However, INGAA recommends that EPA more clearly identify this compliance option for gas-fired engines that are not subject to a mandatory certification program. The compliance monitoring approach would include:

- An initial performance test for all affected units;
- Periodic testing consistent with the frequency identified in the Proposed Rule for engines larger than 500 hp (§60.4243(c)(2)); and,
- Owner/operator defined O&M requirements and recordkeeping consistent with the General Provision obligations from 40 CFR 60.11(d) and 40 CFR 63.6(e). This is discussed further below.

This compliance monitoring approach acknowledges the likelihood of emissions tests in some circumstances, accepts that owners/operators in industrial applications have a wealth of O&M experience that is beyond the capability of manufacturers, and provides a reasonable compliance monitoring alternative that is consistent with the monitoring criteria in *numerous* other NSPS and MACT standards. In addition, this approach provides a better ability to certify compliance for operating permit reporting and provides real benefit and burden reduction for owners/operators.

As discussed above, there is a compelling argument for the likelihood of emission tests for affected engines – especially larger engines co-located with other equipment at industrial facilities. This is well documented for gas transmission in material that INGAA provided to EPA in January 2006 – at EPA's request. EPA should not ignore this obvious issue in trying to make the case that certification is less burdensome because testing is not required. As discussed in other sections of this comment, EPA should clearly define a compliance path that considers periodic testing, and allow owners/operators to elect to use this approach for compliance for units without mandatory certification.

Comment 3 provides additional discussion and example text for the additional compliance monitoring approach recommended by INGAA.

Operating and Maintenance Requirements

The Proposed Rule requires that owners/operators follow manufacturer O&M requirements for the life of the engine (or alternative procedures approved by the manufacturer). This requirement applies to both certified and uncertified engines, and applies even after the useful life has expired – even though the manufacturer is no longer responsible for emissions performance. This approach is modeled after other engine regulations with certification-based compliance. It appears that EPA believes that this requirement is a reasonable alternative and does not impose significant burden. However, this requirement fails to consider several key factors:

- The Proposed Rule includes *voluntary* certification, which was a necessity due to the lack of a mobile/nonroad certification program for gaseous fueled equipment. These engines are the vast majority of the affected units for the Proposed Rule, and it is likely that many gas-fired

engine families will not be certified. For the minority of families certified, the manufacturer responsibility (i.e., useful life) is only a small fraction (e.g., 5% or less) of the practical life.

- The Proposed Rule includes compliance options for uncertified engines. This was necessary to address the possibility that manufacturers will choose not to certify engines under the voluntary program. Despite the more conventional compliance approach that requires performance tests for all uncertified engines plus periodic testing for units larger than 500 hp, the O&M requirement still applies for uncertified engines.
- The O&M specifications will very likely be extremely conservative, because the procedures need to address the breadth of engine applications and users. This does not address industry-specific issues (e.g. high altitude operation, extreme climates (e.g. Alaska), industry implemented procedures based on decades of hands-on experience, etc.) associated with existing standard practices.
- While manufacturer criteria may be reasonable for regulating consumer products, industrial applications warrant different consideration due to the special expertise that industrial operators offer, including expertise levels that exceed manufacturer abilities. Other than the recent compression ignition NSPS, the limitations to industry operations from manufacturer O&M are unprecedented for a regulation that will primarily affect industrial applications – not consumer products.
- For both the NSPS and NESHAP, there are already O&M requirements in place through the Subpart A General Provisions. Section 60.11(d) of the Part 60 Subpart A requires that,

  > "At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source."

  Similarly, Section 63.6(e) of the Part 63 Subpart A requires that,

  > "*Operation and maintenance requirements.* (1)(i) At all times, including periods of startup, shutdown, and malfunction, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. During a period of startup, shutdown, or malfunction, this general duty to minimize emissions requires that the owner or operator reduce emissions from the affected source to the greatest extent which is consistent with safety and good air pollution control practices. The general duty to minimize emissions during a period of startup, shutdown, or malfunction does not require the owner or operator to achieve emission levels that would be required by the applicable standard at other times if this is not consistent with safety and good air pollution control practices, nor does it require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the

> Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures (including the startup, shutdown, and malfunction plan required in paragraph (e)(3) of this section), review of operation and maintenance records, and inspection of the source."

In the Proposed Rule or associated background, EPA has not indicated why these General Provision requirements, which are sufficient for the vast majority of Part 60 and Part 63 source categories, do not provide sufficient criteria under Subpart JJJJ. EPA has also failed to properly consider the costs associated with granting O&M authority to manufacturers.

Importantly, the authority on acceptable O&M resides with the Administrator under the General Provisions. With the manufacturer controlling "acceptable" O&M criteria under the Proposed Rule (that is, manufacturers can approve alternative O&M practices proposed by the owner/operators), the EPA is apparently relying on market forces to ensure that manufacturers pay proper attention to this important responsibility. However, with limited competition for many engine categories, EPA has not considered how limited or monopolistic markets will impact compliance and associated costs, or the possible near term ramifications as the "market" adjusts. Costs could be considerable. In addition, there is nothing to *require* manufacturers to fulfill this important responsibility to approve alternatives. In fact, because of the liability assumed by a manufacturer that chooses to approve alternatives, it is possible that no such path will be available to operators. With limited engine manufacturing companies, it is naïve for EPA to presume that market factors can adequately drive this process and offset corporate risk managers that result in a manufacturer's unwillingness to assume liability from approving alternative procedures.

- Owners/operators in industrial applications typically have well-established O&M programs, including maintenance procedures such as "condition-based" maintenance that allow owners to make decisions based on operating information that is available – and inherently related to the specific industrial applications. Natural gas-fired IC engines are integral to numerous energy sector industries, and EPA is unnecessarily imposing operational restrictions, significantly increasing operating and maintenance costs, and potentially introducing requirements that will impact process efficiency and safety without providing environmental benefit. Since the specifications are indeterminate at this time, it is not possible to assess the specific impacts, but O&M costs will surely increase. This important issue needs to be properly considered in the impact analysis for the regulation.

For these reasons, EPA should provide owners/operators the option to elect O&M consistent with the General Provisions coupled with periodic testing rather than manufacturer based O&M, as discussed in the preceding section.

3. A compliance monitoring option for units without mandated certification should be addressed by revising and supplementing compliance monitoring requirements.

This issue is raised in Comment 2, with further elaboration provided here, including recommendations on how to integrate revisions into the rule. INGAA strongly recommends that the Proposed Rule be revised to include a compliance monitoring provision for engines that do not require mandatory certification and is based on:

- Performance tests consistent with the criteria in §60.4243(c)(2), and
- Operator defined O&M procedures consistent with the General Provision requirements of §60.11(d) and §63.6(e)(1).

Engines certified under a voluntary program, uncertified engines, and reconstructed/modified engines (i.e., engines affected under §60.4230(a)(3) through (a)(5)) are categories that:

- Do not have a certification legacy in the mobile/nonroad sector;
- Are more typically used in industrial applications where manufacturers cannot match industry experience regarding operation and maintenance practices; and,
- Are also more likely to require emission tests under state programs.

Thus, INGAA strongly believes that compliance demonstration based on performance tests and operator O&M is both warranted and provides a better and clearer assurance of compliance for the *actual, practical life* of the engine. Additional discussion on the INGAA position regarding O&M requirements and the basis for including an owner/operator defined alternative – exclusive of manufacturer approval – are in Comments 2, 6 and 31 and in the text below.

To implement this approach, Proposed Rule sections that address owner/operator requirements need to be revised. INGAA suggests revisions to the following sections:

- §60.4234 should label the current subsection as section (a) and add a new section (b). The title of this section should be changed.
- §60.4234(a) should apply to all units subject under §60.4233(a) – (c), i.e., all engines subject to mandatory certification. (Alternatively, the criteria could reference §60.4230(a)(1) and (a)(2)). For affected units under §60.4233(d) and (e) (i.e., certification is not mandated), an owner/operator would have the option to comply with §60.4234(a) or §60.4234(b).
- For the new section, §60.4243(b), periodic testing and owner/operator defined O&M would be required. INGAA suggests the following text for §60.4234(b):

  > "Owners and operators of stationary SI ICE under 60.4233(d) or (e) may follow the requirements of §60.4234(a) or operate and maintain stationary SI ICE that achieve the emission standards as required in §60.4233 according to owner/operator procedures consistent with the requirements of 40 CFR 60.11(d) over the entire engine life. Compliance will also be validated based on test requirements in §60.4243(c)(2)."

- Additional revisions will be required to implement this proposed revision in sections that reference reporting and recordkeeping, etc.
- Minor revisions would also be required to implement this approach for the Subpart ZZZZ amendments. For example, items 9 and 10 of Table 7 would need to reference both manufacturer and operator defined O&M procedures.

Notably, this approach builds upon principles that are included in the proposal (i.e., periodic testing and O&M requirements with recordkeeping), and these criteria are consistent with the legacy of compliance monitoring requirements for both NSPS and NESHAPs. In addition, both domestic and international engine manufacturers have expressed similar views about the likelihood of testing and its merit for compliance assurance in the docket. (For example, see Docket Documents No. OAR-2004-0030-0047, -0040, -0098, -0120 link to Euromot's position paper). EPA has apparently discounted these positions and has not provided rationale or a

technical basis for the agency approach, other than the agency's statement that certification and manufacturer O&M do not impose a burden. As discussed in the comments below, INGAA does not believe that EPA has properly accounted for the costs and implementation issues associated with manufacturer O&M. INGAA believes that this requested revision to the rule is consistent with the intent of requirements within the proposal, as well as the legacy of compliance monitoring criteria for affected industrial combustion sources under either Part 60 or Part 63. Importantly, it also reduces ambiguity and compliance uncertainty in the Proposed Rule, and provides owners/operators a compliance monitoring approach that may be preferred in many cases.

4. The proposal frequently references mobile source and nonroad standards, which are unfamiliar to the affected community and related industry support infrastructure and also add unnecessary ambiguity. EPA should eliminate or limit such references and include pertinent regulatory criteria and requirements within the Part 60 and Part 63 regulations, rather than including by reference.

The Proposed Rule includes unnecessary ambiguity and uncertainty caused by frequent references to mobile / nonroad standards. Apart from the engine manufacturers, these standards are unfamiliar to the affected stakeholders, including owner/operators, support infrastructure for operators such as third party service providers, and the implementing state and local agencies who do not regulate mobile sources. EPA should avoid regulatory ambiguity by integrating pertinent sections into the rule and avoid sweeping references to vast expanses of code and many-layered mobile source requirements.

Throughout the Proposed Rule, references are included to sections of mobile / nonroad standards, including Parts 90, 1048, 1068 and others. While these references may be warranted in limited cases specific to certification, their use should be limited. For example, in one especially onerous reference in §60.4243(a) EPA indicates that operators of certified engines,

> "…must also meet the requirements of 40 CFR parts 90, 1048, and/or part 1068, as they apply to you."

This citation and additional references therein refer to hundreds of pages of the Code of Federal Regulations, and such ambiguity is unwarranted – especially when it pertains to mobile source regulations that are unfamiliar to operators and implementing agencies. In addition, other Proposed Rule provisions, such as definitions, refer to mobile source sections which in turn reference other sections. In some cases these citations are only appropriate for a "certification" context and introduce confusion for sources that may constitute the vast majority of affected units under Subpart JJJJ – where certification is voluntary. Again, this regulatory ambiguity is unwarranted and sorting through a myriad of unfamiliar, layered regulations to determine a limited number of pertinent sections further burdens stationary engine operators.

The final rule should be revised to limit references to mobile source standards. Where reference to mobile/nonroad standards is necessary, EPA should include the specific provisions (e.g., subsections or definitions) that apply, and limiting context (e.g., applicability for certification tests) should be explained. Broad or layered references should be deleted to avoid regulatory ambiguity and uncertainty.

5. By modeling the rule after mobile source standards, EPA has unnecessarily added complexity that is unusual for New Source Performance Standards for stationary sources, including:

a. Regulation of equipment much smaller than typical for Part 60 standards.

b. Incorporation of related nonroad standards into a stationary source standard, such as the General Compliance Provisions for Nonroad Engines, which are foreign to stationary source operators.

c. Introduction of mobile source concepts such as "useful life" which include time constraints (e.g., run time of *LESS THAN ONE YEAR*) related to mobile operation and suggest inappropriate limitations for engines at stationary sources.

EPA has chosen to model the Proposed Rule after mobile source/nonroad regulations. While this may be an expedient approach for rule development and has a parallel for liquid-fuel engines, it is very troubling for natural gas-fired engines, which do not have a mobile source certification analogue and have a prevalence as principal components in industrial applications rather than as tangential operations such as diesel engines in auxiliary power applications. This "model" for the Proposed Rule has not been well substantiated by EPA staff, who have indicated that the agency "believes" this approach is simple and less burdensome – but has provided little factual basis for such an assertion. It also has introduced requirements and regulatory interpretations that add complexity for stakeholders that are familiar with NSPS standards for other types of stationary combustion equipment.

It is not apparent that EPA has considered these issues in developing the standard, and INGAA is concerned that an array of unforeseen implementation issues could arise in translating the mobile source criteria to stationary source applications. Examples include:

- The Proposed Standard captures very small units compared to most Part 60 standards and a minimum threshold should be considered.
- The Proposed Standard layers mobile source requirements with similar Part 60 requirements. These mobile legacy provisions, such as the General Provisions and testing requirements for Nonroad Engines, are foreign to stationary source operators.
- The Proposed Standard introduces mobile source concepts such as "useful life" that are inappropriate for stationary sources and may cause confusion regarding operating life and out-year compliance certification for stationary IC engines.

Size of Affected Units

Many stationary IC engine operators are also familiar with operation of other combustion sources that are affected units under Part 60, such as combustion turbines and boilers. For Subparts GG and KKKK, the smallest combustion turbine regulated is 10 MMBtu/hr (approximately 1000 horsepower (hp)). Under Subpart Dc, the smallest boiler regulated is 10 MMBtu/hr. In contrast, proposed Subpart JJJJ and Subpart ZZZZ amendments will affect every IC engine, regardless of size. To avoid implementation problems, the Proposed Rule should be revised to include a minimum size threshold for gas-fired units without mandatory certification

or a threshold which does not require *any action* other than the initial manufacturer certification (i.e.., no owner/operator requirements such as recordkeeping or General Provision requirements).

EPA apparently presumes that since small units are regulated based on a manufacturer certification program, that there will be minimum burden on the owner/operator. However, there are issues related to the proposal that could prove to be extremely burdensome over time. For example, stationary source engines will typically have a lifetime greatly exceeding the typical life of a mobile source. Since the manufacturer emissions certification is only valid for a period of time (the useful life – as discussed elsewhere in these comments), States and local agencies may be compelled to institute additional compliance requirements for stationary engines that remain operational for longer periods. Since the Proposed Standard is silent on the issue of longer term compliance, it leaves open the possibility that disparate requirements will develop across the U.S. While it is unlikely that a future compliance test would be required for all engines, since the proposal does not clearly address out-year compliance, ongoing compliance is left as an implementation issue for other agencies and the owner/operator to address.

In addition, as affected units, small units at minor sources may need to be addressed under state minor NSR program requirements – many of which require units subject to NSPS to be permitted. When included in the permit, questions regarding long term compliance certification and other requirements will arise. Importantly, Part 63 reporting and recordkeeping requirements would apply to areas sources – including facilities where a single, very small engine may be the only emitting source. These recordkeeping and tangential issues will arise during implementation – and have not been considered by EPA when weighing the burden of regulating very small units. It is naïve and without merit for EPA to ignore implementation issues that will emerge, and EPA should more thoroughly substantiate including all engines as affected units under Subpart JJJJ and Subpart ZZZZ or develop an alternative that clearly limits requirements for small units. Without exclusion from regulatory burden associated with ongoing compliance, reporting, and recordkeeping, EPA should complete an analysis that weighs the environmental benefit along with considering costs for recordkeeping and to address ongoing implementation issues – especially for smaller engines. Currently, analysis is not available that properly considers compliance costs and weighs the costs relative to the potential benefit.

Layered Requirements from Mobile Source Rules

In general, many stationary source operators have existing experience with conforming to Part 60 requirements, including requirements associated with the General Provisions, and the Appendix A testing requirements. The Proposed Rule includes numerous references to mobile source standards for nonroad engines and mobile engines, and, in Comment 4, INGAA recommends revising the rule to limit such references. These requirements are often associated with the manufacturer certification program, but also overlay into owner/operator requirements. The complexity and burden introduced by this is difficult to estimate at this time, but EPA should not ignore the likely expense and increased possibility of noncompliance from administrative detail associated with competing requirements from mobile source rules that are foreign to stationary source operators. EPA should closely examine this issue, and, lacking clarification in regard to applicable requirements from the referenced mobile source regulations, prepare an analysis that clearly identifies costs for owner/operator requirements related to issues such as General Provision and testing criteria based on Part 60 or Part 63 versus mobile source standards.

Application of Mobile Source Concepts such as "Useful Life"

The Proposed Standard introduces mobile source concepts that are problematic for stationary source engines. A primary example is the "useful life" of an engine, as discussed in Comment 2. For engines with frequent operation in stationary source applications, the "useful life" can be as little as eleven months. Since most stationary source applications do not have a duty cycle and use profile analogous to mobile applications, these definitions imply a limitation that is inappropriate for stationary engines. In addition, since the Proposed Rule is silent on requirements after the "useful life", it raises the likelihood that State and local agencies will attempt to backfill implementation issues associated with ongoing compliance for this equipment – or attempt to limit engine operation past its "useful life."

It appears that the basis for including this criterion in the Proposed Rule is to afford manufacturers a consistent program for certification of mobile or stationary engines. However, EPA has failed to consider the likelihood of future complexity and implementation issues associated with such a program. This omission comes at the expense of the owner/operator and other agencies that will need to continue to address these implementation issues in the years ahead. As discussed above, EPA should more carefully consider the implication of integrating mobile source requirements into a stationary source standard, including the burden, confusion, and complexity that will arise during implementation.

6. Requirements that owners/operators must follow manufacturer operating and maintenance (O&M) procedures for uncertified engines is onerous – especially when considering that IC engine operators often have existing O&M practices that may differ from vendor recommendations but are designed to address the specific challenges and rigor of the application.

INGAA strongly opposes the Proposed Rule requirement to follow manufacturer O&M procedures, regardless of the engine certification status. At a minimum, engines that do not include mandatory certification in Subpart JJJJ should be allowed to follow procedures defined by the owner/operator. As discussed in Comments 2 and 3, owner/operator defined O&M consistent with existing General Provision requirements should be accepted for compliance monitoring in conjunction with performance tests. The following are important issues regarding O&M requirements:

- Both Part 60 and Part 63 include O&M criteria in the General Provisions and it is not necessary to layer additional requirements.
- While manufacturer recommendations may be more appropriate for "consumer product" applications (e.g., EPA provides an example of "wood stoves"), "generic" manufacturer specifications are not appropriate for the wide range of industrial process applications, where the owner/operator has insight and expertise that can not be emulated by the manufacturer.
- The manufacturer only has emissions responsibility for the "useful life", which is as little as 11 months, yet the O&M requirements apply for the engine life, which will be measured in years or decades. The dramatic difference between "useful" and "actual" life for stationary engines and manufacturers' unwillingness to support a longer "useful life" indicates that manufacturers have limited insight into long-term O&M issues.

- The proposed requirements will impose an unnecessary cost burden that EPA has not considered by ignoring industry practices that include assessing operational status in maintenance and repair decisions.
- Manufacturer O&M procedures may have some merit for established certification programs, but most engines affected by the Proposed Rule do not have a mobile/nonroad certification analogue, and in-use issues related to location (e.g. high altitude, extreme climates), application, and fuel quality can impact the viability of manufacturer specifications or the manufacturer's ability to adequately address the application challenges.
- For certified engines, O&M requirements are the only criteria associated with ongoing compliance assurance – i.e., O&M and associated recordkeeping is the "compliance monitoring" criteria for the standard. As discussed in a subsection below, it is inappropriate for EPA to cede this authority to manufacturers.
- Approval authority for alternative monitoring or testing is typically retained by EPA. For example, delegation authority for changes in compliance monitoring is defined in §63.90. Alternative O&M procedures under the Proposed Rule are authorized by the manufacturer. It is inappropriate for EPA to cede this authority to companies that can potentially benefit from the practices that are defined. This issue is discussed further in a section at the end of this comment.
- There is no guarantee that manufacturers will reasonably consider O&M alternatives, which limits operator options. In fact, concerns about corporate liability may preclude manufacturers from considering alternatives.
- It is naïve for EPA to assume that market forces will correct inequities in manufacturer criteria, as the U.S. engine market is limited to two primary companies for natural gas-fired units.
- For natural gas-fired engines, multiple parties are typically involved in siting equipment, and third party packagers are often responsible for the field installation. This could complicate defining O&M requirements and the need for field adjustments, and the effect of this cannot be reasonably estimated at this time.
- For rich burn natural gas-fired engines with post-combustion control, i.e., nonselective catalytic reduction (NSCR), the roles and primary responsibility of the different parties have not been considered by EPA and are not defined.
- Catalyst vendors have proven that O&M specifications will be over-prescribed and unnecessary in some cases. For example, RICE MACT development included catalyst vendor recommendations for operating parameter monitoring that were ineffective and unnecessary, and technical comments provided by INGAA contributed to revisions and deletions in the final rule. The lack of technical merit in the vendor prescribed procedures for the RICE MACT proposal should serve as a warning in regard to their abilities to responsibly define O&M procedures. With the Proposed Rule ceding authority to the vendor, there is no right of appeal for operators.
- Examples are available in state permits that address O&M requirements for IC engines. Some of these examples are presented later in this comment.

INGAA will not elaborate on each of these concerns, as we believe that the concern and objection are apparent and many are discussed elsewhere in these comments. It is not apparent that EPA has properly considered these factors, but instead has followed a script to mimic mobile/nonroad standards without thoughtful consideration of the implications.

It is imperative that EPA consider that engine manufacturers may understand their product, but they cannot understand or appreciate the intricacies and operational demands and practices associated with the range of industrial applications for their engines. Nor can it reasonably be expected that manufacturers can craft specifications that consider industry-specific issues. In addition, they do not understand the regulatory paradigm associated with compliance and enforcement for stationary source engines in industrial processes. To address uncertainties associated with the array of applications, in some cases manufacturers may be overly conservative, simplistic, or even mistaken in the O&M procedures that they define – thus adding unnecessary burden and potentially introducing safety concerns. As noted above, this was evident in the existing RICE MACT rule proposal, where catalyst vendor recommendations for system monitoring (i.e., monitoring associated with catalytic control) were proven to include recommendations that were ill-conceived, improper, and without technical merit. Ultimately, several vendor recommendations were removed from the rule or revised.

Industry has experienced similar problems with vendor/manufacturer specifications, and this is particularly troubling because vendors are the absolute authority with no referee in the process under the Proposed Rule. In an extreme – but not improbable scenario – some vendors may choose to under design equipment with the intent of addressing it through over prescriptive and costly O&M requirements. INGAA concern is not an indictment of engine manufacturers, but rather a broader concern regarding the multiple parties that can assume the role of "manufacturer" through this rulemaking – i.e., engine manufacturers, air pollution control equipment manufacturers, and third party packagers.

The issue of third party packagers requires special consideration by EPA – as packagers play an instrumental role in the "market" that serves natural gas transmission and other industrial sectors. EPA has not considered this factor, which has obvious implications for both certification and definition of O&M procedures, as well as rule implementation. Some comments and background regarding packagers include the following:

- A compressor horsepower "package" includes a separable, medium to high speed engine directly coupled to a separable compressor. The package design would also include after-treatment technology (as needed).
- The packagers perform a *significant amount of engineering, design and construction* to complete the skid for installation.
- Purchase Orders for this type of new compressor horsepower are negotiated between the owner/operator and the packager – not the engine manufacturer.
- Packagers are not a simple "pass through" entity regarding emissions guarantees.
  - *Packagers may have to alter engine controls* to be compatible with station controls;
  - *Packagers may have to alter engine controls to accommodate post treatment*.
- Packagers have responsibility for control of the entire "skid" (module) including the engine, compressor, and after-treatment if necessary. Importantly, the packager must ensure that "skid" controls are compatible with station and/or facility controls.
- Packagers used by the interstate pipeline industry have NO experience with the "certified" engine concept/approach or O&M approach to compliance monitoring.

- Packagers feel they are responsible for guaranteed emissions from new compressor horsepower packages.
- Packagers typically serve as the point of contact for new engines. They object to owners/operators going directly to engine manufacturers with issues concerning new engine packages.

The industry standard for siting new spark ignition engines includes these third party packagers. Clearly, EPA has not considered the implication of this market structure. In addition, activities typically performed by packagers related to field "adjustment" are apparently *precluded* for certified engines. Finally, the integration of packagers into this rule, their responsibility and role, and the impact that role would have on defining "manufacturer" O&M procedures have not been considered by EPA. This has important implications on the plausibility of "manufacturer defined O&M" as an underpinning of compliance monitoring criteria in the Proposed Rule. This issue alone warrants a compliance path that includes owner/operator defined O&M as an acceptable approach for the NSPS and NESHAP. Without operator defined O&M procedures included as an acceptable approach, EPA must examine this issue and develop a resolution. Once again, there are cost implications that have not been considered in the Proposed Rule.

It is well established that many industrial operators have existing procedures that are designed specific to the industrial process that consider unique operating, safety, or maintenance issues. In some cases, the manufacturer's recommendations may not be sufficient or may conflict with site demands, reasonable industry practices, and even process safety. In other cases, the owner/operator may have inspection processes in place to identify maintenance needs that may differ from a generic procedure developed by the manufacturer to cover the breadth of industry with an adequate margin of "safety" to limit the manufacturer's risk exposure. It is unreasonable to mandate that owners/operators abide by the written procedures of the vendor and ignore the experience, expertise, and company policies that are integral to industrial equipment operation. There are examples from State permits that consider this issue for IC engines.

For example, text from a Colorado permit references a maintenance plan and indicates:

- These engines shall be operated and maintained in accordance with the manufacturer's recommendations, Company's internal policies, and industry standards. Maintenance activities are typically performed based on the number of "fired hours" or as indicated by engine analysis results.
- Records of all maintenance and overhauls performed on the engines will be maintained.

This example indicates that on-site inspection and analysis is integral to maintenance decisions. In addition, the following example text is included in Alaska Title V permits:

> Good Air Pollution Control Practice
>
> The Permittee shall do the following for Emission Unit ID(s) [insert ID number]:
>
> a. perform regular maintenance considering the manufacturer's or the operator's maintenance procedures;

b. keep records of any maintenance that would have a significant effect on emissions; the records may be kept in electronic format;

c. keep a copy of either the manufacturer's or the operator's maintenance procedures."

Both of these examples acknowledge that control over operational decisions should not reside solely with the manufacturer, while ensuring that proper procedures are followed and significant maintenance activities are documented.

INGAA recommends that EPA revise the O&M requirements in the Proposed Rule consistent with the approach discussed in Comments 2 and 3.

INGAA is also concerned that EPA has improperly ceded approval authority for compliance assurance provisions to a third party (i.e., through manufacturer control over O&M requirements). This important issue is discussed further here.

The Proposed Rule Would Unlawfully Delegate Responsibility for Developing O&M Requirements to Engine Manufacturers

As part of the Proposed Rule, EPA requires owners/operators to conform to manufacturer recommended O&M procedures or an operator-developed alternative procedure if it is "approved by the manufacturer." EPA's proposal thus subdelegates its statutorily-imposed responsibility for developing such rules and regulations to engine manufacturers. EPA's proposed subdelegation is (1) impermissible because it lacks express congressional authorization to subdelegate its rule-making authority, (2) contrary to the express statutory language of the Clean Air Act, and (3) violates the nondelegation doctrine.

EPA's Proposal Impermissibly Delegates Rule-Making Authority to a Private Entity Absent Express Congressional Authorization. EPA's proposal to delegate its statutorily-imposed responsibility to establish NSPS and NESHAP rules to engine manufacturers is impermissible because the Clean Air Act ("CAA") does not provide an express congressional authorization for such a subdelegation. Federal agencies may not subdelegate rule-making authority to private entities "absent affirmative evidence of authority to do so." *United States Telecom Ass'n v. FCC*, 359 F.3d 554, 566 (D.C. Cir. 2004). Where Congress has delegated rule-making authority to a federal agency, subdelegation of that authority to a subordinate federal agency is presumptively permissible absent affirmative evidence of a contrary congressional intent. *See United States v. Giordano*, 416 U.S. 505, 512-13 (1974). However, the courts consistently have held that there is no such presumption in the context of subdelegations to outside parties. *See United States Telecom*, 359 F.3d at 565 ("[T]he cases recognize an important distinction between subdelegation to a subordinate and subdelegation to an outside party."); *see also Shook v. District of Columbia Fin. Responsibility & Mgmt Assistance Auth.*, 132 F.3d 775, 783-84 (D.C. Cir. 1998). While a federal agency may rely on outside entities for certain functions, e.g., fact gathering or policy recommendations, an agency may not subdelegate its *decision-making authority* to any outside entity absent express congressional authorization. *United States Telecom*, 359 F.3d at 565-66.

Thus, a critical distinction exists between an agency's authority to subdelegate decision-making authority to its subordinates and outside entities. This distinction reflects several important

considerations. When a federal agency delegates its statutorily vested rule-making authority to its subordinate, responsibility—and thus accountability—clearly remain with the federal agency. *Id.* at 565. However, when an agency delegates its decision-making power to outside parties, "lines of accountability may blur, undermining an important democratic check on government decision-making." *Id.* Moreover, a private entity, because of its inherently private interests, may not share a federal agency's "national vision and perspective," *Nat'l Park and Conservation Ass'n v. Stanton*, 54 F. Supp. 2d 7, 18-20 (D.D.C. 1999), and thus "may pursue goals inconsistent with those of the agency and the underlying statutory scheme." *United States Telecom*, 359 F.3d at 566. As a result, subdelegation to outside entities "aggravates the risk of policy drift inherent in any principal-agent relationship." *Id.* Accordingly, courts have adopted a stricter rule regarding subdelegations to private entities than for those to agency subordinates and determined that an agency may not subdelegate its rule-making authority to a private entity absent express authorization. Therefore, EPA may not delegate its responsibility to establish NSPS and NESHAP requirements to engine manufacturers absent express statutory authorization to do so.

EPA's delegation of responsibility for establishing O&M requirements to engine manufacturers is not expressly permitted by the CAA. To the contrary, the statutory language of the CAA vests such authority in the EPA. The relevant NSPS provisions of the CAA state that the "*Administrator* shall . . . propose regulations establishing standards of performance . . . ." 42 U.S.C. § 7411(f)(1) (emphasis added). Similarly, the relevant NESHAP provisions state that "[t]he *Administrator* shall promulgate regulations establishing emission standards for each category or subcategory of major sources and area sources of hazardous air pollutants . . . ." 42 U.S.C. § 7412(d) (emphasis added). The express language of the CAA thus evinces Congress' unambiguous intent to vest responsibility for promulgating NSPS and NESHAP requirements in EPA. Nothing in the text of these provisions, or the CAA more generally, permits EPA to delegate its responsibilities to a private organization. As a result, EPA may not subdelegate its rule-making authority to private entities such as engine manufacturers.

EPA's Proposal Is Not Entitled to *Chevron* Deference**.** Contrary to EPA's suggestion, its proposal is not entitled to deference under *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984). Under *Chevron*, the first question in determining the permissibility of an agency's interpretation of a statute always is "whether Congress has directly spoken to the precise question at issue. If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress." *Id.* at 842-43. Therefore, because the statutory language of the CAA is unambiguous, EPA has no choice but to "give effect" to the unambiguously expressed intent of Congress. Accordingly, any EPA proposal which is contrary to the language of and intent underlying the CAA must be rejected. *See, e.g.*, *Natural Resources Defense Council, Inc. v. EPA*, 966 F.2d 1292, 1305 (9th Cir. 1992) (rejecting EPA rule permitting regulated industrial stormwater dischargers to "self-report" as to whether or not they needed permit coverage as an "impermissible alteration to the statutory scheme"); *Env't Defense Ctr., Inc. v. NRDC*, 344 F.3d 832 (9th Cir. 2003) (rejecting general permitting aspects of rule subjecting storm sewer discharge to NPDES regulations because it did not require EPA to review the content of the dischargers notices of intent and did not permit public participation in the NPDES permitting process).

Despite EPA's insistence to the contrary, the CAA's silence on the subdelegation issue does not impliedly evince Congress' intent to permit such a subdelegation. Rather, the well-established rule is that a general congressional delegation of decision-making authority to a federal administrative agency does not implicitly include the power to subdelegate that authority beyond federal subordinates. *See United States Telecom*, 359 F.3d at 566. Far from permitting EPA to subdelegate its rule-making authority to private entities, the CAA's statutory silence instead bears mute witness to Congress' intent to entrust EPA, and EPA alone, with this responsibility. *See Railway Labor Exec. Ass'n v. Nat'l Mediation Bd.*, 29 F.3d 655, 671 (D.C. Cir. 1994) ("Were courts to presume a delegation of power absent an express withholding of such power, agencies would enjoy virtually limitless hegemony, a result plainly out of keeping with *Chevron* and quite likely with the Constitution as well."). *See also Touby v. United States*, 500 U.S. 160, 161 (1991) (permitting Attorney General to subdelegate power to temporarily designate and schedule controlled substances to DEA only because the implementing statute expressly authorized such a subdelegation). Neither does the CAA's statutory silence create a statutory ambiguity that triggers the second prong of the *Chevron* analysis. *See United States Telecom*, 359 F.3d at 566 ("[S]tatutory 'silence' simply leaves that lack of authority untouched. In other words, the failure of Congress to use 'Thou Shalt Not' language doesn't create a statutory ambiguity of the sort that triggers *Chevron* deference.")

EPA's proposal thus must be rejected as contrary to the unequivocal language of the CAA and clear intent of Congress. By assigning responsibility for establishing O&M standards to engine manufacturers, EPA has failed to faithfully discharge its obligations under the CAA, i.e., its duty to "establish[]" NSPS and NESHAP standards. By assigning this task to an outside entity, EPA has turned its back on Congress' clear command that EPA, and only EPA, assume this responsibility. EPA's proposal fails to "give effect" to the intent of Congress and thus should be rejected under *Chevron*.

Even assuming *arguendo* that Congress' intent was uncertain, EPA's delegation would nonetheless be impermissible as it is arbitrary and capricious on its face. Where Congress has "left a gap for the administrative agency to fill," an agency's interpretation of a statute or promulgation of implementing rules and regulations must be rejected if it is "arbitrary, capricious, or manifestly contrary to the statute." *Defenders of Wildlife v. Browner*, 191 F.3d 1159, 1162, *amended by* 197 F.3d 1035 (9th Cir. 1999) (citations and internal quotations omitted). Such is the case here. EPA's proposed delegation is arbitrary and capricious on its face because it fails to ensure that the requirements established by manufacturers conform to and advance the manifest intent of the CAA.

By delegating all responsibility over O&M rules to engine manufacturers, EPA has failed to retain the authority to review, monitor, or in any way control the requirements adopted by manufacturers. As such, EPA cannot ensure that the rules actually adopted by engine manufacturers comport with the CAA's statutorily-mandated criteria. Indeed, EPA's proposal provides no substantive guidelines whatsoever to steer or limit the discretion of manufacturers. EPA essentially has washed its hands of the matter, leaving all responsibility for adopting O&M requirements in the hands of an interested, private entity. This is especially disturbing since engine manufacturers have a conflict of interest with regard to the nature and scope of O&M requirements to be established. No competitive motive to act reasonably exists due to there

being so few engine manufacturers. Because EPA has abandoned its statutorily-imposed obligations in this regard, its proposal is arbitrary and capricious and, therefore, must be rejected.

EPA's Proposal Violates the Nondelegation Doctrine Because It Fails To Limit the Discretion of Engine Manufacturers According to Any "Intelligible Principle." EPA's proposal also runs afoul of the "nondelegation doctrine." Even if EPA were permitted to subdelegate its rule-making authority to a private entity, its delegation here is impermissible because it fails to provide an "intelligible principle" to guide and limit the discretion of engine manufacturers. *See, e.g.*, *Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457, 472-73 (2001) (holding that delegation of decisionmaking authority is permissible only where "an intelligible principle to which the person or body authorized to [act] is directed to conform" is provided (quotation and citation omitted) (alteration in original)). Because the scope of EPA's delegation is so substantial, the precision of EPA's delegation must be correspondingly more precise. *See, e.g.*, *Michigan v. EPA*, 213 F.3d 663, 680 (D.C. Cir. 2000) ("When the scope [of the delegation] increases to immense proportions, . . . the standards must be correspondingly more precise." (internal quotations and citations omitted)). EPA, however, has failed to provide manufacturers with any guidance and its proposal in no way limits their discretion. As a result, EPA's O&M proposal is unlawful.

EPA's delegation also casts constitutional doubt on any O&M requirements that manufacturers may establish. As the Supreme Court has repeatedly held, Congress' delegation of rulemaking authority is permissible only if it "clearly delineates the general policy, *the public agency which is to apply it*, and the boundaries of this delegated authority." *American Power & Light Co. v. SEC*, 329 U.S. 90, 105 (1946). By handing over its statutorily-imposed responsibility to establish NSPS and NESHAP requirements to engine manufacturers – that is, to interested, private entities – EPA ignored and contravened a constitutionally-required aspect of Congress' delegation of rule-making authority. Congress' delegation of authority to EPA in the CAA is constitutionally permissible only because it unambiguously vested authority in a particular public agency. EPA's delegation of that authority to a private entity is contrary to this constitutionally-significant requirement and thus casts doubt upon the constitutionality of this significant element of EPA's proposal.

NSPS and NESHAP Link:

7. **The NESHAP and NSPS should be better harmonized. For units affected by both standards, this can best be accomplished by identifying the regulatory criteria in the NSPS, with the NESHAP simply stating that compliance with the NSPS fulfills NESHAP requirements. Alternatively, EPA could choose not to adopt a NESHAP, based on an analysis that concludes that the emission criteria are being addressed in the NSPS and no additional requirements are warranted. For this approach, one possible exception is the class of new and reconstructed 4-stroke lean burn engines at major sources, which require controls analogous to the current RICE MACT.**

The added complexity, uncertainties, and compliance burden and risk associated with duplicative and redundant regulatory provisions, applied to a very large population of affected equipment, significantly adds to the cost of implementation, recordkeeping, reporting, compliance liability, and source obligations. The unintended burden resulting from the consolidated rule can result in overlapping and redundant compliance requirements. INGAA recommends that NSPS

compliance can serve as NESHAP compliance for the vast majority of units affected by the proposed amendments to Subpart ZZZZ. EPA should revise the Proposed Rule by simplifying the NESHAP through citation of Subpart JJJJ as the basis for compliance, and clearly indicating that Part 63 General Provisions do not apply.

The NSPS and NESHAP compliance obligations should be thoroughly assessed and streamlined. As currently proposed, a new 500 horsepower engine subject to both the NSPS and NESHAP are also subject to the separate and respective Part 60 and Part 63 General Provisions (Subpart A). Similar to the concerns raised in referencing the mobile source standards and myriad of compliance requirements, EPA at a minimum should review the general provisions, notifications, performance test requirements, recordkeeping, monitoring, and reporting obligations and simplify these to a single unified set of provisions.

Clearly defined and concise requirements ease the burden of compliance, minimize risk, and reduce the burden to the source. Further, reduction or elimination of superfluous requirements aids in State or local agency implementation and minimizes the paperwork burden for stakeholders. With the breadth of this rulemaking (i.e., all engines regardless of size), these stakeholders include a multitude of parties with varying levels of sophistication in regulatory compliance, including individuals, small businesses, educational and nonprofit institutions, industrial facilities of all sizes, Federal contractors, and State, local and tribal governments. The breadth of affected parties and impact of overly burdensome and duplicative requirements will be broad reaching. INGAA could not find evidence in the docket that EPA properly considered the recordkeeping and reporting costs imposed – and conflicts for NSPS versus NESHAP. For example, Part 63 General Provisions apply for area sources and recordkeeping and reporting can introduce a large burden especially for small sites whose affected equipment includes only one small engine. The cost – benefit relationship for these scenarios, which are not discussed in the docket or preamble, must be considered.

Rule revision should focus on streamlining the proposed NESHAP amendments and alleviating unnecessary regulatory complexity. The table below presents an example summary of compliance requirements for a new uncertified four stroke lean burn 400 horsepower engine at an area source operating greater than 100 hours per year and subject to both the NSPS and NESHAP. The criteria in the table would apply to many other engine types affected by the Proposed Rule. As illustrated in the table below, the source obligations for a single engine subject to both the NSPS and NESHAP consolidated rulemaking are extensive and duplicative. INGAA provides the table to illustrate comparisons, but the table is not intended to be complete or all-inclusive. EPA has a responsibility to evaluate the costs and impacts associated with the regulation – including the General Provisions and duplicative requirements therein. In addition, this table does not consider the additional duplication of "general requirements" associated with broad reference to mobile source standards (see Comment 4).

Comparison of Requirements for a New 4SLB, Less than 500 hp, Non-Emergency SI RICE at an Area Source Operating More than 100 Hours per Year

Compliance Requirements	40 CFR 60, Subpart JJJJ Spark Ignition IC Engine NSPS	40 CFR Part 63, Subpart ZZZZ RICE MACT
Initial Notification	NONE §60.4245 (c)	Provided within 120 days after the source became subject to ZZZZ §63.6645 (g)
Notification of Startup	Within 15 days – Subpart A, General Provisions §60.7	Within 15 days – Subpart A, General Provisions §63.9
	Same as Subpart ZZZZ JJJ Table 1	**Same as Subpart JJJJ** ZZZZ Table 3 line 3
***Identical* Emission Limits**	Comp. Date / NMHC (g/bhp-hr) 1/1/08 / 1 1/1/11 / 0.7	Comp. Date / NMHC (g/bhp-hr) 1/1/08 / 1 1/1/11 / 0.7
Operating Limits	None	None
Performance Tests	Initial performance test within **120** days of startup thereafter each major repair, maintenance, or rebuild.	Initial performance test within **240** days of startup; following rebuild or major repair or maintenance
Operating Requirements	Undefined	100 percent load ±10% - ***Consistent with RICE MACT*** 63.6620 (b)
Test Notification	Written notification of intent to conduct performance testing **30** days prior to testing §60.8 (d)	Written notification of intent to conduct performance testing **60** days prior to testing §63.7 (b)(1) & §63.9 (e)
Test Plan		Site-specific plan approval 60 days prior to testing §63.7 (c)(2)(i) & (iv)
Blind Audit	None	Blind audit sample analysis
Monitoring		
Operating Hours	No	Yes §63.6625(d)
Annual Fuel Usage	None	None
Recordkeeping		
Applicability		Yes
Notifications	Yes §60.4245 (a)(1)	Yes §63.665 (a)(1)
Compliance Status Reports		Deviation Reporting if the Source is Located at a Title V facility
Maintenance records	Maintenance conducted on the engine §60.4245 (a)(2)	
Performance Tests	Yes §60.4245 (a)(4)	Yes §63.665 (a)(3)
Startup, Shutdown, Malfunction Plan	No	Develop a SSM Plan §63.6 (e)(3)
Reporting		
Compliance report		Deviation Reporting if the Source is Located at a Title V facility
Performance test report	Within 30 days of testing §60.4245 (d)	Within 60 days of testing §63.6645 (j)(2)

In previous discussions with INGAA, EPA indicated that consolidating the NSPS and NESHAP rules would provide simplicity and that an NSPS compliant engine would be in compliance with

the NESHAP. While this may be true for many engines in regard to emission limits, it is not the case for many other requirements. To eliminate redundancies, duplicative requirements, and streamline the consolidated rule, EPA should add text within the proposed NESHAP, for the appropriate engine categories, stating that:

> "Compliance with 40 CFR 60, Subparts JJJJ and A satisfies the requirements of 40 CFR Part 63, Subpart ZZZZ and the Subpart A General Provisions".

Alternatively, EPA could elect to conclude that the NSPS Subpart JJJJ is adequate to meet the emission criteria being sought under the NESHAP and forego regulation and additional regulation. This position is strongly supported within the NSPS based on the requirements that regulate NMHC as a surrogate for HAPs. This conclusion could be further supported by an analysis demonstrating that the NSPS levels achieve the desired NESHAP emission limits. One exception remains and can be easily satisfied by retaining the existing RICE MACT Subpart ZZZZ emission limits of 93% carbon monoxide reduction or 14 ppmvd formaldehyde (at 15% O_2) for new or reconstructed 4-stroke lean burn engines between 250 and 500 hp. This category of engine would require oxidation catalyst and compliance monitoring requirements analogous to current RICE MACT. With this approach, the NESHAP amendments would revise the applicability threshold for 4-stroke lean burn engines at major HAP sources, and no other changes would be needed – as the NSPS requirements would support a conclusion that a NESHAP is not necessary for area sources or smaller engines at major sources.

8. EPA implies that the NSPS requirements result in little additional impact under the NESHAP. This fails to recognize onerous reporting and recordkeeping requirements in the General Provisions for Part 63. EPA should clarify that Part 63 reporting and recordkeeping do not apply – or conduct additional background analysis that considers the costs and associated benefit associated with the NESHAP criteria triggered for engines regardless of size.

A new or reconstructed engine subject to both the NSPS and NESHAP is also subject to the separate and respective General Provisions sections of both Parts 60 and 63 Subpart A. Similar to the concerns raised regarding cross referencing the mobile source standards and their respective myriad of compliance requirements, EPA should state that Part 60 Subpart A General Provisions contain adequate compliance requirements for **area** sources and specifically exempt Part 63 Subpart A, General Provisions and NESHAP ZZZZ recordkeeping and reporting requirements. Alternatively, as discussed in Comment 7, EPA can revise the Proposed Rule so that there are not NESHAP requirements for NSPS compliant engines.

In Comment 7, duplicative requirements associated with the General Provisions are shown. EPA should provide an analysis of the cost and benefits associated with these reporting and recordkeeping activities. The added burden and increased compliance exposure resulting from maintaining acceptable records, meeting reporting dates and requirements, and a paper trail suitable for compliance demonstration and enforcement protection is presently unjustified.

In other instances, EPA has considered that burdensome regulatory requirements are not warranted. For example, Title V permitting is addressed for area sources. The preamble states

that Title V permit requirements are not expected to result in compliance assurances beyond the NSPS and NESHAP:

> "Also, title V would not result in significant improvements to compliance with the standard for these area sources because the CAA section 111 and 112 standards themselves contains adequate compliance requirements for these area sources, consistent with the CAA, without relying on title V." (71 FR 33825)

This thoughtful elimination of duplicative requirements should also be extended to the General Provisions.

As intimated in the preamble, EPA does not expect that the NESHAP results in added burden; however, EPA fails to adequately examine the cost of extending multiple provisions (e.g. Part 60 and 63 General Provisions, 40 CFR parts 90, 1048, and/or part 1068) of the rulemaking to the engine source category. Proper analysis of the cost of additional and often redundant requirements as it pertains to cost, emissions, reliability, and need for additional assurances should be undertaken.

The preamble states:

> "Similar to the SI NSPS, engines subject to the NESHAP are also required to maintain records of proper maintenance. Again, EPA does not expect this to be a burdensome requirement and thinks that, in many cases, owners and operators may be documenting this information already." (71 FR 33824)

Little if any benefit is realized through these mandatory paper tracking exercises when applicability under both the NSPS and NESHAP results in different reporting criteria. As discussed in Comment 7, EPA has not properly considered comparative requirements, and the Proposed Rule should be revised to clearly indicate in Subpart ZZZZ that Part 63 General Provisions do not apply to units affected by the proposed NESHAP amendments.

9. The emergency engine definition in the existing RICE MACT (40 CFR Part 63, Subpart ZZZZ) was developed based on input and review from a broad stakeholder group. The proposed revision *does not* offer the additional benefit described by EPA and is more restrictive than the RICE MACT consensus definition. This proposed revision should not be pursued and the emergency engine definition in the current RICE MACT should be retained. If not, EPA must conduct additional analysis to properly consider the costs and impacts associated with the proposed revision – including emission and reliability issues.

EPA has not provided an adequate discussion regarding the rationale for altering the Part 63, Subpart ZZZZ consensus definition for emergency engines nor provided the supporting docket information explaining the need for a more restrictive definition for smaller area source engines. The *existing* RICE MACT definition should be retained in the final rule. If not, EPA must conduct additional analysis to properly consider the costs and impacts associated with the proposed revision – including emissions, environmental impact from minimal operations, and reliability issues.

The definition of emergency engine in the existing RICE MACT was developed based on input and review from a broad stakeholder group and defines an emergency engine as:

> *"Emergency stationary RICE* means any stationary RICE that operates in an emergency situation. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility is interrupted, or stationary RICE used to pump water in the case of fire or flood, etc. Emergency stationary RICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the manufacturer, the vendor, or the insurance company associated with the engine. Required testing of such units should be minimized, but there is **no time limit on the use of emergency stationary RICE in emergency situations and for routine testing and maintenance. Emergency stationary RICE may also operate an additional 50 hours per year in non-emergency situations**.*"* [Emphasis added]

The Proposed Rule substantially and materially alters this definition as follows:

1. Maintenance and readiness testing limited to 100 hours per year versus **no time limit on the use of emergency** stationary RICE **for routine testing and maintenance**.
2. Elimination of an **additional 50 hours** per year in non-emergency situations.
3. Requirement to **maintain documentation** for maintenance and testing operation to ensure the 100 hour per year limit is not exceeded;
4. Maintenance and readiness testing operation proviso as **recommended** by third party Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine has been introduced

§60.4243(e) includes limitations for an emergency engine as follows:

> "Emergency stationary engines may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year."

The preamble further states that:

> "There is no time limit on the use of emergency stationary engines in emergency situations, however, the owner or operator is required to record the length of operation and the reason the engine was in operation during that time. Records must be maintained documenting why the engine was operating to ensure the 100 hours per year limit for maintenance and testing operation is not exceeded." (71 FR 33813)

The same limitations and criteria are required in Part 60, Subpart JJJJ and Part 63 (proposed amendments to Part 63, Subpart ZZZZ). The revised requirements constitute a revision to the existing Subpart ZZZZ definition, thus EPA must consider the impacts of this change to the regulation. The definition in Subpart ZZZZ was thoughtfully crafted based on input from stakeholders that participated in the Industrial Combustion Coordinated Rulemaking (ICCR), including representatives from EPA, states, non-governmental agencies/public interest groups, and industry. The criteria in the definition were included with purpose, and INGAA does not

understand why this definition is being changed, especially since EPA does not provide any review or discussion that compares the proposed definition to the existing RICE MACT definition.

The preamble acknowledges a definition change; however, the preamble goes on to inappropriately infer a relaxation from the existing 50 hours per year of allowable non-emergency use to 100 hours per year for maintenance and readiness checks.

> "The above proposed requirement to limit the operation of maintenance and testing operation to 100 hours per year is different than the requirement that was finalized for stationary engines greater than 500 HP located at major sources. Currently, stationary emergency engines greater than 500 HP located at major sources are required to limit non-emergency operation to 50 hours per year. Multiple comments received during the public comment period for NSPS for stationary CI engines argued that EPA should allow 100 hours per year for emergency engines to conduct necessary maintenance and testing. Based on those comments, EPA believes it would be appropriate to propose to allow 100 hours per year for maintenance and testing operation for emergency engines." (77 FR 33813)

This analysis is misguided, and apparently is considering the Proposed Rule relative to the recently promulgated compression ignition IC engine NSPS, which was published as a final rule after the Proposed Rule was released. There is no indication that EPA conducted a proper review of the definition relative to the established, consensus definition from the RICE MACT. The current NESHAP places no restriction on the use of emergency stationary RICE in emergency situations and for routine testing and maintenance. In addition, it offers an additional *50 hours per year in non-emergency situations.* This clause was included as an outcome of the ICCR process to provide adequate time for testing of systems related to the emergency unit – for example firewater systems where engine checks are necessary, but a systems check is also required and may be completed as part of a safety exercise. EPA has confused the additional non-emergency allocation with a perceived hour restriction for annual maintenance and readiness checks:

> "Further, as discussed, based on information received since the promulgation of the NESHAP for stationary RICE greater than 500 HP located at major sources, the 50 hours per year allowance currently in that regulation would not be sufficient to address necessary maintenance, testing, and readiness operation for emergency engines, and EPA is, therefore, proposing to increase the limitation to 100 hours per year." (71 FR 33813)

This "review" of the NESHAP definition from the preamble of the Proposed Rule is simply in error. As discussed above and clearly indicated in the existing RICE MACT definition, the 50 hour increment is time *above and beyond* standard maintenance and readiness testing. The EPA is obligated to reconsider this issue and correct the analysis error evident from the preamble quote above.

It appears that EPA has generally accepted the requisite need for reasonable maintenance and readiness testing in the preamble by stating:

> "It is crucial to allow sufficient hours for maintenance and readiness testing to ensure that the emergency engine will respond as expected in the event of an emergency…" (71 FR 33183)

However, EPA overrides this stated concern by proposing a definition with increased stringency relative to the consensus RICE MACT definition without providing any justification for the change.

In addition, EPA should recall the legacy of the ICCR process. Although focused on NESHAPs, the ICCR acronym captures the intent of the process, which included coordination across NESHAP and NSPS regulations, as well as across combustor types, as part of the charter. For INGAA, it is disheartening that results of the process are not given reasonable review and consideration in the Proposed Rule. The commitment from participants, including INGAA members, included hundreds of hours of time and substantial travel commitments to participate in numerous Committee and workgroup meetings. The consensus outcomes were thoughtfully reached by a broad group of stakeholders – and the outcome of this process has been ignored by EPA in the Proposed Rule without proper consideration. More importantly, the consensus definition has been revised without EPA conducting a proper analysis that considers the impact of the revision.

Also in consideration relative to the RICE MACT, the proposed NESHAP amendments broaden the category of affected equipment to include units 500 hp and smaller and area sources. With more stringent criteria in the Proposed Rule, EPA is requiring more stringency for small engines and area sources than what was deemed necessary for larger engines under the existing RICE MACT. With Subpart ZZZZ a relatively recent rulemaking, it is unclear why increased stringency is warranted – and EPA has not made its case for this change in the preamble or docket of the Proposed Rule. This analysis should include additional justification on the need to further restrict hours of operation (beyond the consensus RICE MACT definition) for emergency engines with limited annual utilization, and properly consider the costs and benefits of the proposed requirements. Further, the added burden and cost associated with documenting and maintaining records describing why the engine was operating must be assessed and the benefit for this requirement rationalized. As an alternative to continuing with the revised definition in the Proposed Rule, INGAA recommends that the current definition be retained.

The revised definition in the Proposed Rule should be replaced with the current definition in the RICE MACT, and this definition should be used for both Subpart JJJJ and Subpart ZZZZ. This also fulfills the desire to ensure consistency between the NSPS and NESHAP. This approach is reasonable, especially since the existing definition was based upon broad stakeholder group input and review, provides reasonable flexibility for emergency preparedness, and is not a detriment to the environment. INGAA suggests that if EPA is concerned about continuity with the recent CI NSPS, then the proper action is to revise the CI NSPS (Part 60, Subpart IIII) for consistency with the established, consensus definition from RICE MACT.

10. The 500 horsepower size threshold is inconsistently applied in the standards as it pertains to separating "smaller" from "larger" engines. Under the existing RICE MACT, units larger than 500 hp are regulated. For consistency and to avoid confusion, the 500 hp inclusive threshold should be consistently applied for the subset of "smaller" engines.

In the Proposed Rule, 500 hp is used as a size threshold to differentiate requirements in several instances. In addition, the existing RICE MACT regulates engines larger than 500 hp, i.e., the

applicable threshold is *exclusive* of 500 hp (>500 hp). However, the Proposed Rule inconsistently defines whether a 500 hp engine is in the "smaller" size category or "larger" size category. This may lead to unnecessary confusion and the Proposed Rule should apply the 500 hp threshold consistent with the RICE MACT, and define the threshold / engine categories as >500 hp for larger engines and ≤500 hp for smaller engines.

The 500 hp threshold is used in several instances in the Proposed Rule as well as under the existing RICE MACT. For example:

- Subpart ZZZZ, the existing RICE MACT, affects engines >500 hp.
- In the Proposed Rule, the NESHAP amendments include the same size threshold of >500 hp to differentiate engine categories based on size. (Consistent with the RICE MACT).
- The Proposed Rule includes different implementation dates dependent upon engine size for compliance with emission limits in the standard. The phase-in dates are staggered both for Tier 1 and Tier 2 emission limits. In this case, a 500 hp engine is included in the larger category (i.e., based on ≥500 hp). (Inconsistent with the RICE MACT. For example, see Table 1 of Subpart JJJJ or Table 3 of the preamble).
- For engines that require a performance test, subsequent periodic testing is required for engines >500 hp. (Consistent with the RICE MACT.)

To avoid confusion for engines rated at 500 hp, the example from the third bullet should be changed to include 500 hp engines in the smaller category. This change will result in consistent treatment of 500 hp engines under the existing RICE MACT and the Proposed Rule. EPA should revise the requirements in Table 1 of Subpart JJJJ to include 500 hp units in the "smaller" category (e.g., larger units should be changed to >500 hp from ≥500 hp). In addition, this issue is further confused by the horsepower basis used for defining an engine. This issue, associated with "maximum engine horsepower" from mobile/nonroad standards versus site rated horsepower from the RICE MACT is discussed in Comment 45.

11. Reconstructed units are treated differently in the NSPS and NESHAP, resulting in different emission limits. A reconstructed subcategory should be added to the NESHAP.

The Proposed NSPS includes separate emission limits for modified or reconstructed units. This is appropriate due to the potential for retrofit application of emission controls to perform slightly less effective than the same technology designed into a new unit. The NSPS emission limits apply to units reconstructed or modified after the June 2006 proposal date, and these limits do not have a second, more stringent phase in the future. For the proposed NESHAP amendments, the NSPS emission limit for NMHC applies for most cases (i.e., an exception for 4-stroke lean burn engines from 250 to 500 hp at a major HAPs source). However, a "reconstructed" subcategory is not included in the NESHAP Proposal, so reconstruction that occurs after the Tier 2 phase-in date will have different NMHC limits under the NSPS and the NESHAP. This is inappropriate, and EPA has not considered the implications of this requirement.

The NESHAP Proposal should be revised to include a subcategory for reconstructed units, and the NMHC emission limits should be the same for both the NESHAP and NSPS, i.e., for natural

gas-fired engines, a NMHC emission limit of 1.0 g/bhp-hr. This change is necessary for consistency between the NSPS and NESHAP.

Applicability:

12. For the NESHAP, area source requirements should only apply to facilities in proximity to an urban area. Precedent from the area source standard for dehydrators should be reviewed as a viable alternative. Thorough analyses demonstrating the need for area source controls should be presented to support the proposed rule.

EPA is required to address HAP emissions from stationary RICE located at area sources under section 112(k) of the Clean Air Act. The regulation of area source toxics under section 112 is principally a risk based program. EPA has elected to promulgate area source HAP regulations within this rulemaking without completing the necessary steps to assess the risk, environmental benefit, and cost. Justification for HAP control from engines less than 500 HP should be supported in the docket through an assessment of risk and justification of expanding the rule beyond urban areas and urban clusters.

In the preamble EPA acknowledges that they have chosen to expand the Urban Air Toxics Strategy to rural environs:

> "The standards being proposed in this action are applicable to stationary RICE located at area sources of HAP emissions. EPA has chosen to propose national standards, which not only focus on urban areas, but address emissions from area sources in all areas (urban and rural)." (71 FR 33822)

EPA continues its discussion in an attempt to support its position by stating:

> "For stationary RICE, it would not be practical or appropriate to limit the applicability to urban areas and EPA has determined that national standards are appropriate. Stationary RICE are located in both urban and rural areas. In fact, there are some rural areas with high concentrations of stationary RICE. Stationary RICE are employed in various industries used for both the private and public sector for a wide range of applications such as generator sets, irrigation sets, air and gas compressors, pumps, welders, and hydro power units." (71 FR 33822)

The docket fails to provide support to EPA's contention that:

> *"... it would **not be appropriate** to limit the applicability to urban areas and EPA has **determined that national standards are appropriate**."*[Emphasis added] (71 FR 33822)

This statement appears to be founded more in opinion than fact and EPA does not indicate in the preamble or docket support material how it reached this substantive conclusion.

EPA's approach appears to extend the Congressional intent of area source requirements beyond urban areas, without completing the corresponding risk review or justification for regulating rural sources. Section 112(k)(1) of the Clean Air Act (CAA) states the purpose of area source standards:

> "The Congress finds that emissions of hazardous air pollutants from area sources may individually, or in the aggregate, present **significant risks** to public health in **urban areas**. Considering the large number of persons exposed and the risks of carcinogenic and other adverse health effects from hazardous air pollutants, ambient concentrations characteristic of **large urban areas** should be reduced to levels substantially below those currently experienced. It is the purpose of this subsection to achieve a substantial reduction in emissions of hazardous air pollutants from area sources and an **equivalent reduction in the public health risks** associated with such sources including a reduction of not less than 75 per centum in the incidence of cancer attributable to emissions from such sources." [emphasis added]

Legislative history reinforces the perception that the fundamental purpose of the area source program (encompassed in sections 112(c)(3), 112(d)(5), and 112(k)(3) as a single integrated program) is urban area risk reduction. Further, EPA should incorporate risk in its consideration of cost effectiveness. In short, any controls which do not contribute to significant reductions in risk cannot be considered cost effective or consistent with CAA Section 112(k).

The exercise, while admittedly challenging, would result public assurances that the regulatory action is necessary, justifiable, and commensurate with the cost of implementing such a rule. Without support for such an argument, a simple statement that the action is impractical and inappropriate is not proper justification for such an important conclusion. INGAA recommends that EPA properly assess reduction in public health risk associated with nationwide applicability for the area source requirement, thus addressing the Congressional intent and purpose of Title III Section 112(k).

In fact, the preamble indicates that EPA has not determined the prevalence of stationary IC engines in certain areas of the country:

> "Stationary RICE may be used by private entities for agricultural purposes and be located in a rural area, or it may be used as a standby generator for an office building located in an urban area. Other stationary RICE may operate at large sources for electric power generation, transmission, or distribution purposes. EPA determined that stationary RICE are located all over the U.S., and EPA **cannot say that these sources are more prevalent in certain areas of the country**. Therefore, for the source category of stationary RICE, EPA is proposing national requirements **without a distinction between urban and nonurban areas**." [Emphasis added] (71 FR 33822)

Again, INGAA does not understand this rationale, as the lack of analysis is not justification for prescribing nationwide regulation for area source IC engines. Numerous data sources exist in varied forms including state and federal emission inventories, Title V permits, BLM maps, OEM records, pipeline maps, agricultural bureaus, etc. that would aid in assessing the potential distribution of engines throughout the U.S. and in rural areas. Failure to evaluate the geographic distribution, emissions, and public health impact of engine populations by size, type, and fuel raises additional concerns regarding whether the need for additional emissions reductions has been adequately justified. Other area source regulations are making a more concerted effort to address this issue, and INGAA recommends that EPA take a similar approach for the IC engine area source NESHAP. The NESHAP for area source dehydrators provides a compelling parallel.

On July 8, 2005, EPA published a proposed rule to amend the Oil and Natural Gas Production Facilities NESHAP (40 CFR Part 63 Subpart HH) to address area sources. This proposed rule affects triethylene glycol (TEG) dehydrators at area sources, and EPA is considering urban proximity for this rulemaking, which has a final rule Consent Decree signature deadline of December 21, 2006.

In the dehydrator area source proposed rule, EPA offered the following two options:

1) require all affected TEG dehydrator units be subject to the rule.
2) require only TEG dehydrator units located in urban areas be subject to the rule.

Based on comments on the proposal and ongoing review, EPA has identified an alternative. This alternative would allow an owner or operator of an affected unit to determine whether the source is located within an urban area based on proximity to an urban cluster (urban status based on the U.S. Census Bureau's most current decennial census data). This rule is being developed by the same EPA division, and its conclusions should have bearing on the Proposed Rule. For example, this could result in a Subpart ZZZZ exemption for area source engines located in a rural area – following urban criteria that parallel the upcoming amendments to Subpart HH. To implement, a determination based on urban proximity could be submitted in the initial notification, and would provide assurance that the array of NESHAP requirements associated with reporting, recordkeeping, state permits, etc. are justifiably avoided.

The outcome of the Part 63, Subpart HH review and regulatory precedent setting action should have direct bearing on the IC engine area source requirements in the Proposed Rule and should be duly considered. Notwithstanding the outcome of that process, INGAA believes that EPA must complete additional analysis, consistent with the intent of CAA Section 112(k) and the Urban Air Toxics Study to support area source requirements related to location and urban proximity.

13. For both the NSPS and NESHAP, the docket material provides minimal support for inclusion of very small engines. The standards should be revised to reflect a 100 horsepower minimum size threshold, or additional analysis should be completed to characterize the economic impact and environmental benefit.

The precedent for NSPS applicability limits based on unit capacity or size is well established. Combustion related NSPS typically include an applicability threshold based on maximum fuel fire rates/heat input or unit rating. The Proposed Rule does not establish a lower horsepower limit for engines, and it is not apparent that reasonable analysis was conducted over different size ranges to consider the cost and environmental impact from control of these units, in addition to the costs associated with ongoing compliance for reporting, recordkeeping, and permitting. As discussed below, concluding that very small units comprise a significant source may be flawed, as EPA's estimates of small engines include thousands of lean burn engines that are currently not an available product in the marketplace. INGAA recommends the following be considered:

- An exemption threshold of 100 hp, especially for gas-fired units that do not include mandatory certification; OR

- A certification requirement for engines 100 hp and smaller, with no subsequent owner/operator requirements. This approach mimics the consumer product approach used for small mobile and nonroad engines, where, after certification, there is no regulatory compliance criteria or enforcement mechanisms for owners (e.g., automobile engines); OR
- EPA should complete additional analysis that reviews the projected engine population and relative emissions considering typical run time, and considers the costs and benefit specifically associated with regulating very small engines.

Docket support is minimal in regard to environmental benefits and regulatory costs associated with this unprecedented rulemaking that affects all combustion units regardless of size. EPA relates the "every unit" approach in the Proposed Rule to a "wood stove" regulation, but INGAA believes that a consumer product regulatory model is not appropriate or relevant when considering units in industrial applications, as ongoing owner/operator costs are not analogous due to different regulatory criteria associated with ongoing compliance. INGAA believes that very small engines will likely have minimal emissions due to both size and limited or seasonal use. However, costs will be incurred due to reporting and recordkeeping requirements, along with permitting that will likely be triggered for State programs that require NSPS or NESHAP affected sources to be permitted. These costs and the associated environmental benefit are not thoughtfully considered by EPA in the Proposed Rule.

INGAA believes that analysis would likely indicate costs that are not commensurate with environmental benefit. This issue can be addressed by either including an applicability threshold, or implementing certification and avoiding ongoing compliance costs by clearly stipulating that there are no subsequent requirements for owners/operators. INGAA has not conducted an in-depth analysis to rationalize a 100 hp threshold, but some facts are available to support this level, including the possibility that EPA's projection of numerous small spark ignition IC engines is flawed.

Based on Docket Document No. OAR-2005-0030-0014, EPA projections based on population indicate:

- About ***35% (by population)*** of the affected SI IC engines through 2017 will be 100 hp or smaller.
- However, when weighted for size (horsepower), only about ***5% of the capacity*** comes from these engines.
- In addition, small engines are less likely to operate (i.e., lower utilization) than larger units, so the relative horsepower-hour for small engines will be lower – i.e., ***considerably less than 5% when run time is considered***.

Thus, emissions from engines 100 hp or smaller will be relatively small, even if emissions are higher for these units relative to larger units (i.e., the case where units 100 hp or smaller are not affected units under NSPS). If EPA instead considers the option to certify these units, then emissions will be "controlled", and emissions from these engines would likely be on the order of a few percent or less relative to the total projected population of SI IC engines and considering run time. Thus, certification with no additional owner/operator requirements warranted – as the environmental impact is not significant.

The projected emissions from very small SI engines for this review may be high, because EPA's engine projections are questionable. For example, EPA projects in the docket document that thousands of 4-stroke lean burn SI engines less than 300 hp (and less than 100 hp) will be placed in service over the next decade. However, the current marketplace *does not offer* a 4-stroke lean burn engine smaller than about 300 hp. To estimate the type of engines available in each category, EPA used information from Power Systems Research (PSR) North American Engine PartsLink Database and assumed, for smaller engines, the distribution of engine types based on information developed for the RICE MACT for engines greater than 500 hp located at major sources. This flawed assumption concluded that lean burn engines, including 4-stroke lean burn units, are available in small size ranges. This is an incorrect conclusion based on the current market. In fact, the docket includes documentation of minimum size for lean burn engines in email correspondence to EPA (e.g., see Docket Document No. OAR-2005-0030-0017). Thus, this rudimentary review indicates that small SI engines are likely to have minimal impact – and that EPA may have over-predicted the population (and thus the impact) of these engines based on flawed assumptions in the projection of new units.

Based on the docket, it is not apparent that EPA completed an analysis to consider the impact of small engines and the costs associated with regulation – i.e., the cost-benefit case has not been documented for various sizes of engines. At a minimum, INGAA recommends that EPA conduct this analysis to provide a valid case for the lack of a size-based applicability threshold. A thoughtful analysis may well conclude that a minimum size threshold is warranted, or that implementation costs must be abated to be able to make the cost-benefit case that control is justified. While INGAA has not conducted a detailed analysis on this topic, INGAA recommends that a 100 hp threshold should be considered as a reasonable applicability threshold, or that certification with no subsequent owner/operator requirements and costs – analogous to a "consumer products" approach – should be considered.

14. INGAA supports the conclusion for the NESHAP that existing units do not warrant control under Subpart ZZZZ.

For major HAP sources, EPA must assess the "MACT floor" for existing sources. Control options more stringent than the floor are also considered. For area sources, "generally achievable control technology" (GACT) is assessed. In the Proposed Rule preamble and docket support documentation, EPA concludes that the MACT floor for existing units at major sources addressed by the proposal is "no control". Based on our experience with control application to engines 500 hp and smaller (i.e., the major source affected units under the NESHAP Proposal), INGAA agrees that this is an appropriate determination.

In addition, above the floor controls were considered for existing equipment at area sources. Based on the marginal level of emission reductions and cost effectiveness for controls, INGAA agrees that above the floor MACT controls are not warranted for existing equipment. EPA also considered GACT requirements for existing area source units, and concluded that GACT should be equivalent to MACT for engines 500 hp and smaller at major sources. Again, INGAA agrees with this determination, as it is appropriate for GACT to be either similar to or less stringent than MACT requirements.

15. INGAA supports the conclusion that Title V permits are not warranted for affected area source units. EPA should consider the implication of minor source permit requirements.

The Proposed Rule would affect many small engines, often located at small facilities or even at a location where the engine is the only emissions source. Based on minimum size criteria and the associated emissions, Title V permits are not warranted for such facilities. However, due to underlying criteria that require a Title V operating permit for sources subject to an NSPS or NESHAP, a permit requirement would be triggered. This burden is not warranted for small sources under Title V criteria. INGAA brought this important administrative issue to EPA's attention prior to the Proposed Rule release, and INGAA strongly supports the EPA conclusion that, "compliance with permit requirements under Title V would be impracticable, infeasible and unnecessarily burdensome…", and that this meets the criteria under Clean Air Act Section 502(a) to exempt such sources from Title V requirements. It is important that EPA recognizes the potential burden imposed by such permitting for area sources.

However, even with the Title V permitting issue addressed, by including *all engines* as affected units, regardless of size, the Proposed Rule will still impose State permitting requirements under minor NSR programs. Minor source permitting requirements vary from state to state, and permit exemptions are included in minor source permit programs. However, the exemptions typically do not apply for a source with NSPS or NESHAP requirements. Thus, locations with a single small engine – subject to NSPS and NESHAP – will be subject to permitting requirements in many locations. Interestingly, a recent EPA analysis on minor source exemptions provides background associated with the inconsequential nature of exempt sources under minor source permitting programs. On August 21, 2006 EPA released a proposed rule, "Review of New Sources and Modifications in Indian Country." At 71 FR 48701 – 48703, EPA discusses the minimal emissions associated with unregulated minor sources under the proposed rule. This analysis justifies excluding insignificant emission sources from the proposed rule and identifies minor NSR exemption thresholds. For minor source programs that require permitting of NSPS or NESHAP affected sources, such threshold criteria would no longer apply. EPA has not considered the impact of this burden imposed by the Proposed Rule. This issue supports including a size-based applicability threshold in the rule (as discussed in Comment 13). Without such a threshold, EPA should consider the cost impacts for small sources based on minor NSR permitting requirements that would be invoked. If no size-based threshold is defined, EPA should undertake an effort to ensure that state agencies implementing minor source NSR programs are properly educated on the need to address program criteria so that small units subject to this rulemaking do not trigger permitting requirements.

<u>Inconsistencies and Clarifications</u>:

16. Based on information provided in Table 4 of the preamble versus the text in the rule, the applicable date for 4-stroke lean burn engines from 250 to 500 hp at major sources is unclear. Please clarify.

EPA should clarify confusing text included in the Proposed Rule preamble and proposed Subpart ZZZZ amendments that addresses the applicable date for the subcategory of 4-stroke lean burn engines that require an oxidation catalyst.

Under Subpart ZZZZ, the Proposed Rule includes a separate subcategory for 4-stroke cycle lean burn engines from 250 to 500 hp at a major HAPs source. This subcategory includes the same emissions standard as units larger than 500 hp at major sources under the existing RICE MACT, based on performance commensurate with installation of an oxidation catalyst. Other engines affected under the proposed Subpart ZZZZ requirements have effective dates based on the deadlines for implementing a certification program. However, for this subcategory, certification is not an option, and the applicable deadline is not clear. Table 4 of the Proposed Rule preamble indicates a manufacture date of January 1, 2008 for affected units. However, in the rule text, this date is not included. Instead, §63.6590(a)(2)(ii) indicates that a unit is new if construction is commenced on or after the proposal date (June 12, 2006). Please clarify this requirement.

In addition, Table 4 of the preamble and the proposed Subpart ZZZZ amendments do not apply the same criteria for engines with a site rating of 250 hp. In the preamble, the 250 to 500 hp category does not include 250 hp ($250 < hp \leq 500$ hp) while in Table 3 of Subpart ZZZZ (and elsewhere), 250 hp is included ($250 \leq hp \leq 500$ hp). Please clarify this requirement.

17. There is an apparent mistake in Table 6 of the NESHAP, which does not include the initial (Stage 1) NMHC limit, and implies that only the lower, Stage 2 limit applies. Please clarify or correct if this is an oversight.

Most affected units under the proposed amendments to Subpart ZZZZ are required to comply with the same NMHC emission limit as required under the proposed NSPS. For most units, the limit is 1.0 g/bhp-hr for the initial stage of regulation, and lowers to 0.7 g/bhp-hr for units manufactured after 2010/2011 (applicable date depends on size). These limits are indicated in Table 3 of the proposed NESHAP. Table 6 of the proposed NESHAP addresses initial compliance with emission and operating limits. This table identifies criteria associated with demonstrating compliance. Item 10 addresses gas-fired engines larger than 25 hp complying with emissions standards in §63.6605, and (ii) in the third column indicates that NMHC must be equal to or less than 0.7 g/bhp-hr NMHC.

This appears to consider only the second phase of NMHC emission limits for units manufactured in 2010/2011, and inappropriately omits reference to the first phase for units manufactured in 2007/2008. Table 3 in the proposed NESHAP includes both of the limits: 1.0 and 0.7 g/bhp-hr. However, the Table 3 criteria are not carried forward into Table 6. Please correct or clarify this issue – INGAA recommends that Table 6 be edited to properly reference the 1.0 g/bhp-hr limit.

In addition, it appears that the proper citation in the second column of Table 6 for item 10 should be §63.6601(a) from the proposal rather than §63.6605 from the existing RICE MACT. Please clarify or correct this issue.

18. Clarification is needed regarding the initial applicable date for emission limits and other requirements such as reporting and recordkeeping for potentially affected units under the Proposed Rule.

Typically, the initial applicability date for units subject to a Part 60 or Part 63 standard are based on the proposal date – e.g., June 12, 2006 for the Proposed Rule. However, with a certification program required, the proposal includes initial applicability dates in 2007 and 2008 for most

affected units. Because of overlapping criteria – such as General Provision reporting and recordkeeping requirements under Subpart A for Part 60 and Part 63 – the status of units that are installed in the interim between the proposal date and the applicable date (based on certification) is unclear in regard to whether the units are "exempt" from requirements such as reporting and recordkeeping under Subpart A. For example, it could be interpreted that a unit may not have an emission limit due to emission limits tied to implementation of a certification program, but that reporting and recordkeeping requirements still apply. In addition, while it is clear that emission limits do not apply in this interim period for the NSPS, this is not clear for a potentially affected source under the proposed NESHAP amendments.

INGAA presumes that it is EPA's intent for consistency between the NSPS and NESHAP amendments, and also that no requirements are intended for units in this interim period, including reporting and recordkeeping. EPA should complete appropriate revisions to the Proposed Rule to clarify this issue. INGAA recommends that EPA clearly state that engines manufactured prior to the specified dates are not subject to the NSPS and qualify as existing units under the NESHAP.

Emissions Limits and Subcategories:

19. INGAA supports the first stage of NOx emission limits proposed for the NSPS, with the exception of those for emergency engines and certain reconstructed/modified units. Best demonstrated technology criteria need to be considered for 2010/2011 limits.

INGAA supports the conclusion that a 2.0 g/bhp-hr NOx emission limit represents "best demonstrated technology" (BDT) for new IC engines. This comment discusses that topic along with the proposed limits for 2010/2011, emission limits for reconstructed or modified engines, and limits for small emergency engines.

NOx Limits and Best Demonstrated Technology

INGAA supports the NOx emission limits proposed for new natural gas-fired engines in 2007/2008. The proposed limit is commensurate with BDT, which is the performance measure for NSPS emission limits. However, INGAA believes that revisions to the Proposed Rule are necessary – as discussed within these comments. With revisions and clarifications pending, there is uncertainty regarding implementation of a compliance approach that considers alternatives to manufacturer based O&M procedures and initiation of a certification program in July 2007 – prior to the Final Rule. Thus, INGAA recommends revising the initial compliance date from July 2007 to January 2008. This change would need to be communicated to the affected community and public in the interim period before the Final Rule is released.

INGAA also supports the BDT technology basis of combustion-based emission controls for lean burn engines and NSCR for rich burn engines. In general, these emission controls are demonstrated, available and can achieve the 2 g/bhp-hr NOx limit in the proposed rule. However, there are questions about the application and demonstration of NSCR on very small rich burn engines and emergency units that should be addressed by EPA. Any attempt to pursue a more stringent NOx limit would need to include considerable analysis associated with emissions performance based on engine size and application.

Notwithstanding this qualified support of the 2007/2008 NOx limit, INGAA is concerned about problems that may arise from implementing a certification program. As discussed in Comment 1, certification manufacturers may follow an averaging and trading scheme and use a certification test cycle that is not consistent with stationary source applications. The "nominal" engines available through certification may not equate to guaranteed emissions performance in field applications, and INGAA is concerned about the implementation and compliance issues that could ensue if voluntary certification is pursued by manufacturers.

In addition, it appears that the 2010/2011 phase-in of lower limits does not follow BDT criteria. INGAA's experience with the technologies used as the basis of the standard indicates that the Stage 2 limits are not readily achieved based on current technology for many applications and sizes. EPA's own analysis in docket background material supports this same conclusion. For example, EPA's review of control technologies is presented in Docket Document No. OAR-2005-0030-0054. This document indicates that current combustion-based controls for lean burn engines have characteristic emissions exceeding the Stage 2 limits for each of the three pollutants included in the NSPS. The document notes that performance can vary by engine size (which is only considered for the effective date of the limits and not considered in regard to emissions) for combustion controls and indicates:

- NOx from 0.7 to 2.0 g/bhp-hr (size is a contributing factor to performance);
- CO from 2.4 to 3.0 g/bhp-hr; and
- Hydrocarbons from 1 to 1.3 g/bhp-hr.

These ranges are reasonable relative to the initial stage of limits from the Proposed Rule, but not the second stage proposed for 2010/2011.

In regard to technology requirements and constraints for NSPS, Section 111(a)(1) of the Clean Air Act, defines a standard of performance as:

> "The term "standard of performance" means a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated."

As noted in the February 2006 revisions to the NSPS for steam generating units, this criterion is termed "BDT":

> "Section 111 of the CAA requires that NSPS reflect the application of the best system of emissions reductions which (taking into consideration the cost of achieving such emissions reductions, any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated. This level of control is commonly referred to as best demonstrated technology (BDT)." (71 FR 9869)

Historically, BDT has been based on a minimum level of demonstrated control for the new, reconstructed and modified air pollution sources in the 70+ source categories included in Part 60. More stringent control can be, and frequently is, required by PSD and nonattainment permit requirements. Engine manufacturers have indicated that the second phase of proposed emission

limits require additional technology development. Thus, the proposed 2010/2011 limits are not based on BDT. Section 111(b)(1)(B) of the Clean Air Act stipulates that NSPS are to be reviewed and, as necessary, revised at least every 8 years. If lower NOx limits are warranted in the future, EPA should implement those limits following this review criterion from Section 111.

The Proposed Rule should be revised to exclude the second phase of emission limits proposed for NOx and all other pollutants. Alternatively, EPA should provide additional analysis to validate that technology development is not necessary, and that these standards are currently achievable based on criteria consistent with BDT performance. While supporting these technology conclusions, INGAA does not agree that the Stage 2 limits proposed for phase-in in 2010/2011 are commensurate with BDT, as these emission levels have not been demonstrated in practice for the technologies identified. It is inappropriate for an NSPS to include out-year limits that exceed the current level of demonstrated performance and require additional technology development, as such a scenario cannot reasonably be considered "demonstrated".

NSPS Emission Limits for Reconstructed or Modified Sources

INGAA supports a separate subcategory for reconstructed or modified engines. It is well-established that retrofit application of emission controls on natural gas-fired IC engines may result in poorer performance than the levels achievable for a new engine. INGAA agrees that the emission limits proposed are consistent with BDT for *most* retrofit applications. However, some existing engines that respond poorer to retrofit control will not be able to achieve the proposed emission limits. The Proposed Rule preamble cites background from the Phase 2 NOx SIP Call as supportive of this limit (71 FR 33817). However, the implementation guidance for the Phase 2 SIP Call also acknowledged variable response to retrofit control and that 3 g/bhp-hr could be achieved "on average" for retrofit control. Thus, to address variability around average performance, implementation guidance for the SIP Call included flexible options such as emissions averaging across multiple engines. Background material on this topic was provided to EPA by INGAA and is included in Docket Document No. OAR-2005-0030-0122.

The NSPS does not accommodate retrofit technology performance consistent with the conclusions from the Phase 2 NOx SIP Call. Thus, modification or reconstruction for unit with retrofit limitations could result in the equipment being "stranded" and ultimately shutdown due to the inability to comply with NSPS. Such an outcome would cause considerable burden to the operator without a benefit to the environment. While an argument could be made that the NSPS NOx standard should be increased to account for demonstrated technologies for these applications, INGAA accepts that a 3 g/bhp-hr NOx limit is reasonable for many applications. Thus, INGAA suggests that a provision be added for the NOx emission limits in Subpart JJJJ. This provision would allow owners/operators of reconstructed and modified units that do not have a technically and economically feasible option to achieve the standard to petition the EPA for acceptance of an alternative emission limit based on available technologies.

Emission Limits for Small Emergency Engines

As discussed in Comment 20, the proposed limits for emergency engines are also problematic. Natural gas-fired emergency engines are used in many applications, especially at natural gas production, processing, transmission, and storage facilities. In addition to cost and convenience,

in many cases site location and access make diesel emergency units use problematic. Thus, natural gas-fired units will remain the engine of choice. For applications large enough to use a lean burn engine, the proposed emergency engine emissions limits appear viable. However, lean burn engines are not available below about 300 to 400 hp. Rich burn engines are used in these applications, and the proposed emission standards would require use of NSCR. This is entirely inappropriate for an emergency unit, which exhibits limited operating time or environmental impact. A size-based applicability threshold should be established for emergency engines, or alternative emission limits should be proposed commensurate with an uncontrolled rich burn engine. This issue needs to be addressed for both new emergency engines under §60.4233(d) and reconstructed/modified emergency engines under §60.4233(e)(4)(iii). This is discussed further in the following comment.

20. Alternative emission limits or a 400 hp exemption threshold should be defined for emergency engines.

The proposed emission limits will require NSCR for rich burn engines. Since only rich burn engines are available for natural gas-fired applications less than about 400 hp, this will require emergency units to implement post-combustion control and tight air-to-fuel ratio control. The costs and reliability risks are not warranted, especially when considering the limited operating time and associated emissions for emergency units. To address this, the rule should be revised to include an exemption for emergency engines less than 400 horsepower. In addition, reconstructed or modified rich burn emergency engines, which may be larger than 400 hp, would also require post-combustion control. EPA should provide an exemption for reconstructed or modified rich burn emergency engines. If an exemption is not provided, alternative emission limits are required consistent with the performance of an uncontrolled rich burn engine.

The preamble and docket do not provide analysis or background to support NSCR requirements for emergency engines with strict operating limitations. In a meeting with INGAA on August 3, 2006, EPA stated that engine manufacturers planned to address this by producing smaller lean burn engines. This basis is flawed because it is not equivalent to best demonstrated technology (these engines do not currently exist). In addition, the docket does not indicate that such production plans are in place, and INGAA discussions with several manufacturers indicated that there are currently no plans to produce small, lean burn emergency engines (i.e., units smaller than current production).

EPA has not shown that NSCR is BDT for emergency engines. Proper NSCR operation requires very tight air to fuel ratio control. In addition, some time is necessary to heat up the catalyst to ensure proper performance. With limited run time and operations typically consisting of short duration systems checks, it is uncertain if the catalyst may be impacted due to thermal cycling or the potential for poisoning that may be more predominant at lower temperature. More importantly, NSCR application may introduce reliability issues – and reliability is imperative for emergency engines. The marriage of these technologies – emergency unit operating life cycles and NSCR – has not been proven or investigated.

In addition, with limited operating time, the environmental benefit has not been investigated or weighed relative to technology costs and operational risks. Such an analysis must be completed if the proposed emission standards are retained. Instead, INGAA recommends adding a

minimum size threshold for emergency engines subject to the NSPS. Based on current production and a desire for market competition, an appropriate size threshold is 400 hp. This threshold is based on the minimum size for lean burn engines available from primary manufacturers of gas-fired reciprocating IC engines. Information in the docket from material provided to EPA support 400 hp as a lean burn size threshold consistent with current production (Docket Document No. OAR-2005-0030-0117). Without such a revision, it is imperative that EPA properly consider technical feasibility, cost benefit, and BDT for emergency engine applications. INGAA expects that such an analysis would indicate that control is not demonstrated or not warranted. Thus, if a size-based exemption is not included in the rule, separate subcategories will be needed for emergency engines based on size with emission limits for smaller units commensurate with an uncontrolled rich burn engine, as well as an exemption for existing rich burn emergency engines that are reconstructed or modified.

21. NSPS emission limits for CO and NMHC are not warranted, and EPA has not provided analysis to justify standards for these pollutants.

The Proposed Rule includes CO and NMHC standards for gaseous-fired sources. Neither the docket nor the preamble provides substantive analysis to substantiate including these pollutants in the proposed NSPS. As with other facets of this rulemaking, the inclusion of these pollutants appears to be an artifact of modeling the rule after mobile and nonroad standards. CO and NMHC should be excluded from the rule. If not, EPA should provide an analysis that: identifies the contribution of potentially affected sources to the inventory of these pollutants; considers the environmental impact and potential benefit associated with the proposed limits; and, weighs the benefit against costs. Additionally, any such analysis should clearly consider the need and basis for a CO or NMHC standard based on subcategories that include rich burn versus lean burn operation.

EPA has provided minimal analysis or discussion regarding the need to regulate CO and NMHC in the Proposed Rule. Including these pollutants in the NSPS will introduce costs associated with testing, reporting and recordkeeping, permitting, and even control costs. For example, with CO and NMHC included, nominal increases in these pollutants for existing sources can trigger a "modification" under NSPS and result in otherwise exempt equipment becoming subject to the NSPS. The preamble discussion of the basis for their inclusion totals two brief paragraphs. The "basis" provided can be paraphrased as CO and NMHC are pollutants, engines emit these species, so they should be controlled. Notably, this same logic could be applied to *any* type of combustion device and many other processes regulated under Part 60. However, EPA has not chosen to regulate CO or NMHC (or other hydrocarbons such as VOC) for a wide breadth of other source categories for which this same, limited logic would apply.

For example, recent revisions to the NSPS for combustion turbines justifiably concluded that combustion based controls provide sufficient performance and no further controls are warranted. EPA did not attempt to regulate the resulting CO or NMHC emissions associated with NOx reductions based on lean combustion technology. Similarly, lean burn spark ignited IC engines will comply with NOx limits using lean combustion technology, and the same logic applied for combustion turbines could be used for lean burn engines in the Proposed Rule. More notably, steam generating units regulated under the Subpart D NSPS series, which also emit CO and NMHC, do not include NSPS standards for these pollutants. EPA has not provided an analysis,

but it is possible that these emission sources present more probable "environmental impact" than the emissions attributable to stationary IC engines based on issues that include the inventory size, the emissions location, and the dispersion associated with the emission points. EPA has not regulated CO or NMHC under Subpart D, Da, Db or Dc. With the minimal analysis conducted for the Proposed Rule, and no apparent analysis completed for the recent revisions to the Subpart D NSPS, it is unclear why EPA has chosen to include CO and NMHC standards for IC engines and not steam generating units. INGAA expects that this is another instance where EPA's misguided use of nonroad/mobile standards has biased the agencies perspective of the Proposed Rule outcome without conducting the obligatory analysis required for an NSPS proposal.

EPA should reconsider the requirement for CO and NMHC standards. This review should be independent of a biased presumption of a nonroad certification analogue – because such an analogue does not exist for gaseous-fired IC engines. Additional consideration should properly review the basis, need, benefit, and cost for such standards for different engine categories – such as lean burn engines with integral combustion based controls versus rich burn engines with catalytic control requirements.

22. If the NSPS includes an emission limit for hydrocarbon species, the limit should be for VOCs and not NMHC.

If an emission standard is retained for hydrocarbon species, the limit should be for volatile organic compounds (VOCs), not NMHC. For stationary sources, VOCs are the pollutant regulated as an ozone precursor. In addition, for stationary gas-fired spark ignited engines, historical data for hydrocarbon measurement are based upon VOCs, not NMHC. Limited data are available to understand the proposed NMHC limit implications, especially for the more stringent Stage 2 limit proposed for 2010/2011. The lack of data presented as NMHC rather than VOC presents an issue regarding the ability of owners/operators to assess whether available data indicate that the proposed standard is achievable for performance tests in the field. INGAA information collected based on an EPA request and forwarded to the agency in January 2006 supports the assertion that emission limits in Title V and state permits are based on VOC, and not NMHC.

Historically, INGAA's experience indicates that permitted emission limits for IC engines that include a limit for hydrocarbon species are based on VOCs, with the definitions for VOC from §60.2 and §51.100(s). The latter citation is based on the definition used by States for preparing State Implementation Plans. In January 2006, the submittal provided to EPA by INGAA indicated that NMHC limits were not included in permits, and that VOCs were the pollutant listed if hydrocarbons were included in the permit. This information is in Docket Document No. OAR-2005-0030-0046.

Similar to many other issues with the Proposed Rule, it appears that including NMHC is based on parallels that EPA is attempting to draw with nonroad/mobile rules and engine certification. However, such a parallel program does not exist for natural gas-fired engines. This is important because, relative to VOCs, an NMHC standard adds "ethane" as a regulated pollutant. Importantly, the detailed definition in Part 51 and stationary source regulatory programs throughout the U.S. do not regulate ethane as an ozone precursor, as it is considered to have negligible photochemical reactivity. For natural gas fuel, ethane is typically the most prevalent

component other than methane, and field gas may have a higher ethane fraction than "pipeline quality" gas. Thus, exhaust hydrocarbon will include ethane, and relative to other hydrocarbons that comprise VOC, ethane may be significant. Thus, "ethane" emissions may be an important contributor to the total NMHC. Since the legacy of field compliance tests has typically not included ethane measurements, there are little data available regarding the typical ethane contribution to NMHC.

INGAA supports replacing NMHC with VOC if a hydrocarbon-based standard is included in the rule. Without available NMHC or ethane data, INGAA does not believe that sufficient information is available in the docket to support the use of NMHC rather than VOC, which has a stronger basis of available field test compliance data. INGAA believes that before regulating NMHC for stationary engines – and essentially introducing regulation of ethane as an ozone precursor for stationary sources – EPA should complete an analysis to identify the potential benefit and cost of regulating ethane or using NMHC as a surrogate for VOC for gas-fired engines, and ensure that emissions data from field tests are available to substantiate the basis for the standard. To date, EPA has not provided background on this to support the Proposed Rule.

23. If a NMHC (or VOC) emission limit is included in the NSPS and NESHAP, the standard should clearly indicate that the limit does not include aldehydes or other oxygenated species – unless EPA provides data and analysis to the contrary. In addition, consistent treatment of included species is required for the test methods. For example, EPA Method 25 should not be used for determination of NMHC or VOC (see Comment 32).

EPA has specifically requested comment on the appropriate test methods for NMHC measurement, and INGAA recommendations on methods for NMHC (or VOC) are discussed below in Comment 32. Irrespective of the test methods, this comment addresses the species that comprise NMHC for the Proposed Rule. Oxygenated compounds, primarily formaldehyde, are present in the exhaust of natural gas-fired IC engines and it is imperative that EPA directly address whether NMHC limits exclude aldehydes and other oxygenated species. This issue impacts the test methods to be used, the feasibility of the proposed standard, and its basis from material in the docket. INGAA believes that the docket and industry standards clearly indicate that *the proposed NMHC standard does NOT include formaldehyde or other oxygenated species*, and that the rule must clearly indicate that NMHC limits are based on hydrocarbon species exclusive of aldehydes and alcohols.

In the preamble, EPA implies that NMHC does not include aldehydes, but this is not clearly indicated in the preamble or the rule. The preamble indicates (71 FR 33826) that,

> "EPA recognizes that test methods which measure NMHC commonly do not measure formaldehyde."

Thus, it is implied that NMHC data are exclusive of formaldehyde, but this is not clearly indicated in the rule. Since formaldehyde emissions can be relatively significant as compared to other exhaust hydrocarbon, it is imperative that this issue be defined. Since EPA has used engine manufacturer information as the primary basis for the emission standards, the manufacturer's

position on this issue is important. Testing and reporting standards applied by state and local agencies are also relevant.

Docket Report No. OAR-2005-0030-0062 is a memo from EPA's contractor that reviews analytical equipment and testing methods used for measuring NMHC from stationary spark ignited IC engines. This memo notes that the California Air Resources Board, one of the most stringent regulatory agencies in the nation, requires NMHC measurement using either EPA Method 25, or EPA Method 25A and EPA Method 18. There is no mention in the memo of separate oxygenated species measurements.

EPA determined the NMHC emission limits for both rich burn and lean burn engines by collecting information on new stationary SI engines emissions from various engine manufacturers and using uncontrolled NMHC emissions data as the basis for the limit. The docket includes new engines emissions data from Caterpillar (Docket No. OAR-2005-0030-0028), Waukesha (OAR-2005-0030-0030), Cummins (OAR-2005-0030-0088), and Wartsila (OAR-2005-0030-0099). These data are referenced in the May 11, 2006 memo (OAR-2005-0030-0053) from EPA's contractor and are understood to be the basis for the proposed NMHC emissions limits. Conversations with representatives from the engine manufacturers determined that NMHC measurements from engines are typically conducted using a flame ionization detector (FID) (EPA Method 25A) for total hydrocarbon (THC) and Method 18 for methane. NMHC is calculated from the difference and manufacturers consider this approach to be the "industry standard." A FID does not measure formaldehyde, and none of the manufacturers perform separate aldehydes or alcohols measurements for their NMHC determinations. It should be noted that Wartsila reports VOC, that is the difference between a FID THC measurement and methane and ethane determined by Method 18. Clearly, the information that forms the basis for the proposed NMHC limits does not include formaldehyde or other oxygenates.

Since the basis of the support information for NMHC excludes oxygenates, this should be clearly defined in the regulation. EPA should clarify this in support documentation for the final rule and in the definition of NMHC in the standard. INGAA recommends a revised definition for NMHC in Comment 43.

24. EPA should include a concentration-based alternative standard, at least for units without mandated certification that are mechanical drive units.

The Proposed Rule includes emission limits in units of g/bhp-hr (with the exception of the NESHAP requirement for 4-stroke lean burn engines from 250 to 500 hp at major HAP sources). Since the prevalence of voluntary certification is unknown, it is reasonable to assume that many units will require in-use testing. To avoid the expense associated with determining emission rates and complexities associated with horsepower determination, especially for mechanical drive units, the rule should include concentration-based alternative standards (i.e., ppmv at 15% O_2).

The output-based standards (in g/bhp-hr) are likely based on nonroad/mobile source standards for IC engines where factory certification provides the ability to readily measure load and exhaust emission rates. However, the vast majority of potentially affected units under the NSPS proposal do not require certification. For example, Docket Document No. OAR-2005-0030-0098 provides estimates from two different sources indicating that about 80% to more than 90%

of the projected NSPS engines will be gaseous-fired units where certification is voluntary. Even where voluntary certification is available, the certified useful life only represents a very small portion (e.g., 5% or less) of the practical life. Many of these units will likely be subject to one or more field performance tests. While the Proposed Rule includes test methods for measuring pollutant concentrations (i.e., ppmv), it is silent on the test methods for stack gas volumetric flowrate and load when converting the concentration measurement to g/bhp-hr. INGAA recommends methods and approaches to address this in Comments 36 and 37 below. However, especially due to the difficulty and lack of standardization for measuring horsepower, an alternative standard should be provided based on pollutant concentration in parts per million volume (ppmv). At a minimum, this option should be available to mechanical drive units (as compared to generators), where power measurement is more difficult and costly.

In review of the docket, INGAA found no discussion or documentation considering the difficulties or costs imposed for mechanical-drive industrial applications. The application of g/bhp-hr standards indicates, once again, a mobile/nonroad engine-based focus for this rulemaking, which is misguided based on docket estimates that only a small subset of affected engines will include mandatory certification. It is also notable that the docket indicates that manufacturers requested a concentration-based standard in discussions with EPA in advance of the proposal. In Docket Document No. OAR-2005-0030-0049, a manufacturer indicates that a concentration-based alternative for field tests is warranted due to questions about "qualified" g/bhp-hr testers.

25. INGAA supports the inclusion of an NSPS subcategory for reconstructed/modified units. However, the NESHAP should be revised to also include a subcategory for reconstructed units.

As discussed in Comment 19, separate emission limits for reconstructed and modified units are warranted, and INGAA supports including an NSPS subcategory for reconstructed or modified sources. For most purposes, it appears that EPA has attempted to reconcile the requirements of the proposed NSPS and proposed NESHAP amendments. However, the NESHAP does not include a separate subcategory for reconstructed units ("modification" is an NSPS term and not applicable for Part 63 sources). The Proposed Rule should be revised to include a NESHAP subcategory for *reconstructed* spark ignited natural gas-fired IC engines greater than 25 hp, consistent with the NSPS subcategory. Without this change, subject engines complying with an NMHC limit would have different limits under the NSPS and NESHAP after the second phase limits take effect in 2010/2011.

26. INGAA supports the EPA conclusion that NSPS emission standards for particulate matter and SO_2 are not warranted.

The Proposed Rule preamble includes a discussion of potential emission limits and affected pollutants, including sulfur oxides (SOx) and particulate matter. EPA concludes that regulation of these other pollutants is not warranted for natural gas-fired units and INGAA supports this conclusion.

EPA correctly notes that typical fuel sulfur levels are low for natural gas and that an SOx standard is not warranted. Regarding particulate matter (PM), the clean burning attributes of

natural gas-fired engines are cited to substantiate no need for PM emission limits in the NSPS. INGAA supports this conclusion and believes that this position should be retained in the final rule. In addition, if EPA further considers whether PM limits are warranted, limitations in the ability to accurately measure the trace PM levels from natural gas-fired combustion sources must be considered. Current test methods have proven ineffective at measuring the insignificant particulate levels in the combustion exhaust from natural gas-fired units. The trace PM constituents in exhaust from a natural gas-fired unit include sulfate from the minimal sulfur present in the fuel. However, it has been shown that sulfate measured using available EPA Reference Methods can result in a sampling artifact that inappropriately reports trace levels of SO_2 as sulfate particulate. For both sulfur species and PM, the emissions are very minor – but the biases in the flawed methods can comprise a significant relative amount of the reported values. The EPA Emission Measurement Center is aware of this issue and the associated research programs that investigated this phenomenon. Should EPA subsequently consider a need for additional review regarding PM limits, the available data must be carefully scrutinized to ensure that it does not include positive basis from sampling artifacts. If EPA undertakes any further review of PM limits, additional background on this subject can be provided by INGAA.

27. INGAA supports the EPA selection of low emission combustion for lean burn engines and nonselective catalytic reduction (NSCR) for rich burn engines as the basis for the NSPS for natural gas-fired IC engines.

For gas-fired engines, the Proposed Rule preamble (71 FR 33815-33816) indicates that the basis for the standards is NSCR for rich burn engines, and, for lean burn engines, "the low emitting level achieved by design and on-engine controls, and other combustion optimization techniques employed in new stationary SI lean burn engines." INGAA terms the lean burn technology "low emissions combustion" (LEC). INGAA supports the conclusion that NSCR and LEC constitute the technology basis for the NSPS for natural gas-fired engines. In addition, INGAA supports the conclusion that the levels achievable by LEC are considered "best demonstrated technology", and that post-combustion controls are not warranted. INGAA believes that any additional reductions from adding post-combustion control for lean burn engines would result in minimal incremental reductions at considerable cost, and supports EPA's conclusion that no further controls are necessary to achieve levels commensurate with best demonstrated technology.

While supporting these technology conclusions, INGAA does not agree that the Stage 2 limits proposed for phase-in in 2010/2011 are commensurate with BDT, as these emission levels have not been demonstrated in practice for the technologies identified. In fact, EPA's review of control technologies in Docket Document No. OAR-2005-0030-0054 indicates LEC control levels exceeding the Stage 2 limits for each of the three pollutants included in the NSPS. This issue is discussed further in Comment 19. BDT is the technology basis for NSPS, and this has historically been defined as a minimum level of *demonstrated* control for new and modified air pollution sources in the 70+ source categories included in Part 60. It is inappropriate for an NSPS to include out-year limits that exceed the current performance level and require additional technology development, and such a scenario cannot be considered "demonstrated".

28. INGAA supports the EPA conclusion that selective catalytic reduction (SCR) is not a cost-effective technology and not a proven technology for application to industrial units such as those used in natural gas transmission.

For the NSPS, EPA considered applying selective catalytic reduction (SCR) for NOx control from lean burn engines. In the preamble (71 FR 33814 and 33816), EPA indicates:

- "Costs of SCR are generally high, including significant equipment, installation, and operating costs."
- "EPA does not believe that SCR is a reasonable option for stationary SI lean burn engines." (i.e., due to costs and limited application to spark ignited engines.)

INGAA supports the conclusion that SCR is not commensurate with BDT for natural gas-fired IC engines. In addition to the factors noted by EPA, INGAA believes there are important questions about the technical feasibility of applying SCR to natural gas-fired IC engines in gas transmission. Recent documentation from EPA indicates that there are issues associated with applying SCR to compressor drivers used in natural gas transmission. The EPA statements are associated with control technology assessment for the NOx SIP Call, and in the AP-42 document for IC engines.

Regarding engines affected by the NOx SIP Call, EPA states:

> "… these engines (lean-burn IC engines in natural gas transmission) experience frequently changing load conditions which make application of SCR infeasible…our ACT document states that little data exist with which to evaluate application of SCR for the lean-burn, variable load operations. We now believe that there is an insufficient basis to conclude that SCR is an appropriate technology for large lean-burn engines." (67 FR 8411)

In addition, Section 3.2.4.2 of the July 2000 EPA AP-42 document, which discusses control techniques for lean-burn IC engines, states:

> "For engines which typically operate at variable loads, such as engines on gas transmission pipelines, an SCR system may not function effectively, causing either periods of ammonia slip or insufficient ammonia to gain the reductions needed."

As further evidence that SCR is not commensurate with BDT, INGAA provides insight into the limited attempts to apply SCR in gas transmission and storage applications. To our knowledge, the only domestic example of operational SCR on IC engines at a gas transmission facility occurred at a Southern California facility, and the IC engines were decommissioned by the operator due to operational problems. In addition, an application on a gas turbine in gas transmission service indicated cost overruns and operational issues.

The pipeline turbine case is illuminating, in that turbine operation with SCR indicated ongoing compliance problems, exorbitant costs, and an ongoing program to iteratively re-engineer the SCR system in the field to achieve acceptable performance. These performance levels ultimately failed to meet vendor guarantees and required permit modifications. The resulting process required approximately two years and exorbitant expense to re-engineer an SCR system *specific for this installation.* Even with this level of effort and the associated costs, the unit operates with

multiple NOx permit limits that recognize increased emissions during transitional loads. The permit also allows a relaxed ammonia slip limit of 20 ppmv – double the limit commonly accepted for SCR systems. With IC engines frequently sited when more operating load flexibility is needed, it is likely that IC engine SCR would prove more challenging than turbine SCR for gas transmission.

This recent SCR application indicates that the technology has not been reliably demonstrated at reasonable cost for units in gas transmission service. This example also documents that technology vendors can oversell the capabilities of their systems, especially when entering new markets which include unique operating characteristics. Clearly, it is apparent that SCR has not been demonstrated for natural gas-fired IC engines in gas transmission applications.

29. Consistent with the existing RICE MACT and recent Turbine NSPS, EPA should specify in the final rule that the emission standards only apply at full load and specify that performance tests and periodic testing be conducted at 90 to 110% of peak load or the maximum load achieved in practice. Alternatively, EPA should provide data and analysis supporting the applicability of the emission limits at partial load.

The proposed NSPS includes emission standards for NOx, CO, and NMHC, and the NMHC limit also applies to most spark ignited engines under the NESHAP. For engines that are not certified, an initial performance test is required, and subsequent periodic testing is required for units larger than 500 hp. The proposed NSPS does not specify the operating conditions or load for compliance tests. However, the existing RICE MACT specifies that tests are to be performed at 100 percent ±10 percent. Similarly, the proposed amendments to Subpart ZZZZ maintain this requirement and indicate in §63.6620(b) that:

> "(b) Each performance test must be conducted according to the requirements in §63.7(e)(1) and under the specific conditions that this subpart specifies in Table 5. The test must be conducted at any load condition within plus or minus 10 percent of 100 percent load."

For the NSPS, there is no indication regarding the performance test conditions, or applicability of the standards at off-load conditions. Lacking specific language to the contrary, this implies that the NSPS emission standards apply at all operating conditions. There is no support data or analysis in the docket or the Proposed Rule preamble to support this position. Presuming that the emission standards are not-to-exceed limits (i.e., see the discussion in Comment 1 regarding nominal certification levels versus in-use performance), the NSPS should indicate that the emission standard applies at full load. Alternatively, EPA should provide data and analysis to support applicability at other loads.

This issue was previously addressed in the existing RICE MACT in EPA responses to comments included in the Final Rule preamble. In responding to comments requesting clarification of performance test requirements and noting that the standard is based on high load data, EPA indicated (69 FR 33489):

> "We have specified in the final rule that performance tests must be conducted at high load conditions, defined as 100 percent ±10 percent. If a source has demonstrated compliance with the emission limit at high loads it is assumed that the technology is

> operating appropriately and will also operate appropriately at lower loads. Sources are not required to meet the emission limitation at low load."

In addition, there are instances where the driven equipment or operational constraints limit the ability of an engine to operate at full load. Therefore, the standard should address the fact that full load is not always achievable in practice. In response to comments for the recent Turbine NSPS, Part 60 Subpart KKKK, the performance test requirements include a high load criterion (75% or higher for turbines to ensure lean premixed mode operation), as well as an allowance for testing at the highest load achievable in practice. This is reflected in §60.4400(b), which indicates:

> "(b) The performance test must be done at any load condition within plus or minus 25 percent of 100 percent of peak load. You may perform testing at the highest achievable load point, if at least 75 percent of peak load cannot be achieved in practice."

Similar to this comment, commenters on the Turbine NSPS requested that EPA limit the standard to full load or provide additional data and analysis to support broader applicability. EPA's response in the preamble to Subpart KKKK indicated:

> "We indicated in the final rule that the NOx performance testing should be conducted at full load operation, which is defined as plus or minus 25 percent of 100 percent of peak load, or the highest load physically achievable in practice."

Thus, EPA accepted the comments for the Turbine NSPS. Similar logic and emissions control approaches are considered for the Proposed Rule. In addition, in industrial applications such as gas transmission, turbines are typically sited at locations that are expected to be able to operate near full load, due to efficiency penalties at reduced load. IC engines are a more likely choice if more operational flexibility is needed. Thus, IC engine operational limitations are even more likely to occur than for turbines.

To address cases where maximum load cannot be achieved in practice, the NESHAP language should be revised to include a phrase indicating, "or the maximum load achieved in practice." Thus, the last sentence is §63.6620(b) should be revised to read:

> "…The test must be conducted at any load condition within plus or minus 10 percent of 100 percent load ***or the maximum load achieved in practice***." [Emphasis added for proposed new text.]

A similar provision should be added to §60.6244 of the NSPS.

These provisions are important because emissions can vary as load is reduced, and an output-based standard is also affected by operational efficiency as load decreases. Thus, NOx, CO, NMHC, and formaldehyde emissions can all be affected as engine load decreases, and changes in ppmv, mass rate, and engine efficiency cannot be readily predicted. Without low load data to support the basis of the standard, the NSPS and NESHAP emission standard applicability should be limited to full load. This will also harmonize the Subpart ZZZZ and Subpart JJJJ test requirements.

30. EPA should revise the standard temperature in the proposal from 25 ^{o}C to 20 ^{o}C to be consistent with the commonly applied standard and the definition in the Part 60 and Part 63 General Provisions (i.e., 293 K (68 ^{o}F) and 101.3 kilopascals (29.92 in Hg)).

In the Proposed Rule, §60.4244(d), (e), and (f) include equations to convert emission measurements and engine process data to an emission rate in units of g/hp-hr. The equations include conversion constants for ppm to grams per standard cubic meter at 25 degrees Celsius (which is equivalent to 77 ^{o}F). However, the conversion constants listed are based on 20 Celsius (293 Kelvin or 68 ^{o}F). In addition, the definition in §60.2 states:

> "*Standard conditions* means a temperature of 293 K (68F) and a pressure of 101.3 kilopascals (29.92 in Hg)."

Please clarify that the standard temperature for subpart JJJJ is 20 degrees Celsius and make appropriate corrections to the text in §60.4244(d), (e), and (f). The same correction should be made to the text under equation 5 in §63.6620 (j).

<u>Monitoring and Performance Tests</u>:

31. Requirements that owners/operators must follow manufacturer operating and maintenance (O&M) procedures are onerous – especially when considering that IC engine operators often have existing O&M practices that may differ from vendor recommendations but are designed to address the specific challenges and rigor of the application.

INGAA concerns with O&M requirements and resolution based on adding an additional compliance monitoring option to the rule for units without mandatory certification are discussed in more detail in Comments 2, 3, and 6. This section of the INGAA comments itemizes issues associated with Proposed Rule compliance monitoring and performance test requirements, so the issue of O&M is reiterated here, as following O&M procedures serves as the method of ongoing compliance assurance for the Proposed Rule.

Of utmost concern in regard to compliance monitoring is the requirement to follow manufacturer O&M instructions for all engines for the entire engine life. In contrast, the manufacturer's obligation to ensure emission conformance only applies for 8,000 hours – or as little as 11 months. INGAA's concern with the O&M requirement is reiterated, as this is the most important issue in regard to compliance monitoring and testing. INGAA strongly recommends that EPA implement INGAA's recommendations in Comment 3, with engines that do not include mandated certification having an option to implement compliance monitoring that includes performance tests and operator defined O&M procedures consistent with the criteria in the General Provisions (§60.11(d) and §63.6(e)(1)).

32. The proposed test methods for NMHC measurement are inadequate for natural gas-fired units. For NMHC testing, EPA should propose Method 18 to measure individual primary NMHC species and determine NMHC emissions as the sum of the NMHC species. The method should specifically exclude aldehydes. Extractive FTIR testing should also be accepted for gas-fired sources, with NMHC based on the sum of the relevant hydrocarbon species.

In the Proposed Rule preamble, EPA requests comments on tests methods for measurement of NMHC. While INGAA recommends that the regulated pollutant should be VOC and not NMHC, the content of this comment applies for either species, and the discussion that follows refers to NMHC. INGAA recommends that separate methods be included in the final rule for NMHC measurement to address differences between gas-fired sources and other fuels. INGAA recommendations include the following:

- EPA should only include test methods that do not respond to formaldehyde or oxygenates, as the NMHC limit should be exclusive of oxygenated species (see Comments 23 and 43).
- The Proposed Rule includes Method 25, and this method should not be included in the final rule.
- The Proposed Rule includes Method 25A in combination with Method 18, but these two methods should not be used for gas-fired sources, as high exhaust methane levels relative to THC can result in "NMHC by difference" with very high error.
- Additional methodologies should be included for natural gas-fired units using "addition of hydrocarbon species" using EPA Method 18 to measure individual primary NMHC species and summing the detected, relevant NMHC species to determine NMHC emissions. In addition, this approach can be applied using extractive FTIR to quantify and sum the relevant, detected hydrocarbon species.
- If EPA retains Method 25A for THC measurement in combination with Method 18 to measure methane from natural gas-fired units, then Method 25A should be modified to correct THC measurements to account for the different Method 25 FID analyzer responses to methane, the primary exhaust gas constituent, and to the propane calibration gas.

Background and detail for these recommendations are discussed below.

Background and Method 25 Exclusion from the Rule

NMHC will be measured during engines performance tests and subsequent periodic tests to demonstrate compliance with Subpart JJJJ and Subpart ZZZZ emission limits. NMHC emissions are defined as total hydrocarbons (THC) emissions less methane emissions. However, this definition needs further clarification to exclude formaldehyde and oxygenates, because the emissions information provided by manufacturers that serves as the basis of the standard does NOT include aldehydes or other oxygenated hydrocarbons. This is discussed in more detail in Comment 23.

NMHC measurements are typically conducted using a flame ionization detector (FID) to measure THC and a FID or gas chromatography method to measure methane. Table 2 to Subpart JJJJ lists Methods 25A and 18 or Method 25 of 40 CFR Part 60 Appendix A as acceptable NMHC test methods. Method 25A uses a continuous FID analyzer to measure exhaust gas THC. Method 18 separates CH_4 (methane) from other exhaust gas species with a gas chromatograph,

and quantifies the methane with an appropriate detector. Method 18 allows exhaust gas to be collected in a bag or continuously sampled. FIDs poorly quantify oxygenated hydrocarbon species. Formaldehyde, and to a lesser extent acetaldehyde, methanol, and acrolein, have been measured in natural gas-fired engine exhaust. As EPA has noted, formaldehyde is the most prevalent hazardous air pollutant emission from gas-fired engines.

EPA has concluded that there is a linear correlation between NMHC emissions and formaldehyde emissions and the proposed NESHAP uses NMHC as a surrogate for formaldehyde. INGAA agrees with EPA's conclusion that NMHC test methods are simpler and less costly to implement than formaldehyde test methods and that NMHC testing will reduce the testing burden while maintaining emissions compliance assurance.

Recognizing that measuring NMHC with a FID does not directly measure formaldehyde and that the emission limits are based on manufacturer data that do not include formaldehyde and other oxygenates, it is important to understand that NMHC is used as a formaldehyde surrogate, but NMHC, the regulated pollutant, does NOT include formaldehyde under this standard. Thus, it is only appropriate to allow test methods that do NOT measure formaldehyde or other oxygenated hydrocarbons; therefore, as demonstrated in the following text, Method 25 should be excluded from the final rule.

Method 25 measures non-methane organics (NMO) as carbon by collecting exhaust gases in an evacuated tank, separating the NMO from CO, CO_2, and CH_4, oxidizing the NMO to CO_2, and then reducing the CO_2 to CH_4 and quantifying the CH_4 with a FID. Through the steps that chemically oxidize and then reduce organic species, this method can exhibit a positive response to formaldehyde and other oxygenated hydrocarbons. Since the NMHC standard is based on data excluding these species, Method 25 is inappropriate for NMHC compliance tests under Subpart JJJJ or Subpart ZZZZ and should not be included in the final rule.

Limitations of Method 25A/Method 18

The other proposed NMHC method is Method 25A combined with Method 18. NMHC is determined by "difference" from Method 25A THC and Method 18 methane measurements. Similar methodology (i.e., NMHC "by difference") has a legacy for mobile / nonroad testing, where the engines certified have operated on liquid fuels (e.g., diesel, gasoline). These fuels are comprised of longer chain hydrocarbons and do not include methane. Thus, the characteristic exhaust THC includes minimal methane relative to the other exhaust hydrocarbons. However, this is not the case for natural gas or other gaseous fuels, which are the dominant affected sources under Subpart JJJJ.

Methane is the predominant hydrocarbon in natural gas, and nearly all digester gas or landfill gas hydrocarbon is methane. For example, natural gas may contain 90% or more volume percent methane, with at least ten times more methane than other hydrocarbons (e.g., ethane, propane, etc.) typical. Digester gas and landfill gas will contain, at most, trace levels of hydrocarbons other than methane. Because of these fuel characteristics, the exhaust THC from engines firing these gaseous fuels will typically be at least 80% methane, with methane more than 90% not unusual. For example, if 1000 ppmv THC is measured in the exhaust, methane will likely comprise 800 – 900 ppmv or more of the THC. These relative levels are important, because

small errors in these relatively large numbers can result in *large errors* in the "difference" when the two values are subtracted to determine NMHC. For example, a few percent error in each measurement, which is well within expectations of reasonable performance for source test methods, can result in a "result by difference" with an error of 100% or more. INGAA member company experience with test results "by difference", based on testing that includes Gas Research Institute test programs, has shown *negative* results by difference in some cases, due to high relative levels of methane/THC in combination with test method errors that are indicative of acceptable performance for emissions testing. Contributing to the test method errors are the different FID responses, on a per carbon atom basis, to methane (the predominant exhaust gas hydrocarbon specie for gas-fired units) and propane, the FID calibration gas specie.

Because of the potential error in results by difference from natural gas-, digester gas-, and landfill gas-fired engines, an alternative method for these source types should be included in the rule. For NMHC performance tests, INGAA recommends that EPA Method 18/25A use should be limited to gasoline and LPG-fired sources in Subpart JJJJ, and units fired with these fuels along with compression ignition engines under Subpart ZZZZ. Natural gas-, digester gas-, and landfill gas-fired engines should use a testing approach that determines NMHC by "adding" detected hydrocarbon species measured using EPA Method 18 or a validated extractive FTIR method. If EPA decides to retain the Method 25A/18 NMHC measurement approach, then Method 25A should be modified to correct the THC measurement to account for the different Method 25 FID analyzer responses to methane and propane.

Method for Gas-Fired Sources

As discussed above, for natural gas-fired sources that characteristically have relatively high exhaust methane to THC ratios, measuring NMHC "by difference" can result in significant error – with either positive or negative bias in the test result possible. An alternative method for NMHC measurement needs to be identified. The best candidate method is based on exhaust hydrocarbon speciation, consistent with the methods and exhaust species used for the data that serves as the basis for the emission limits. The speciated hydrocarbons are then added to report NMHC. EPA Method 18 with appropriate gas chromatography (GC) analysis has been used for engine field tests to measure speciated hydrocarbons and accepted by state and local agencies for engine compliance testing. In addition, with broader use of extractive FTIR for gas-fired combustion sources, this approach can also be implemented using a validated FTIR method. With oxygenated species excluded, historical data indicate that simple alkanes and alkenes comprise nearly all of the exhaust hydrocarbons from natural gas-fired sources. If necessary, data from the literature can be provided to further document this fact. Thus, INGAA recommends that the following hydrocarbons be included in the GC analysis or extractive FTIR method and detected species summed to report NMHC:

- C2: Ethylene and acetylene (and ethane if NMHC is reported rather than VOC),
- C3: Propane and propene,
- C4: n-butane, iso-butane, butenes;
- C5: n-pentane, isopentane, neopentane, and pentenes; and
- C6+: Measurement reported as hexane based on GC column back-flush following established procedures.

The modified Method 25A procedure should include FID calibration with propane followed by methane calibration gases to determine the relative response factor, on a per carbon atom basis, of methane to propane. The FID THC measurements would then be corrected using the Method 18 methane concentration measurements and the methane/propane relative response factor.

It is imperative that the NMHC method in the final rule properly characterize exhaust emissions for gas-fired sources. INGAA recommends Method 18 and the GC analysis discussed above. In addition, extractive FTIR with validation for the species of interest should be acceptable as an alternative method. INGAA can provide additional information to EPA on this methodology, as necessary. In addition, with separate methods available dependent upon fuel type for the spark-ignited engine standard, the NMHC definition needs to be revised to reflect the methodologies used and hydrocarbon species addressed (see Comment 43).

33. INGAA supports performance testing for validating compliance with emission limits, and use of "full load" testing for compliance assurance should be more broadly accepted in the Proposed Rule.

The proposed NSPS includes requirements for periodic testing of uncertified engines larger than 500 hp. EPA supports periodic testing as the monitoring method for validating compliance for this engine category. In addition, INGAA supports broader application of performance testing for compliance monitoring for units that do not mandate certification. This section of the comments addresses monitoring and testing, and INGAA's position regarding performance tests is reiterated and summarized as follows:

- As discussed in Comment 29, the NSPS and NESHAP should include consistent requirements for performance tests to be performed at full load or the maximum load achieved in practice.
- In addition, INGAA recommends (see Comments 2 and 3) that §60.4234 be revised to include a compliance monitoring option for engines that includes emissions testing and O&M defined by the operator consistent with the General Provisions of Parts 60 and 63 (§60.11(d) and §63.6(e)(1)).
- Performance testing, including test frequency, should be consistent with the requirements of §60.4243(c)(2).

Emissions testing to demonstrate compliance is an established compliance monitoring approach prevalent for combustion sources under Part 60 and Part 63. It is reasonable to include a similar approach in Subpart JJJJ, and INGAA advocates an expanded role for performance tests as outlined above.

34. EPA should clearly indicate that a field performance test or any subsequent performance testing is not required for units 500 hp and smaller that have been certified and follow manufacturer recommended O&M procedures.

INGAA understands that the intent for certified engines is that no testing is required. However, as discussed in other comments, existing Title V, RICE MACT, and state and local programs will clearly result in compliance tests for "larger" engines. INGAA believes that EPA should address this topic more directly in the final rule by: acknowledging that compliance tests may

occur in some cases (e.g., especially for larger engines); and, more strongly advocating the EPA position that no tests are required for certified engines and that testing should be avoided for smaller engines due to the costs involved. EPA has failed to consider testing costs for the standard. If tests are required for smaller engines, it is likely that a more thorough analysis would indicate that the cost-benefit tradeoff is marginal at best for smaller engines. Because of issues discussed in other comments, including the uncertain status of an engine after its useful life expires, it is important for EPA to clearly establish its position regarding emissions tests for smaller engines. EPA has failed to acknowledge even its own testing requirements for engines larger than 500 hp at major sources under MACT in considering testing implications.

By accepting the likelihood or requirement of large engine tests (e.g., under RICE MACT) and more strongly stating that small engine tests are not warranted, there is a better chance that EPA's perceived benefit from certification will be realized when the standard is implemented. If EPA fails to acknowledge the likelihood of large engine testing and does not provide additional insight into this issue, INGAA believes that small engine tests will be more likely. INGAA's position is based on current testing requirements by state and local agencies, the current uncertainty about the status of an affected engine after its useful life, and historical compliance monitoring requirements in state permits. While existing test requirements for states vary (see Comment 2), INGAA suggests that the implementation of future requirements can be impacted if EPA more strongly advocates no test requirements for units 500 hp and smaller.

35. INGAA supports the inclusion of EPA Method 7E, Method 10 and ASTM Method D6522-00 for performance tests.

INGAA agrees that the NOx and CO emissions test methods listed in the Proposed Rule are appropriate for stationary internal combustion engine emission measurements. The methods include: Method 7E for NOx and Method 10 for CO from 40 CFR 60, Appendix A; and, ASTM Method D-6522-00 (2005) for NOx and CO using a portable analyzer. In addition, the ASTM method can be used to measure oxygen, as discussed in Comment 36. For portable analyzer methods, procedures other than the ASTM method are used, and many states have accepted alternative methods for portable analyzer compliance tests. In addition to citing the ASTM method, EPA should indicate that alternative methods approved by the Administrator or delegated authority are also acceptable.

These methods are industry standards and have been the typical test methods required for state and regional compliance testing. Thus, the methods, including approved alternative portable analyzer methods, have a history of successful application to stationary internal combustion engines and are appropriate methods to demonstrate compliance with the emission standards in the Proposed Rule.

36. Additional test methods are needed to determine emission rates. Standard test methods should be added to the rule for converting concentration measurements to emission rates, including EPA Method 19 for determination of emission rates and EPA Method 3A or ASTM 6522-00 for diluent measurement.

Currently, the proposed NSPS does not specify methods for converting a pollutant concentration measurement to an emissions rate – which is the basis of the standard (i.e., engineering units of

g/bhp-hr). In § §60.4244 and 63.6620, the equations for completing calculations are defined, but it is necessary to define the following methods for compliance with NOx, CO and NMHC limits:

- EPA Method 19 (Part 60, Appendix A) for determining the stack gas volumetric flowrate; and,
- EPA Method 3A (Part 60, Appendix A) or ASTM D6522-00 for measuring oxygen. This measurement is needed for the flowrate calculation, and also would be required to correct a concentration measurement to a standard (e.g., ppmv at 15% O_2) if an alternative concentration-based standard (ppmv) is included per the discussion in Comment 24.

Table 2 to Subpart JJJJ of Part 60, Requirements for Performance Tests, does not list emissions measurement methods for oxygen (O_2) or exhaust flowrate. EPA Method 19 is the test method commonly applied for IC engines field tests. This method, based on fuel input and combustion calculations, is preferred to an exhaust flow measurement (e.g., Method 2) due to the typically "pulsating" flow and smaller exhaust stacks characteristic of IC engines. O_2 measurements will be required to convert the measured concentration to an emission rate using EPA Method 19 or to correct the concentration measurement to a standard (e.g., ppmv at 15% O_2).

Method 3A from Part 60, Appendix A and ASTM Method D-6522-00 (2005) are industry standards and have been the required test methods for most state and regional compliance testing; thus, INGAA requests these test methods be added to Subpart JJJJ Table 2 for O_2 measurements.

Similarly, EPA Method 19 is the industry standard for exhaust flowrate, and has been used in other recent standards such as the Turbine NSPS (Part 60, Subpart KKKK). Method 19 should also be added to Table 2 in Subpart JJJJ. Note that Table 5 of the proposed amendments to Subpart ZZZZ lists Method 3 or 3A or 3B of Part 60, Appendix A, or ASTM Method D6522-00 (2005) for O_2 measurements, but does not include these references for item 4, which addresses NMHC compliance. These same methods should be listed for item 4 of Table 5 in the NESHAP (and the longer list of oxygen methods could be included in the NSPS), and the reference to EPA Method 19 should also be added to item 4 in Table 5 (compliance with NMHC limits).

37. The rule should clarify that horsepower for performance tests used to determine g/bhp-hr emission rates should be based on methods and a report provided by the owner/operator.

The Proposed Rule includes emission limits in units of g/bhp-hr for both the NSPS and NESHAP proposals. In §§ 60.4244 and 63.6620, equations are included for calculating emissions in these engineering units. However, the Proposed Rule does not indicate how "horsepower" or "horsepower-hours" should be determined. This parameter is needed to complete the calculation, and since the Proposed Rule broadly references mobile source standards (e.g., Parts 90, 1048, and 1068), implementing agencies may try to use these standards to identify a methodology for determining horsepower. The methods, associated with certification in a laboratory or test cell, are not appropriate for a stationary source emissions test on a mechanical drive engine or in the field. To address this, the rule should include a reference for defining horsepower consistent with §63.6620(i) of the existing RICE MACT, with this horsepower used as the basis for the emission rate calculation.

The existing RICE MACT requires that tests be conducted at or near full load, and §63.6620(i) identifies how to document horsepower for the performance test, as follows:

> "(i) The engine percent load during a performance test must be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A written report of the average percent load determination must be included in the notification of compliance status. The following information must be included in the written report: the engine model number, the engine manufacturer, the year of purchase, the manufacturer's site-rated brake horsepower, the ambient temperature, pressure, and humidity during the performance test, and all assumptions that were made to estimate or calculate percent load during the performance test must be clearly explained. If measurement devices such as flow meters, kilowatt meters, beta analyzers, stain gauges, etc. are used, the model number of the measurement device, and an estimate of its accurate (sic) in percentage of true value must be provided."

The owner/operator has the responsibility to identify the test horsepower and provide the basis for this determination. For mechanical drive applications (e.g., compressor drivers), there is not a consistently used method for determining horsepower. Thus, §63.6620(i) provides a reasonable approach for defining horsepower, and this section should be referenced in the NESHAP amendments as the basis for horsepower in Equation 5 of §63.6620 and added to §60.4244 for defining horsepower in Equations 1 to 3.

It is important that EPA complete these Proposed Rule revisions to avoid potential confusion for in-use field tests that could result from considering referenced mobile/nonroad test methods associated with certification in a controlled laboratory or test cell environment.

38. EPA should revise the final rule to include ASTM Method D6348 and EPA Method 320 as acceptable methods for performance tests. These are extractive Fourier Transform Infrared (FTIR) test methods provide for measurement of NOx, CO, and diluent emissions.

In addition to the methods included in the Proposed Rule, extractive FTIR test methods are available that are proven for application to natural gas-fired IC engines, and these methods should be included as acceptable methods in Table 2 of Subpart JJJJ.

ASTM Method D6348-03 "Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy" and EPA Method 320 of 40 CFR 63 Appendix A "Measurement of Vapor Phase Organic and Inorganic Emissions by Extractive Fourier Transform Infrared (FTIR) Spectroscopy" are listed in Table 5 to Subpart ZZZZ of Part 63 - Requirements for Performance Tests for formaldehyde emissions measurements. These test methods are also applicable for NOx and CO emissions measurements from stationary internal combustion engines. Therefore, sources that are required to measure formaldehyde emissions could also simultaneously measure NOx and CO using a single test method. This approach would be more efficient than using multiple test methods.

At a minimum, the FTIR methods should be acceptable for natural gas-fired IC engines. Based on validation tests and a request from the Gas Research Institute, the EPA Emission

Measurement Center (EMC) has previously approved extractive FTIR for measurement of natural gas-fired engines emissions species that include CO and NOx. In addition, carbon dioxide measurement has been approved and CO_2 can be used as a diluent in place of oxygen measurement. If EMC no longer has that approval letter, a copy can be provided by INGAA.

It should also be noted that there is precedent for using these two extractive FTIR methods for internal combustion engines in 40 CFR 60 Subpart IIII "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines NSPS." In response to comments on the Subpart IIII proposal, EPA added the FTIR methods to the final rule.

Thus, INGAA requests that ASTM D6348-03 and EPA 320 be added to the list of applicable NOx and CO test methods that currently includes EPA Method 7E for NOx, EPA Method 10 for CO, and ASTM Method D-6522-00 (2005) for both NOx and CO. In addition, as discussed in Comment 32, extractive FTIR with method validation for the hydrocarbon species of interest should be accepted as an alternative for NMHC measurement from gas-fired sources.

39. INGAA supports the EPA conclusion that performance testing for compliance assurance is appropriate for uncertified engines.

In the Proposed Rule preamble (71 FR 33823), EPA concludes that performance testing is necessary to assure compliance with the emissions standards for uncertified engines. A one time test is required for units 500 hp and smaller, with larger units requiring periodic testing once every 8760 operating hours or three years, whichever comes first. INGAA agrees that emissions testing is appropriate for compliance monitoring. In addition, as discussed in Comments 2 and 3, this monitoring option should be allowed for engines that are certified under the voluntary program.

Performance tests are a proven approach for compliance monitoring, and have been a standard requirement in many standards, such as the recent Turbine NSPS, Subpart KKKK. In addition, because of issues discussed earlier – such as the limited useful life and the difference between nominal emissions from test cell certification and in-use field emissions – a periodic test provides assurance of ongoing compliance after the manufacturer's responsibility expires at the end of the useful life. Through state and local requirements and even the existing RICE MACT, performance tests are a well established monitoring approach. Because of these existing criteria, it is logical to conclude that tests will continue, especially for larger engines. Thus INGAA advocates a compliance monitoring path based on performance tests – in conjunction with operator-defined O&M practices - for all natural gas fired engines without mandatory certification under Subpart JJJJ.

40. Section 60.4245(d) requires test reports to be submitted within 30 days of completion of the test. This should be revised to 60 days after completion of the test, which is consistent with NESHAP requirements.

In §60.4245(d), the proposed NSPS requires submittal of performance test reports within 30 days of completion of the test. EPA should revise this requirement to 60 days after the completion of the test so that the NSPS is consistent with the NESHAP.

Sections 63.6645(j)(2) and 63.7(g)(1) allow 60 days for submittal of test reports. The language from §63.7(g)(1) follows:

> "The owner or operator of an affected source shall report the results of the performance test to the Administrator before the close of business on the 60th day following the completion of the performance test, unless specified otherwise in a relevant standard or as approved otherwise in writing by the Administrator (see § 63.9(i))."

A 60 day time period is more appropriate for completion of data reduction and analysis, and submittal of the test report. Sixty days is also more consistent with existing reporting requirements for IC engines tested under typical state/local programs and the existing RICE MACT. In addition, the NMHC test method has not yet been clearly defined, and the method may require post-test offsite analysis rather than providing real-time results. This results in additional time being required to complete the testing, analysis, and reporting. INGAA recommends that EPA revise the proposed NSPS requirement for performance test report submittal to 60 days.

41. For major source engines with catalytic control, the NESHAP requires monthly pressure drop (ΔP) monitoring across the catalyst (see NESHAP Table 7). EPA should revise this requirement to clarify owner/operator requirements during months when a subject engines does not run or runs minimally.

The MACT standard requires monthly catalyst ΔP monitoring for affected engines. In addition, due to variations in exhaust pressure at different loads, this measurement is to be conducted when the unit is operating at 100% $\pm$10% load. However, operating scenarios are common where an engine does not operate in a month or operates only sporadically or for limited hours. For example, an engine at a natural gas compressor station may have limited runtime during the summer months when gas demand is typically lower. Following promulgation of Subpart ZZZZ in June 2004, questions were raised regarding clarification of rule requirements or implementation issues by both the affected community and delegated state and local agencies. INGAA submitted a number of questions to Greg Fried, EPA Office of Enforcement and Compliance Assurance (OECA), in a June 2004 letter. In response to these inquiries, OECA issued guidance in a Memorandum dated September 30, 2005. OECA noted that the question and answer document was coordinated with the Office of General Counsel (OGC) and Office of Air Quality Planning and Standards (OAQPS). However, this guidance does not adequately address the issue of ΔP monitoring, and the proposed NESHAP amendments extend this requirement to another category of engines – 4-stroke lean burn engines form 250 to 500 hp located at a major source. EPA should address this issue and clarify the NESHAP requirements.

Three questions related to this issue were addressed in the OECA Memorandum (which is available on-line at http://www.epa.gov/ttn/atw/rice/riceq_a_9-30-05.pdf). Questions 20 – 22 discuss ΔP monitoring, but INGAA believes that the EPA responses are not consistent. For two of the responses (questions 20 and 21), EPA indicates that a monthly measurement must be completed unless the owner/operator has received approval for an alternative based on an application submitted according to 40 CFR Section 63.8(f). For the third response (question 22), EPA does not indicate that approval of an alternative is required, and indicates that the monitoring must be completed immediately upon startup of the unit. This answer reflects the logical conclusion that the unit should not be started solely to record the pressure drop –

however, this rationale is not applied in the responses to the other two related questions. All three responses imply that sporadic operation, extended periods of inoperation, or reduced load operation are unusual or unplanned, which is contrary to the operational profiles that were clearly communicated to EPA during the development of the RICE MACT through the Industrial Combustion Coordinated Rulemaking process. In addition, INGAA does not understand why the first two questions require approval of alternative monitoring, while the third does not.

For the final rule, INGAA recommends that EPA clarify the timing of monthly ΔP monitoring for no- or low-use operating months and provide a solution that considers:

- That IC engines may operate at less than full load, and the owner/operator may have limited or no readily available method to increase load to 90% or higher for the ΔP measurement. As INGAA indicated in comments and through data provided in response to the original RICE MACT proposal, it is important to understand that testing at lower load effects the ΔP measurement and that the full load restriction is necessary to consistently meet the required operating limit.
- That shutdown of IC engines for an entire month is not unusual and should be properly addressed in Subpart ZZZZ.
- That the sporadic or infrequent operation in a particular month is also common and may present an issue for obtaining a ΔP measurement.
- That unmanned facilities pose an issue for completing a test "immediately upon startup" and that operational control remote from the facility may shutdown a recently started engine prior to it completing the startup cycle that includes achieving high loads or exhaust temperatures necessary for catalyst performance.

INGAA believes that an interpretation and implementation approach similar to the response to question 22 in the OECA Memorandum is appropriate – if a unit is not operating or at full load, then the owner/operator shall complete the measurement as soon as practicable for the unit. To further clarify, the requirement should consider the practicality of completing the measurement for an unmanned or limited manned facility. INGAA believes that a reasonable solution should include:

- Owners/operators are expected to conduct monthly pressure drop monitoring as required by Subpart ZZZZ.
- If the RICE does not operate during a given month, does not achieve 100% load $\pm$10%, or has limited operation in a month and is shutdown before the owner/operator completes the ΔP measurement, then the owner/operator is not required to startup the engine or take extraordinary actions to increase load solely to record the pressure drop.
- The owner/operator should record the pressure drop as soon as practicable after startup of the RICE.
- The semi-annual report required in Section 63.6650 should identify the operational status of the affected engine to substantiate the basis for any calendar month that ΔP is not measured due to these operational limitations.

- If the delegated agency believes that the owner/operator may be attempting to circumvent the required continuous monitoring provisions of Subpart ZZZZ, the delegated agency may require that the owner/operator startup the RICE for the purpose of ensuring compliance with the operating limits.

INGAA believes that clarification to ΔP monitoring requirements should be addressed in the NESHAP amendments, and consideration of INGAA recommendations results in a reasonable monitoring requirement that avoids unnecessary engine operation or pursuing the burdensome and time consuming process for approval of alternative monitoring.

Definitions:

42. As discussed in Comment 9, the definition of Emergency Engine should be revised to be consistent with the current definition in the RICE MACT.

The definition of emergency engine as discussed in Comment 9 should maintain the current definition in the RICE MACT. The *existing* RICE MACT (40 CFR Part 63, Subpart ZZZZ) was developed based on input and review from a broad stakeholder group and defines an emergency engine as:

> *"Emergency stationary RICE* means any stationary RICE that operates in an emergency situation. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility is interrupted, or stationary RICE used to pump water in the case of fire or flood, etc. Emergency stationary RICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the manufacturer, the vendor, or the insurance company associated with the engine. Required testing of such units should be minimized, but there is **no time limit on the use of emergency** stationary RICE in emergency situations **and for routine testing and maintenance**. Emergency stationary RICE may also operate **an additional 50 hours per year in non-emergency situations**." [Emphasis added]

As discussed in Comment 9, the emergency definition in the Proposed Rule affects both the NSPS and the proposed NESHAP amendments. However, the existing RICE MACT includes a consensus definition of "emergency RICE" developed during the ICCR process. EPA has proposed more stringent criteria in the revised definition and has not provided proper analysis to substantiate and justify this change. The consensus RICE MACT definition should be retained in the NESHAP and, for consistency, also be included in the NSPS. The existing consensus definition provides ample flexibility for emergency preparedness without environmental detriment.

43. The definition of NMHC and THC need to be revised consistent with the basis of the emission standard and methods allowed for performance tests.

As discussed in Comment 32, the NMHC (or VOC) definition clearly must NOT include formaldehyde or other oxygenated hydrocarbon, because the manufacturer data that serves as the basis for the proposed emission standards do NOT include formaldehyde. Thus, the definition for NMHC (or VOC) should be revised to include a statement that the hydrocarbons included do

not include formaldehyde or other oxygenated hydrocarbons. Alternatively, EPA needs to conduct additional analysis to provide new NMHC (or VOC) emission limits that include these other compounds.

Also, as discussed in Comment 32, the methods that determine NMHC or VOC based on the difference between total hydrocarbons and methane have the potential to be problematic. While such methods may perform acceptably for non-gaseous fuels, gaseous fuels with methane as the principal hydrocarbon (e.g., natural gas, field gas, digester gas, landfill gas) include methane as the primary hydrocarbon in the exhaust, and methods that determine NMHC or VOC "by difference" are subject to large error.

INGAA recommends the following revisions to the definitions:

> *"Non-methane hydrocarbons* (NMHC) means the difference between the emitted mass of total hydrocarbons measured by EPA Method 25A and the emitted mass of methane measured by EPA Method 18 for gasoline- or LPG-fired engines, and for gaseous fuel-fired units, the sum of C2 through C6+ alkanes and alkenes determined according to EPA Method 18 or extractive FTIR methods. For the purposes of compliance with the emissions standards, NMHC does not include formaldehyde or other oxygenated hydrocarbons."
>
> *"Total hydrocarbons* means the combined mass of organic compounds measured by EPA Method 25A as propane for gasoline- or LPG-fired engines, and for gaseous fuel-fired units, the sum of C1 through C6+ alkanes and alkenes determined according to EPA Method 18 or extractive FTIR methods. For the purposes of compliance with the emissions standards, THC does not include formaldehyde or other oxygenated hydrocarbons" ~~the specified procedure for measuring total hydrocarbon, expressed as a hydrocarbon with a hydrogen-to-carbon mass ratio of 1.85:1.~~

The total hydrocarbons definition in the proposed rule is expressed as a hydrocarbon with a hydrogen to carbon mass ratio of 1.85. INGAA is not aware of a hydrocarbon or associated measurement standard with a H:C mass ratio of 1.85. Methane is the hydrocarbon with the highest hydrogen to carbon ratio and the H:C mass ratio is 4:12 or 0.33. If EPA retains the total hydrocarbons definition in the Proposed Rule, then an explanation of the H:C mass ratio should be provided.

44. EPA should clarify the definition of manufacturer, as multiple parties can be involved with siting an engine and this could cause confusion with defining manufacturer O&M requirements.

EPA should clarify the definition of manufacturer, as multiple parties can be involved with siting an engine. This could result in overlapping and/or conflicting O&M requirements from the engine manufacturer, air pollution control manufacturer (e.g., NSCR catalyst; air-to-fuel ratio controller), and third party packager. Operating specifications for multiple vendors may vary, and the manufacturer definition should clarify requirements and identify which party holds primary responsibility.

While an engine certification may be straightforward in mobile and nonroad applications, for a stationary IC engine, siting often involves multiple parties, including:

- The engine manufacturer;
- The control device manufacturer for post-combustion control, as engine OEMs typically do not provide add-on control equipment; and,
- Third party packager, such as the company that is responsible for putting the unit into service at a site and executes the purchase contract. For example, in gas transmission, it is common for a third party to be responsible for procuring and integrating the engine, the driven equipment (e.g., natural gas compressor), and the NSCR for rich burn engines.

Issues associated with the multiple parties/"manufacturers" involved is also discussed in Comment 6. Since the Proposed Rule requires "manufacturer O&M" procedures, the roles of these parties need to be considered and "manufacturer" O&M more clearly defined. One might presume that the third party packager has a role in defining O&M or approving alternatives, but these stakeholders have not participated or been consulted in regard to the Proposed Rule. INGAA believes that these businesses are not in a position to assume a role of responsibility nor have the operating and maintenance experience of industrial operators. However, they are often the only interface with the owner/operator.

Currently, the existing RICE MACT and proposed NESHAP amendments do not define "manufacturer". Subpart JJJJ proposed the following definition:

> *"Manufacturer* has the meaning given in section 216(1) of the Clean Air Act. In general, this term includes any person who manufactures a stationary engine for sale in the United States or otherwise introduces a new stationary engine into commerce in the United States. This includes importers who import stationary engines for resale."

Note that since the packager is the equipment provider to stationary source operators in many cases, one might assume that this third party is responsible for "introducing the engine into commerce" – which is a part of the definition. The reference from CAA Section 216 provides the definition of manufacturer for motor vehicles:

> "(1) The term "manufacturer" as used in sections 202, 203, 206, 207, and 208 means any person engaged in the manufacturing or assembling of new motor vehicles, new motor vehicle engines, new nonroad vehicles or new nonroad engines, or importing such vehicles or engines for resale, or who acts for and is under the control of any such person in connection with the distribution of new motor vehicles, new motor vehicle engines, new nonroad vehicles or new nonroad engines, but shall not include any dealer with respect to new motor vehicles, new motor vehicle engines, new nonroad vehicles or new nonroad engines received by him in commerce."

This definition is constrained by its reliance on vehicle/nonroad engines and thus does not have direct applicability to stationary sources. This reference does not provide additional clarity. Because of this, INGAA recommends that the reference to CAA Section 216 be deleted from the Proposed Rule.

In addition to the manufacturer responsibility to define O&M, EPA has granted the manufacturer responsibility for approving owner/operator O&M alternatives – which serves as the "compliance monitoring" criteria for the Proposed Rule. Notably, for the vast majority of other Part 60 and Part 63 standards, and all combustion standards other than the compression ignition IC engine NSPS, the owner/operator has the ability to petition the EPA (or delegated State agency) to define alternative test methods and alternative monitoring. For example, §63.90 defines specific requirements regarding what can and cannot be delegated – and "major" changes remain the responsibility of EPA. Curiously, for the Proposed Rule, EPA has delegated all of this authority to the OEMs, but there is not a guarantee that the manufacturers can or will support the obligation to review alternatives. As discussed in Comments 2, 3 and 6, INGAA strongly recommends that owner/operator O&M be accepted (without involving the OEMs) for engine categories that do not mandate certification. If this change is not made in the final rule, it is imperative that EPA require manufacturers to fulfill the obligation to review and approve owner/operator alternatives in a reasonable timeframe and without additional expense to the requestor. Such criteria is imperative to ensure that industrial operators, who have skill sets and knowledge regarding their industrial process application that vastly exceed OEM capabilities, have a reasonable route to avoid unnecessary, unsafe, or costly O&M. In addition, if manufacturer O&M is retained in the rule, EPA should clearly indicate how subsequent issues regarding O&M procedures would be addressed. For example, an implementing agency may deem the procedures insufficient, and this problem and any related enforcement actions should be the responsibility of the manufacturer – and not the owner/operator. When multiple parties are involved (engine manufacturer, control device manufacturer, and/or third party packager), EPA should define the responsibilities for the various parties.

All of these issues discussed above should be addressed within the rule (e.g., sections on O&M) or within the "manufacturer" definition. For the purposes of defining O&M responsibility, INGAA recommends that the manufacturer definition (and/or other rule revisions) should:

- Indicate that third party packagers are not party to defining O&M or approving alternatives;
- Specifically identify the engine manufacturer as holding primary responsibility for manufacturer defined O&M and that engine OEM O&M supersedes NSCR vendor criteria if conflicts arise;
- Stipulate that the manufacturer *must establish* a program to review and approve owner / operator alternative O&M procedures, at no charge to the operator, to address the authority granted to the manufacturers in §60.4234 and §63.6625(e) and (f); and,
- Indicate that the manufacturer is responsible for subsequent implementation and enforcement issues if O&M procedures are deemed inadequate.

Regarding the third bullet, INGAA has reviewed the preamble and docket and found no indication that EPA has considered the burden and costs of an owner/operator spending *years or decades* following manufacturer specifications for a unit with a useful life that may expire in less than a year. INGAA members have spent many years operating and maintaining gas transmission IC engines, and have developed efficient and effective O&M practices that are followed to ensure the safe and efficient operation of our equipment. Despite EPA's claim – without any factual evidence – that manufacturer O&M is not a burden, we are convinced that O&M costs will escalate under the Proposed Rule and have discussed this issue in Comment 6. These costs have not been explored by EPA, and the costs could escalate further for

manufacturer review and approval of alternatives. If EPA chooses to mandate manufacturer O&M despite the objections of owners and operators, it is imperative that manufacturers be required to fulfill their obligation to reasonably review and approve alternatives, and that the costs of that program be borne by the manufacturer to assure that additional cost escalation does not occur for operators or that "review cost" is not used as a deterrent to eliminate owner/operator requests.

45. The definition of "maximum engine power" is drawn from nonroad regulations and should be limited to certified engines. To avoid confusion, stationary source ratings should be based on the definition of "site rated horsepower" consistent with the current RICE MACT, with a standard reference temperature and pressure added to the definition.

The definition of "maximum engine power" is drawn from nonroad regulations and should be limited to certified engines and the context of engine certification. The definition proposed in Subpart JJJJ references a nonroad standard, which in turn references another nonroad standard for compression ignition engines. None of these definitions coincide with the horsepower rating basis used in the existing RICE MACT. Thus, when considering NSPS and NESHAP applicability, engine "subject dates" based on horsepower thresholds are unnecessarily confusing. To avoid confusion, stationary source ratings should be based on the definition of "site rated horsepower" consistent with the current RICE MACT. In addition, to address a deficiency that has been noted in implementing the RICE MACT, INGAA recommends that reference temperature and pressure be added to the "site rated horsepower" definition, and that the proper STP is the definition of standard conditions from §60.2 and §63.2. (i.e., a temperature of 293 K (68 ^{o}F) and a pressure of 101.3 kilopascals (29.92 in Hg)).

For example, Table 1 in Part 63 specifies emission limits for units affected by the existing Subpart ZZZZ, while Table 3 addresses units affected by the proposed amendments to Subpart ZZZZ. In Table 1, horsepower is apparently based on the existing definition of site rated hp, while Table 3 categorizes equipment by horsepower using a different definition from nonroad certification standards. This may result in a different threshold under the two tables and overlapping or contradictory requirements. This is another example where the mobile source "model" for the rule introduces complexity and confusion – and where EPA has failed to discuss or address this in the Proposed Rule.

For consistency with the existing RICE MACT, INGAA recommends that "site rated horsepower" be retained as the basis for regulatory thresholds under Part 60 or Part 63. While manufacturers conducting certification under a mandated or voluntary program can use the certification-related definition for those purposes, the balance of the requirements related to applicable dates and regulatory requirements for owners/operators siting an engine should be based on site rated horsepower. This change should be implemented in the proper Tables in the Proposed Rule.

In another clarifying comment regarding engine horsepower, performance test horsepower used to determine g/bhp-hr emission rates should be based on a report provided by the owner / operator, as discussed in Comment 37.

Attachment 1: State Testing Requirements for Spark Ignition Gas-Fired IC Engines, Size-Based Requirements

This document summarizes emissions testing requirements for spark ignition gas-fired IC engines prescribed in state regulations. The primary focus was to determine how testing requirements are based on engine size; specifically, what is the smallest engine that must be tested in each state or specific area of a state - attainment areas and nonattainment areas of varying severity were differentiated. Regulations from LA, TX, CO, OK, MA, NY PA, NJ, NM, WY, and IL were reviewed. Information found in these state regulations is summarized in Table 1. Table 1 segregates emissions testing requirements and emission limits by engine size/horsepower, engine type (rich- or lean-burn), and applicability (e.g. applies in attainment or nonattainment areas). Data (e.g. engine sizes and emissions limits) are included in the table as listed in the regulation; engine sizes or emissions limits from ton-per-year or other limits were not back calculated. In many states, emission limits and emissions testing requirements for most engines are prescribed in the permits. The requirements listed in Table 1, particularly the size requirements, tend to be de minimus or insignificant source levels below which testing requirements (or emissions limitations) do not apply. For larger engines, testing requirements and emissions limits are often determined on a case-by-case basis and prescribed in the permit. Size based requirements for engines were not found for NM, WY, and IL – these states are not included on Table 1.

Figures 1, 2, and 3 summarize the size-based emissions testing requirements listed in Table 1. It should be noted that the figures do not include the electrical generating units (EGU) requirements for New Jersey and the Massachusetts testing requirements were considered to be"not listed"(NL). Massachusetts specifies a minimum engine size that must be certified starting in 2007 but does not prescribe testing requirements for the post-certification period. Figure 1 shows, by engine size range, the number of states and areas that have minimum sizes for engines required to perform emissions testing. Figure 1 includes testing requirements for both attainment and nonattainment areas. If a state has more than one nonattainment area each with separate regulatory requirements for gas-fired IC engines, for example Texas, then each nonattainment area was counted separately.

Table 1. States Compliance Emissions Testing Requirements for Gas-Fired Engines

State	Eng hp	Eng Type	Applicability	Emission Limits (g/hp-hr)				
				NOx	CO	HC	Testing Scope	Notes
LA	150 - 320	LB	BR Non-attain & Operate > 400 hrs in Ozone Season	10			Start Up & Triennial: O2: 3A/20, NOx: 7E or 20, CO: 10 or 10A, Flow: M1, 2, &3 or 19. Annual Portable NOx, CO.	33.III.2201. D.1
	>320	LB		4				
	>150	RB		2				
	>300	RB	Region of Influence & Operate > 400 hrs in O3 Season	2				
			Attain, > 5 tpy any pollutant	Based on permit application estimates			None Specified, based on Permit if > 40 tpy any Pollutant.	33.III.501.A .4.a
TX	≥500	LB	PBR; Emit < 250 tpy NOx or CO, < 25 tpy VOC, SO2, or HAP	2.0			Start Up & biennial or every 15,000 hrs: NOx: 7E or 20, CO: 10, Flow: 19.	At full rated speed.
	≥500	RB		2.0				
	≥50		At minor sources in Hou/Galv nonattain area	0.50	3.0		Start Up: NOx: 7E or 20, CO: 10, O2: 3A or 20, Flow: 1&2 or 19. Qtrly Portable NOx, CO. Test for NH3 if used.	
	≥150	RB	At major sources in Hou/Galv nonattain area	2.0	3.0		Start Up: NOx: 7E or 20, CO: 10, O2: 3A or 20, Flow: 1&2 or 19. Qtrly Portable for NOx, CO. Test for NH3 as applicable	Emission specs for RACT
	≥150	RB		0.50	NL			Emission specs for Attain Demos
	≥150	LB		0.50	NL			
	≥300	RB	At major sources in Beaumont/PA nonattain area	2.0	3.0			Emission specs for RACT
		LB		3.0	3.0			
	≥300	RB	At major sources in DFW nonattain area	0.50	3.0			Emission specs for Attain Demos
	≥300	LB		2.0	3.0			
CO	>50		Nonattain areas	Testing usually only required for RBs w/NSCR & synthetic minors. Smaller engines & engines w/less annual operating hrs exempt from const permit, and testing. Engines with < 5 tpy (in nonattain areas) and < 10 tpy (attain areas) exempt from const permit.				
	>100		Attain areas					
	>175		Operates >1450 hr/yr					
	175 - 300		Operates > 850 hrs/yr					
	300 - 750		Operates > 340 hrs/yr					
OK	<50						Sources not required to test - exempt from permitting & inventory. Larger sources testing requirements specified in permit.	Insignif activity
	<150		< 20 years old					De minimis
	<240		Oil and Gas E&P or NG Compression (total facility hp)					
	Permit exempt ICE		< 40 tpy any one reg pollutant, not a major HAPs source	NOx, CO, HV: < 40 tpy; Form : < 0.6 tpy				

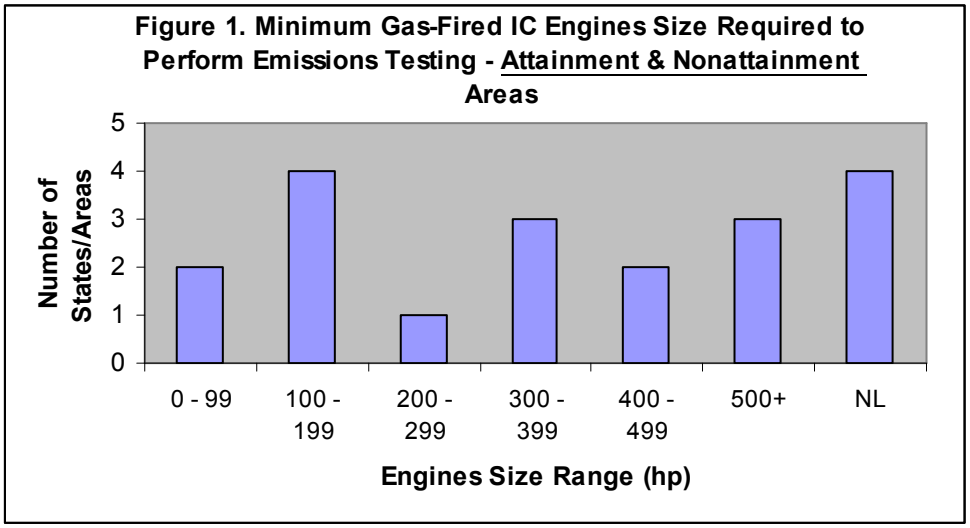
Table 1. States Compliance Emissions Testing Requirements for Gas-Fired Engines (Cont)

State	Eng hp	Eng Type		Emission Limits (g/hp-hr)				
				NOx	CO	HC		
MA	50 kW/ 67 hp		NOx Emission Limit: 0.6 lb/MMBtu (0.3 ≥ 1/1/08), (0.15 ≥ 1/1/12)	CO: 10 lb/MMBtu (2 ≥ 1/1/08), (1 ≥ 1/1/12)			"Any testing when required shall comply with" EPA, CARB or equivalent methods. There is a certification program good for 3 yrs or 15000 hrs. Not specified what compliance requirements are after that time.	
NY	≥200		Major stationary NOx sources in severe O3 nonattain	NOx: 1.5 or ΔNOx ≥ 90%			EPA 7E and 19 or equivalent.	RACT
	≥400		Major stationry NOx sources - rest of state					
PA	<500		Major NOx facilities	No testing required			Presumptive RACT: 129.93(c)(3)	
	≥1000		ICEs in severe nonattain areas during O3 season	3.0			Testing, CEMS or EPA EF determine compliance	129.203: Added NOx Requiremnts
	>2400	RB	Engines emit > 153 tpy NOx during O3 season.	1.5			CEMS or test every 735 hrs of operation	145: Interstate Pollution Transprt Redxn
		LB		3.0				
NJ	≥500	RB	Non-EGU ICE	1.5	CO: 500 ppmvd @ 15% O2		Three 1-hr tests. NOx: M7E, CO: M10, VOC: M10 ?? NJAC 7:27-19.15, 17 NJAC 7:27-16.10, 23	NOx limits: NJAC 7:27-19.8 CO limits: NJAC 7:27-16.10. *(148 kW) for ≥ 2 ICE all > 37 kW
		LB		2.5				
	≥200	RB	Existing EGU ICE after 3/7/07	1.5				
		LB		1.5 or ΔNOx ≥ 80%				
	≥50		EGU ICE new after 3/7/07	0.90				
			EGU ICE modified after 3/7/07	0.90 or ΔNOx ≥ 90%				
	≥200 hp*	RB	Existing EGU ICE after 3/7/07	1.5				
		LB		1.5 or ΔNOx ≥ 80%				

LA - Louisiana Administrative Code, Title 33 Environmental Quality, Part III Air
TX – 30 Texas Administrative Code
CO – Colorado Air Quality Control Commission Regulations
OK - Oklahoma Department of Environmental Quality Rules and Regulations
MA - 310 CMR 7.26 (40) – (44) Industry Performance Standards, Engines and Combustion Turbines
NY – New York State Department of Environmental Conservation Rules and Regulations, Subpart 227-2 Reasonably Available Control Technology (RACT) for Oxides of Nitrogen (NOx)
PA – The Pennsylvania Code, Title 25 Environmental Protection, Part 1, Subpart C, Article III Air Resources
NJ - New Jersey Administrative Code, New Jersey State Department of Environmental Protection

Figure 1 shows the minimum engine size required to perform emissions testing to be fairly evenly distributed across all engine sizes from 0 – 500+ horsepower; however, "not listed" is the

largest category. Figure 1A presents the same data based on a cumulative percentage of states/areas that require emissions testing in or below the listed size range. This figure includes "not listed" data in the 500+ hp category. A cursory review of permits from the states with regulations that do not list a minimum engine size required to perform emissions testing indicates the effective minimum size for these states is greater than 500 hp. Thus, it was assumed that all "not listed" engine sizes were 500 hp or greater. Figure 1A shows that about 40% of surveyed states and areas require emissions testing for engines smaller than 300 hp; conversely, about 60% of surveyed states and areas do not require emissions testing for engines smaller than 300 hp.



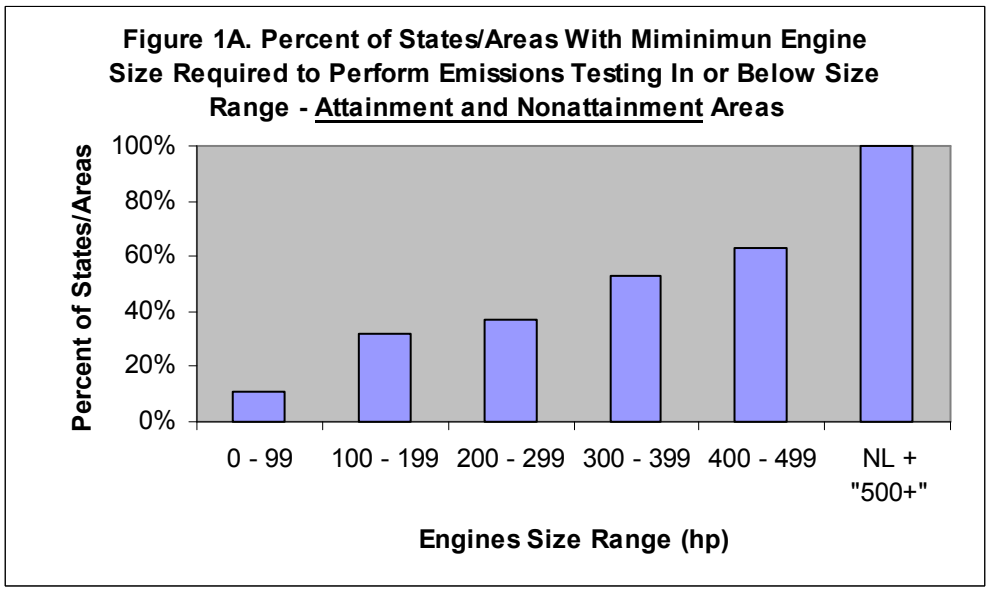
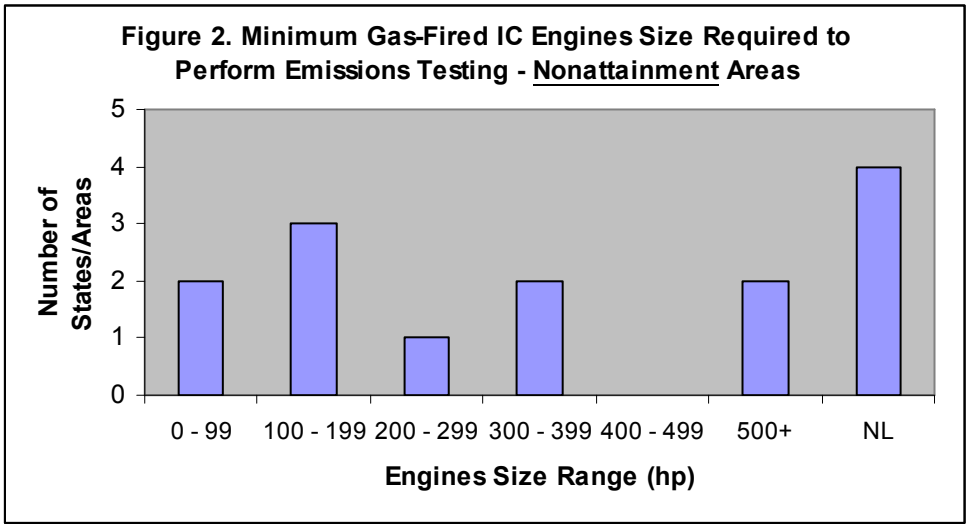


Figure 2 includes testing requirements for nonattainment areas only. If a state has more than one nonattainment area each with separate regulatory requirements for gas-fired IC engines, for example Texas, then each nonattainment area was counted separately. Figure 2 shows the minimum engine size required to perform emissions testing to be fairly evenly distributed across

all engine sizes from 0 – 500+ horsepower; however, "not listed" is the largest category. Figure 2A presents the same data based on a cumulative percentage of states/areas that require emissions testing in or below the listed size range. This figure includes "not listed" data in the 500+ hp category. A cursory review of permits from the states with regulations that do not list a minimum engine size required to perform emissions testing indicates the effective minimum size for these states is greater than 500 hp. Thus, it was assumed that all "not listed" engine sizes were 500 hp or greater. Figure 2A shows that about 45% of surveyed states and areas require emissions testing for engines smaller than 300 hp; conversely, about 55% of surveyed states and areas do not require emissions testing for engines smaller than 300 hp



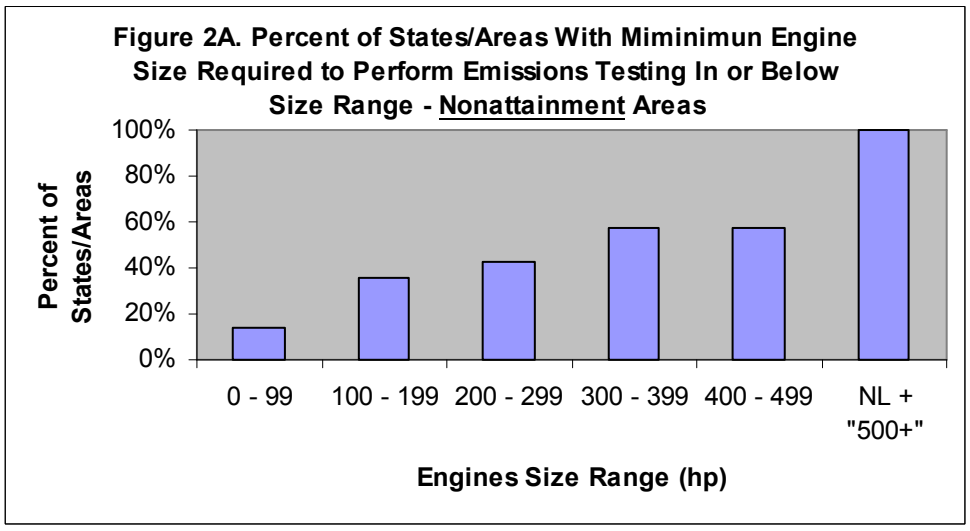
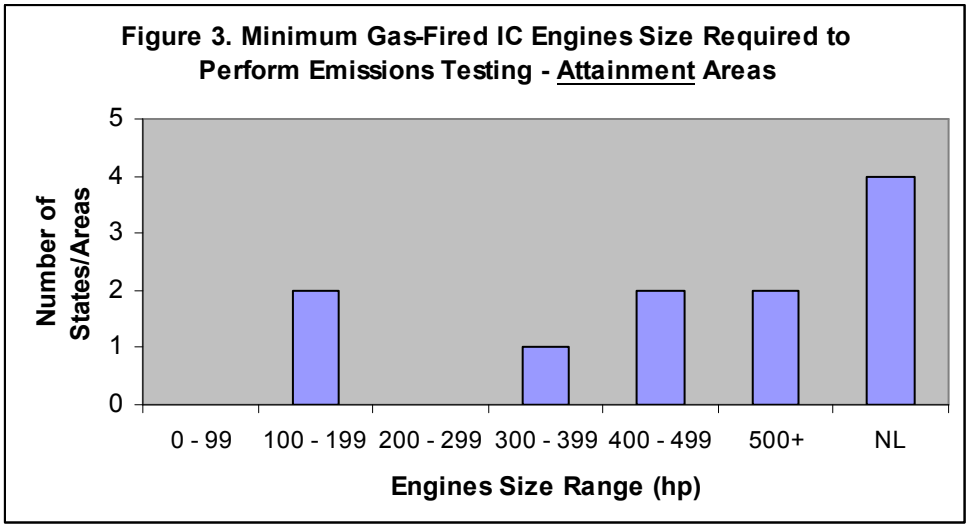
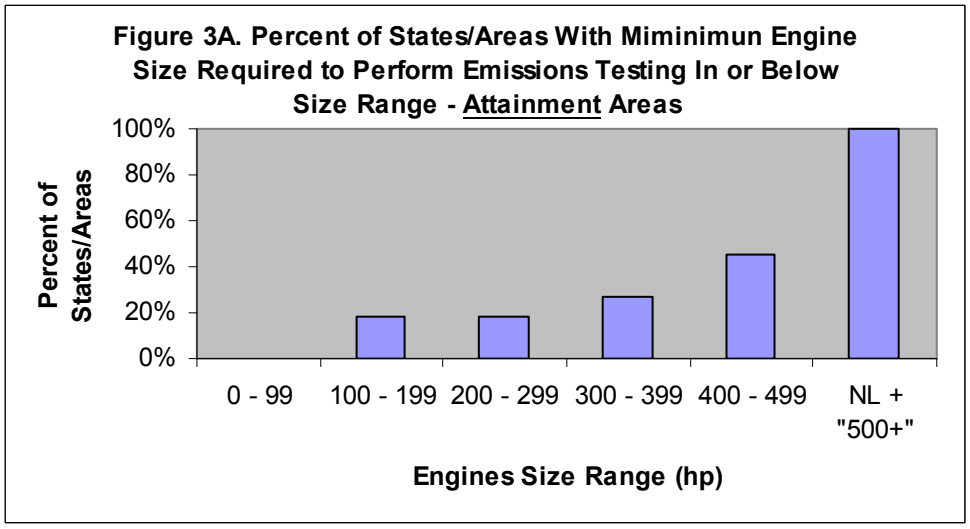


Figure 3 includes testing requirements for attainment areas only. Figure 3 shows the minimum engine size required to perform emissions testing to be weighted towards larger engines (400+ hp); "not listed" is the largest category. Figure 3A presents the same data based on a cumulative percentage of states/areas that require emissions testing in or below the listed size range. This figure includes "not listed" data in the 500+ hp category. A cursory review of permits from the

states with regulations that do not list a minimum engine size required to perform emissions testing indicates the effective minimum size for these states is greater than 500 hp. Thus, it was assumed that all "not listed" engine sizes were 500 hp or greater. Figure 3A shows that about 20% of surveyed states and areas require emissions testing for engines smaller than 300 hp; conversely, about 80% of surveyed states and areas do not require emissions testing for engines smaller than 300 hp





In summary, it appears that testing requirements for smaller engines (<300 hp) are concentrated in non-attainment areas. Only two of eleven states surveyed require testing of engines less than 300 hp in attainment areas.