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Air and Radiation Docket and Information Center
U.S. Environmental Protection Agency
Attention: Docket ID No. EPA-HQ-OAR-2004-0490
Mailcode-6102T
1200 Pennsylvania Avenue, N.W.
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 amendments to the New Source Performance Standards (NSPS) for Stationary Combustion Turbines, 40 CFR Part 60, Subpart KKKK (Proposed Rule). The Proposed Rule was published in the Federal Register on August 29, 2012 at 77 FR 52554 – 52581. The Proposed Rule includes technical and editorial corrections, and responds to a 2006 petition for reconsideration.

INGAA member companies transport more than 85 percent of the nation's natural gas, through some 190,000 miles of interstate natural gas pipelines. INGAA member companies operate approximately 1,000 natural gas-fired stationary combustion turbines and 6,000 natural gas-fired spark ignition reciprocating engines. These compressor drivers are installed at compressor stations along the pipelines to transport natural gas to residential, commercial, industrial and electric utility customers. INGAA and its 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 combustion turbines and reciprocating engines. INGAA and its members have supported the development of MACT standards and NSPS rules by providing data and input integral to the technical foundation of these important regulations. INGAA remains committed to providing constructive comments on proposed rules based on the underlying principle that regulatory requirements must be rooted in empirical evidence and sound science.

INGAA appreciates EPA is trying to make editorial and technical corrections to Subpart KKKK. The preamble indicates that the proposed amendments are, "primarily in response to issues raised by the regulated community." In addition, the preamble indicates that the Proposed Rule would not change EPA's cost projections completed for the original 2006 rule. However, the Proposed Rule introduces significant revisions and addresses issues not raised by the regulated community. For example, EPA proposes two revisions that would affect the status of existing turbines, as discussed in the first two comments below. Based on our understanding of the revisions, there

are significant cost implications that EPA has not considered. These, and other items, are addressed in the comments below.

INGAA welcomes the opportunity to discuss these issues further. When it was developing the current version of Subpart KKKK, EPA engaged stakeholders so that key issues were discussed, understood, and addressed in the rule. INGAA recommends a repeat of that approach and offers our assistance as EPA considers comments on the Proposed Rule and development of the Final Rule.

INGAA comments follow.

1. **INGAA strongly disagrees with proposed requirements for existing units that undergo off-site overhaul. The proposed options that address off-site overhaul should not be included in the Final Rule and Subpart KKKK should not be revised to add new requirements for off-site overhaul.**

For industrial scale turbines that are smaller in size than typical electric generating units, the longstanding business practice has been to overhaul the three primary turbine sections by like-kind replacement and off-site overhaul. The majority of turbines used in natural gas transmission are manufactured by Solar Turbines, and Solar Turbines developed this approach by designing the three primary sections – the inlet compressor, combustion section, and turbine – in three modular sections. With like-kind replacement, a module can be exchanged with an analogous unit to limit down time. This allows routine overhaul to be completed at an off-site plant with special tooling and minimizes downtime for overhaul.

The Proposed Rule would unnecessarily revise the reconstruction determination associated with off-site overhaul. INGAA opposes revisions to Subpart KKKK that would change the historical approach for overhaul – whether it is conducted on-site or off-site. The current approach for Subpart KKKK reconstruction determinations is not problematic because cost information is available to conduct the analysis and document results. Moreover, changing the historical reconstruction determination approach would impose significant additional costs on current operators.

In the Proposed Rule preamble, EPA proposes two options to address units that perform off-site overhaul, "in such a manner that neither the owner, operator, nor manufacturer can identify which components have been replaced and, therefore, cannot conduct the otherwise required reconstruction analysis." [77 FR 52557] INGAA does not understand the premise of this statement. In the preamble context, "components" refer to "parts", not the three primary turbine components discussed above. As defined in §60.15 of Part 60 Subpart A, reconstruction is a cost based analysis. Reconstruction costs are known, and an operator can complete a reconstruction cost analysis without knowing which specific parts are used in a particular overhaul. Thus, it appears that EPA is attempting to solve a non-existent or minor problem. In our experience, turbine NSPS determinations have not been problematic, and any issues associated with component exchange that have arisen have been associated with PSD/NSR determinations. Any resolution should be addressed in that regulatory domain and not Subpart KKKK.

It is troubling that such a substantive change to Subpart KKKK did not include consultation with stakeholders – either affected operators or turbine manufacturers – before releasing a Proposed Rule that EPA characterizes as lacking significant impacts. As discussed in these comments, very substantial implications arise from this proposed revision.

The Proposed Rule text does not include regulatory language for off-site overhaul. Instead, EPA proposes two options in the preamble and notes that either of these options will provide "regulatory certainty". [77 FR 52557] As noted above, INGAA is not aware of uncertainties associated with NSPS determinations for reconstruction or modification, so a new approach is not warranted. For existing units that conduct off-site overhaul, the proposed revision would trigger applicability based on one of two options: the combustor is replaced or reconstructed; or, upon the third replacement of any portion of the turbine (i.e., combustor or other sections).

INGAA opposes both options. Instead, INGAA strongly recommends retaining the current reconstruction approach based on §60.15 of the general provisions. As noted above, the two options include qualifying criteria related to whether the parts that have been replaced can be identified, but INGAA does not believe that criteria is relevant and does not understand how it would be applied – i.e., it implies every nut, washer, etc. would be tracked. Since reconstruction analysis can be conducted based on costs associated with overhaul, this level of detail is not necessary.

In addition, EPA requests comment on whether this new approach should also apply to on-site overhaul. Again, INGAA recommends no change to the current rule, but does not understand why EPA would differentiate on-site versus off-site overhaul. Since off-site overhaul is prevalent for the primary turbine manufacturer used in gas transmission applications, it seems EPA is preferentially disadvantaging a specific manufacturer in the market place. This is inappropriate.

In addition, unintended consequences could arise. For example, a turbine or reciprocating engine can be used to drive natural gas compressors. When an overhaul is completed, a reciprocating engine conducts a reconstruction analysis according to §60.15 and ancillary equipment is included in the analysis. New restrictions proposed for turbine overhaul could result in unwarranted regulatory disadvantages for turbines compared to reciprocating engines. Similar criteria should apply to all overhauls: reconstruction should retain its cost based approach (while considering technological and economic feasibility) and §60.15 should remain as the applicable basis for the determination.

A similar issue related to reconstruction is discussed in Comment 2, and Comment 3 addresses cost implications. To reiterate, INGAA is strongly opposed to changes in the historical approach for conducting reconstruction analysis, and §60.15 should be retained as the applicable basis for the determination.

2. INGAA strongly disagrees with the proposed definition of "combustion turbine engine", which changes the reconstruction determination for simple cycle turbines. The current approach for conducting a reconstruction analysis based on definitions under the current rule and §60.15 of the general provisions should be retained. If EPA is attempting to address circumstances associated with CHP or combined cycle units, revisions should address those units without affecting simple cycle turbines.

The Proposed Rule introduces additional revisions that would change the reconstruction analysis. It appears that the proposed revisions are intended to address complications associated with reconstruction determinations for combined heat and power (CHP) or combined cycle turbines. For those units, EPA indicates that costs associated with the exhaust heat recovery steam generator (HRSG) could preclude reconstruction from being triggered under circumstances that include complete replacement of the primary turbine sections with new sections.

While INGAA can understand EPA's motivation to address such issues, any needed revisions should not introduce negative implications for simple cycle units. Similar to Comment 1, this new approach is substantive, would introduce new costs for simple cycle units, and could have PSD/NSR implications.

The Proposed Rule addresses this issue by introducing a new definition for "combustion turbine engine", with the definition based on the three primary turbine sections or components – inlet compressor, combustor, and turbine sections. Other equipment in the §60.4420 definition of "stationary combustion turbine" is excluded from this definition. In the preamble [77 FR 52556], EPA indicates this change is necessary because, "the combustion turbine engine does not necessarily constitute the majority of the costs of a new stationary combustion turbine." This may be possible for CHP / combined cycle units, but it is not the case for simple cycle units.

The Proposed Rule attempts to resolve this issue by defining applicability in §60.4305(b):

> "(b) For the purpose of this subpart, only the combustion turbine engine itself is used to determine whether the affected facility is new or reconstructed. Other equipment included in the definition of a stationary combustion turbine is not included when determining if a facility is new or reconstructed."

In introducing this revision, the Proposed Rule completely rewrites the rule for simple cycle units. Since the original promulgation of Subpart GG more than thirty years ago, the reconstruction analysis has always been based on a comparison of the cost of the replaced component(s) to the cost of an entire new stationary combustion turbine, which includes all three primary components (i.e., the inlet compressor, combustor and turbine) along with ancillary equipment. The Proposed Rule would fundamentally change the analyses for simple cycle units, and omit equipment that is required for the turbine to operate and produce emissions.

As proposed, routine replacement of one of the three primary turbine components could be considered the installation of an entirely new "stationary gas turbine." Thus, even routine overhaul of the combustion turbine engine could be considered a "reconstruction." These changes represent far more than "editorial revisions," as EPA professes them to be. [77 FR 52555] INGAA therefore asks EPA to clarify that any changes to the rules are limited to

combined cycle units and do not apply to simple cycle units, which remain appropriately regulated under the conventional and historical reconstruction analysis conducted according to §60.15.

EPA could use other means to address anomalous or unique situations involving CHP/combined cycle units. For example, Subpart KKKK includes definitions for CHP combustion turbines and combined cycle combustion turbines. Revisions to Subpart KKKK could focus on these types of units, with determinations excluding the equipment associated with the HRSG. In this case, any revisions adopted for determining status as a new or reconstructed combustion turbine should be limited to CHP combustion turbines and combined cycle combustion turbines.

Alternatively, the proposed definition of "combustion turbine engine" could be revised to address this issue, as follows:

> *"Combustion turbine engine* means the air compressor, combustor, and a series of turbine sections mounted on the same rotating shaft as the inlet air compressor section. It also includes the fuel, air, lubrication and exhaust gas systems, control systems, fuel compressor, pumps, auxiliary or accessory drive, starting systems, and any other ancillary components and subcomponents not primarily dedicated to CHP or combined cycle operations."

This definition supports the exclusion of equipment primarily associated with combined cycle or CHP turbine HRSG systems (i.e., heat recovery system, steam turbine, duct burners, etc.) from the reconstruction analysis – as defined by §60.15 – for ***any*** combustion turbine.

Simple cycle combustion turbines should retain the historical approach under the current rule or definitions should be revised to address CHP/combined cycle concerns while retaining continuity for simple cycle turbines. Under this approach, routine activities, such as scheduled off-site overhaul using component exchange, are unlikely to exceed the reconstruction cost threshold and NSPS applicability thus would not change. Non-routine activities, such as catastrophic failure that affects the compressor, combustor, and turbine sections would likely exceed the 50% cost threshold and trigger applicability, assuming that technologically and economically feasible controls are available.

For simple cycle turbines, the affected facility should be based on the definition of "stationary combustion turbine" or a revised definition of "combustion turbine engine", and not the more limiting definition of "combustion turbine engine" in the Proposed Rule. As discussed in Comment 3, if EPA does not retain the historical approach, then additional analysis is needed to assess the costs and benefits of proposed revisions that increase Subpart KKKK stringency.

INGAA is also concerned that EPA implies in the preamble that Subpart GG *already* regulates the replacement of the combustion turbine. As an alternative to amending Subpart KKKK, EPA notes that it could amend Subpart GG to be consistent with Subpart KKKK requirements, in which case "the stationary combustion engine replaced at an existing combined cycle or CHP facility would be covered by subpart GG[.]" [77 FR 52556] From the preamble description (see Comment 6 regarding the lack of clarity due to inconsistent nomenclature), INGAA cannot determine whether EPA is referring to turbine components (e.g., the combustor), or whether it is

instead referring to the entire stationary gas turbine portion of a combined-cycle unit. In either event, the statement is problematic.

If EPA intended to imply that Subpart GG already automatically regulates the replacement of a single turbine component, such an interpretation is entirely inconsistent with both the language of Subpart GG and EPA's implementation of that rule over the past three decades. On the other hand, if EPA intended to state that replacement of all three main turbine components would trigger NSPS, INGAA agrees that that would likely be the case (per the comments discussed herein), because the cost of these three components would in all likelihood exceed more than 50% of the cost of an entirely new stationary gas turbine (which includes ancillary equipment).[1] However, the simplistic preamble discussion fails to reflect the actual reconstruction analysis that would need to be undertaken in this situation. INGAA submits that any revisions or re-interpretations of Subpart GG are more appropriately undertaken in a separate rulemaking focusing on that rule. If such action is contemplated, EPA should consider the issues discussed in these comments regarding overhaul, component replacement, and reconstruction analysis.

3. The proposed requirements for off-site overhaul and the proposed definition of "combustion turbine engine" introduce new applicability criteria for existing units. Despite EPA claims to the contrary, these proposed revisions would introduce significant costs. If EPA proceeds on a path to adopt these proposed revisions, a cost-benefit analysis should be conducted, and stakeholders should be provided the opportunity to review and comment on that analysis.

The two comments above identify proposed revisions that will impact compliance costs, with tens to hundreds of millions of dollars in new costs for the gas transmission industry alone. Additional costs would obviously be imposed because additional existing units would become subject to Subpart KKKK, and the cost to retrofit an existing industrial scale turbine is on the order of $1 million or more for each unit. Comments below identify additional burdens and costs that would be imposed by the Proposed Rule. INGAA has not performed a detailed assessment of costs or potential reductions, and this cost estimate is qualitative. However, it is clear that INGAA members would experience significant costs that would result in little or no environmental benefit – i.e., no SO_2 reductions would be realized and NOx reductions would likely be minimal.

In contrast, the Proposed Rule preamble and Economic Impact Analysis (EIA) indicate that this is an *insignificant* revision with *no added costs*:

- "The proposed amendments would not change the EPA's original projections for this proposed rule's compliance costs, environmental benefits, burden on industry or the number of affected facilities." [77 FR 52555]
- "We do not intend for these editorial revisions to substantively change any of the technical or administrative requirements of the subpart and have concluded that they do not do so. To the

[1] *See* 40 Fed. Reg. at 58418 (defining the fixed capital cost of a new facility to include instrumentation and auxiliary facilities); "Standards Support and Environmental Impact Statement Vol. 1: Proposed Standards of Performance for Stationary Gas Turbines" (EPA Sept. 1977) at 5-3 to 5-6 (assuming that support structures, frames, and housings are part of the "facility" for purposes of the reconstruction analysis under Subpart GG).

extent that we determine that the editorial revisions do effect any unintended substantive changes, we will correct the problem in taking final action on the proposed rule." [77 FR 52555]

- The Economic Impact Analysis is available in the docket. The one page document indicates, "The proposed amendments would not change the EPA's original projections for this rule's compliance costs, environmental benefits, burden on industry or the number of affected facilities. Therefore, these proposed amendments will have no costs or changes in emissions… . Since there is no cost for any entity, there is no significant impact on a substantial number of small entities."

Based in Comments 1 and 2, INGAA believes that an inference of no new costs is clearly erroneous. INGAA recommends that EPA abide by its stated intent in the second bullet above, i.e., revisions that introduce unintended consequences will be corrected in the Final Rule.

The comments below identify additional items that would also likely introduce less significant costs. If EPA fails to address the items discussed in Comments 1 and 2, a cost-benefit analysis and revised EIA should be completed. Those documents and analyses should be made available for review and comment prior to finalizing the rule.

4. INGAA supports proposed revisions that provide an exemption from SO_2 limits for natural gas-fired units with a fuel sulfur specification. However, options other than a "federally enforceable requirement" should be allowed to document fuel quality.

INGAA supports the proposed revision that would exempt natural gas-fired units from the SO_2 emission standards. The proposed revision improves upon the fuel sulfur *monitoring* exemption in the current rule. However, there are two issues in the Proposed Rule that should be addressed:

- Alternatives to a "federally enforceable" fuel sulfur limit should be allowed.
- The Proposed Rule organization and hierarchy unnecessarily diminish this important exemption. Since the vast majority of affected units will meet this exemption, it should be emphasized appropriately.

Additional background and discussion of these two items follows.

Background and Related Requirements in Current Rule

Section 60.4365 of the *current* rule defines the criteria for exemption from fuel sulfur *monitoring*. This stand-alone section appropriately highlights an important rule provision applicable to the vast majority of units subject to Subpart KKKK. However, in implementing this fuel sulfur monitoring exemption, there has been some confusion regarding whether an initial fuel sulfur test is required. INGAA believes additional clarity is warranted on this issue.

For the current rule, EPA apparently intended no ongoing monitoring or initial test, based on EPA's response to a comment from the 2006 rulemaking. In the Response to Comments document (docket document no. EPA-HQ-OAR-2004-0490-0322), EPA responds to a question about sulfur tests by stating that monitoring is not required and that, "…The final sulfur standard does not require units burning natural gas with 20 grains of sulfur per hundred standard cubic

feet to perform fuel analysis." However, some delegated agencies were not aware of that response and have requested an initial test.

In the Proposed Rule, §60.4330(f) resolves this issue by exempting units that burn pipeline quality gas from SO_2 limits. INGAA strongly supports this exemption. However, the Proposed Rule includes criteria that are unnecessarily restrictive. INGAA recommends additional flexibility for documenting that low sulfur natural gas is used. In the Proposed Rule, §60.4330(f) indicates:

> "(f) A combustion turbine subject to a *federally enforceable requirement* limiting the sulfur content of gaseous fuels combusted in the stationary combustion turbine to no more than 460 mg/scm (20 gr/100 scf) and/or for liquid fuels no more than 0.050 weight percent sulfur is not subject to the SO_2 emission standards in this subpart." [emphasis added]

Additional flexibility should be provided by allowing methods other than a "federally enforceable requirement" to demonstrate this exemption. Alternative regulatory text that provides flexibility is readily available from §60.4365 of the current rule and §60.4390(f) of the Proposed Rule.

Proposed Alternatives to the "Federally Enforceable" Requirement in the Proposed Rule

A "federally enforceable requirement" will most likely be interpreted as a federally enforceable condition in an air quality permit, such as a permit condition in a Title V permit. Based on the preamble reference to a "federally enforceable permit" [77 FR 52556] and the §60.4420 definition of "federally enforceable" that appears to be EPA's intent. This causes unnecessary burden for units subject to Subpart KKKK. For example, some units already complying with Subpart KKKK that are exempt from fuel sulfur monitoring based on a natural gas tariff or similar specification may not have a federally enforceable permit condition or may have a relatively vague permit condition that may not be deemed federally enforceable. Adding new burden for these units is not warranted.

INGAA views the Proposed Rule SO_2 limit exemption as a replacement and improvement of the current rule exemption for fuel sulfur monitoring. Requirements in both the current rule and Proposed Rule provide language that could be added to the Proposed Rule to provide additional flexibility for demonstrating that low sulfur fuel is used.

In the current rule, the monitoring exemption demonstration may be performed by using the fuel quality characteristics in a current, valid purchase contract, tariff sheet, or transportation contract, as specified in §60.4365:

> "…You must use one of the following sources of information to make the required demonstration:
>
> (a) The fuel quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the fuel, specifying that the… total sulfur content for natural gas use in continental areas is 20 grains of sulfur or less per 100 standard cubic feet…"

In addition, the Proposed Rule includes similar regulatory text in the following recordkeeping requirement in §60.4390(f):

> "(f) An owner or operator of a stationary combustion turbine complying with the fuel based SO_2 standard must maintain records of the results of all fuel analyses *or a current, valid purchase contract, tariff sheet, or transportation contract*." [Emphasis added]

INGAA recommends similar text for the Proposed Rule SO_2 limit exemption. The Proposed Rule should be revised to provide this flexibility. INGAA suggests the following revision to §60.4330(f), with additions shown as **bold underline** and ~~strikethrough~~ for deletions:

> "(f) A combustion turbine ~~subject to a federally enforceable requirement~~ limiting the sulfur content of gaseous fuels combusted in the stationary combustion turbine to no more than 460 mg/scm (20 gr/100 scf) and/or for liquid fuels no more than 0.050 weight percent sulfur is not subject to the SO_2 emission standards in this subpart. **You must use one of the following to make the required demonstration:**
>
> **(1) The fuel quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the fuel; or,**
>
> **(2) A federally enforceable permit requirement."**

The Proposed Rule Should be Revised to Highlight this Important Exemption

As discussed further in Comment 5, the vast majority of affected units will use this exemption because natural gas with an appropriate tariff sheet or contractual fuel specification is used by the vast majority of combustion turbines. However, the format and hierarchy of the re-written Proposed Rule is much less straightforward and diminishes this important provision. In simple terms, it is difficult to locate this important exemption because it is not properly highlighted in the revised rule hierarchy.

The current rule has a specific subsection, §60.4365, to highlight the sulfur monitoring exemption based on a gas tariff or contract. In contrast, the Proposed Rule format lists the exemption as paragraph (f) of §60.4330, following much more nuanced or rarely applicable criteria associated with units located in non-continental area, units without access to natural gas where sulfur removal is environmentally detrimental, etc. This hierarchy inappropriately diminishes the SO_2 limit exemption, and INGAA recommends emphasis similar to the current rule by highlighting the exemption in a dedicated section.

For the Proposed Rule, INGAA recommends that paragraph (f) be deleted from §60.4330, and placed in a new section (e.g., §60.4328). Based on the recommended revisions above that provide additional flexibility, INGAA recommends the following new section:

> **"§60.4328 How can I be exempted from SO_2 emission standards?**
>
> A combustion turbine limiting the sulfur content of gaseous fuels combusted in the stationary combustion turbine to no more than 460 mg/scm (20 gr/100 scf) and/or for liquid fuels no more than 0.050 weight percent sulfur is not subject to the SO_2 emission standards in this subpart. You must use one of the following to make the required demonstration:
>
> (a) The fuel quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the fuel; or,
>
> (b) A federally enforceable permit requirement."

This revision would replace the revision to §60.4330(f) discussed above. The addition of the new section would also require a minor revisions to the introduction to §60.4330(a), and moving §60.4330(g) up to replace the deleted paragraph (f), or paragraph (f) could be "reserved". Recommended revisions to §60.4330(a) follow:

> "(a) For each stationary combustion turbine, except as provided for in **§60.4328 and** paragraphs (b) through **(f)**~~(g)~~ of this section, you must not cause to be discharged into the atmosphere from the affected facility any gases that contain SO_2 in excess of either:"

Although relatively minor compared to the issues in Comments 1 and 2, the Proposed Rule would introduce new requirements and burden for some units already complying with Subpart KKKK that lack a federally enforceable permit condition. INGAA agrees with EPA that adding the SO_2 exemption provides benefit without affecting emission reductions. However, implications for existing units already complying with Subpart KKKK were not considered and additional costs would be incurred to address permitting requirements. INGAA recommends complementing the Proposed Rule revisions with the added flexibility discussed in this comment.

5. The complete re-write of Subpart KKKK has *not* improved rule clarity and conflicts with EPA's claim that this rulemaking is not significant. For example, the re-write diminishes the clarity of compliance approaches that will be used by the vast majority of affected units. In addition, existing permits that cite Subpart KKKK will be compromised.

The preamble indicates that an objective of the Proposed Rule is to improve clarity by "…revising the wording and writing style to clarify the requirements of the NSPS." To accomplish this, the entire rule is rewritten, including a new format with different sections and section numbering. Unfortunately, the re-write is less clear than the current rule. The new formatting, which appears to excessively focus on CHP or combined cycle facilities and NOx CEMS, is less clear than the current rule.

As an example, the rule re-write diminishes the clarity of compliance criteria for the regulated pollutants – SO_2 and NOx – that will be met by the majority of affected units. Stationary combustion turbines are predominantly natural-gas fired. Thus, the vast majority of units will address SO_2 by verifying exemption based on gas tariffs or fuel specifications. In addition, the predominant method for NOx compliance monitoring will be periodic performance tests. The Proposed Rule re-write raises the profile of CEMS and diminishes the clarity of periodic NOx testing by reorganizing and reformatting NOx compliance monitoring sections. Since the affected combustion turbines are predominantly industrial scale units rather than electric generating units, CEMS will be far less common than compliance demonstration based on periodic NOx tests.

For SO_2, gas tariff-based approaches to compliance are highlighted in the current rule. For example, see §60.4365 regarding exemption from sulfur monitoring and the discussion in Comment 4. The Proposed Rule deletes the current rule section and buries the sulfur exemption in paragraph (f) of §60.4330, following provisions that address nuanced issues such as low Btu gas, non-continental locations, and units without access to natural gas with fuel sulfur removal

concerns. The hierarchy is not logical and unnecessarily complicated. As discussed in Comment 4, INGAA recommends alternatives to improve clarity based on a stand-alone section that highlights the exemption from SO_2 limits.

Similarly, the current rule clearly lists NOx monitoring criteria in two sections: §60.4335, which addresses units with water or steam injection; and §60.4340, which addresses units not using that technology. Section 60.4340 of the current rule includes an appropriate hierarchy that lists the most prevalent compliance approach first – i.e., §60.4340(a) addresses periodic tests. The Proposed Rule includes four sections (§§60.4335 to 60.4345), raises the profile of CEMS, and is less clear than the current rule. A simple comparison of the titles for the two sections in the current rule to the four section titles in the Proposed Rule exemplifies the loss in clarity. INGAA recommends the Final Rule pattern the NOx monitoring organization and hierarchy in §60.4340 of the current rule.

There are other consequences of the rule re-write that EPA may not have considered. Turbines already complying with the NSPS often have operating permits that cite Subpart KKKK sections in permit conditions. The new organization scheme will thus affect many existing permits. In addition, even with additional time for comment preparation, implementation issues will likely arise because comparing the current rule to the Proposed Rule and vetting implementation nuances has been difficult. Comments below (e.g., Comment 9 regarding NOx test duration and annual schedule) are examples where rule requirements were changed without explanation. These changes may have been inadvertent in the rule re-write, but affect implementation and current permit requirements, while adding unnecessary burden. The current version of Subpart KKKK was developed with considerable EPA engagement of stakeholders and vetting of substantive issues. That approach should be repeated. INGAA offers our assistance as EPA considers comments and prepares the Final Rule.

In addition to recommendations detailed in these comments, EPA should explore ways to improve clarity – including format, section organization, and hierarchy of criteria and requirements. Compliance criteria that will be the most common in practice (e.g., natural gas-fired sulfur exemption, NOx periodic tests) should be prioritized in the hierarchy. In addition, other options could be considered, such as adding tables that summarize monitoring and other compliance criteria. The reciprocating internal combustion engine NESHAP (Part 63, Subpart ZZZZ) and NSPS standards (e.g., Part 60, Subpart JJJJ) provide examples of tabular summaries of compliance criteria.

6. The preamble and rule should use consistent and clear nomenclature when referring to a "turbine" or its components.

The preamble and rule text use a number of similar but different terms, implying substantive distinctions where none exist and impairing clarity overall. The Proposed Rule adds a new definition of "combustion turbine engine" but many variations in terminology are evident. For example, the following terms are included in the rule or preamble: turbine, combustion turbine, combustion turbine engine, stationary combustion turbine, stationary gas turbine, turbine engine, refurbished turbine engine, and stationary combustion engine.

INGAA recommends EPA revisit the nomenclature, limit the terminology, and consistently apply a limited number of terms in the rule. Sometimes using different terms are necessary and appropriate. For example, in some cases EPA is attempting to differentiate between the primary turbine components and associated heat recovery units for CHP and combined cycle units. In developing new terminology, additional explanation is needed – e.g., the difference between a "stationary combustion turbine" and "combustion turbine engine" should be more clearly defined and the implications for applicability, reconstruction determinations, and other Subpart KKKK requirements should be compared and explained better. Simplified and consistent nomenclature should be used, and, as discussed in Comment 2, some terms may be relevant for CHP and combined cycle units that are not necessary for simple cycle turbines.

In some cases, the nomenclature may cause confusion. This issue is further compounded by an apparent focus on CHP and combine cycle units in the Proposed Rule re-write of Subpart KKKK. In addressing nuances for CHP turbines, unforeseen consequences may arise for simple cycle turbines.

As an example, §60.4320 is titled, "What NOx emissions standard must I meet?" In paragraphs (a) through (c), the following five terms are used: stationary combustion turbine, combustion turbine, affected facility, combustion turbine engine, and stationary combustion. The last term appears to be a typographical error, but it seems that a single term could be used. Or, at most, two terms may be needed to address CHP / combined cycle nuances. The context of requirements in §60.4320 could also be used in the preamble as an example to explain why it is necessary to use two terms rather than one.

INGAA recommends EPA carefully review the rule, select the minimum number of terms necessary to identify the affected unit, clearly define these terms, and consistently implement nomenclature throughout the rule. Without such revisions, it is likely that many unnecessary rule interpretation issues will arise during implementation.

7. Revisions are needed to explain how the averaging period affects compliance certification, especially for units complying based on periodic NOx tests. Section 60.4320(a) of the Proposed Rule identifies a 4-hour basis for determining NOx compliance. Other paragraphs in §60.4320 refer to 1-hour averaging. For example, EPA should clarify compliance implications associated with startup and shutdown emissions for a unit with lean premixed combustion.

Periodic tests will be used by the vast majority of turbines subject to Subpart KKKK to demonstrate NOx compliance. In re-writing the entire rule, EPA has inappropriately focused on CEMS in the Proposed Rule compliance monitoring hierarchy (see Comment 5 for additional discussion). This focus impairs rule clarity for the primary NOx compliance approach. In addition, the CEM focus introduces a discussion of varying averaging periods that are not explained or incomprehensible when considering compliance via periodic testing. The Proposed Rule also adds NOx limits during startup and shutdown but fails to address NOx compliance assurance during those modes, or during low load operation. Revisions are necessary to clearly define compliance criteria, and differentiate those sections which are specific to continuous monitoring approaches.

Section 60.4320(a) of the Proposed Rule identifies a 4-hour basis for determining NOx compliance. This appears to be based on a CEMS approach for demonstrating NOx compliance. Other paragraphs in §60.4320 refer to 1-hour averaging. The vast majority of affected units will not use CEMS and will demonstrate NOx compliance based on a periodic test. §60.4320 needs to be revised to better explain how the averaging period affects compliance certification.

For example, the Proposed Rule does not retain the startup and shutdown exemption. It is well documented in the docket for the 2006 rule that the regulation is based on lean premixed (LPM) combustion, and that low load operation of LPM combustion results in marginally higher emissions, because the combustor has "diffusion flame" attributes at lower loads (and also at cold ambient temperatures). Although the Proposed Rule removes startup and shutdown exemptions, EPA has not addressed the compliance implications. When submitting required reports, operators are required to "certify compliance" with the standard. There are potential implications associated with compliance status at low load and during startup and shutdown – i.e., it is known that emissions may be marginally higher at low load – but the Proposed Rule is silent on that issue. In interpreting a rule, operators need to be confident that rule ambiguity does not result in compliance questions. The Proposed Rule does not provide that confidence.

Perhaps EPA intends for longer averaging periods to provide a means for higher emissions during shorter duration startup and shutdown periods to "average" to a compliant level. §60.4320(a) indicates that compliance is determined on a 4-operating hour basis. This revision may have resulted from the rule re-write focus on CEMS, but the context of that section is not specific to (or limited to) CEMS, and the implications for units that comply via periodic testing is not defined or discussed. In addition, §60.4320(c)(1) indicates an "operating hour" basis for compliance – and that is not reconciled with the 4-operating hour basis.

As discussed in Comment 5, the format of the rule re-write appears to focus on CEMS, which is inappropriate because CEMS are not common for industrial turbines. The applicability and implications of these sections for units that comply via periodic testing is unknown and unclear. INGAA could offer more substantive comment if the intent of these sections was clear, but these sections are incomprehensible – especially when complying using periodic tests. As noted in these comments, INGAA offers our support in addressing these issues, and additional discussion is warranted regarding compliance monitoring requirements and compliance certification.

There are averaging time implications for "compliance certification" when considering startup and shutdown emissions. EPA must address these issues, explain the implications of averaging times, address "continuous compliance" and compliance during startup and shutdown for units complying via periodic NOx tests, and revise the rule appropriately. For example, revisions could indicate that the periodic NOx test and general duty provision in §60.4333(a) address continuous compliance, as well as compliance during low load operation, startup and shutdown. An NSPS must be written so that operators can clearly assess compliance requirements. As presently drafted, the Proposed Rule fails this requirement.

Periodic NOx tests are, and will likely remain, the most prevalent compliance approach for Subpart KKKK. The status of that compliance approach should not be compromised by an ill-

advised emphasis on CEMS and a failure to consider implications for the most prevalent compliance approach used by affected units.

8. Electronic submittal of test reports to EPA adds unnecessary burden and duplicates requirements imposed by delegated (i.e., state and local) agencies.

The Proposed Rule requires electronic submittal of performance test reports to EPA. Since state and local agencies have existing and different reporting formats and requirements, this adds unnecessary burden and costs because multiple reports with different formats will be required. EPA should not supersede state authority. Instead, EPA should develop a systematic approach to address the issue of collecting emissions data rather than a piecemeal approach through rule-by-rule implementation.

In the preamble EPA references the docket, and docket document no. EPA-HQ-OAR-2004-0490-0330 indicates that the Propose Rule presents, "a step to increase the ease and efficiency of data submittal". The document indicates, "We [EPA] have concluded that industry would benefit from this proposed approach to electronic data submittal." INGAA is not averse to electronic data collection. However, to address the issues identified – e.g., data accessibility for emission factor development and rulemaking – EPA should embark on a systematic solution. Improved data access through electronic reporting should be coordinated with delegated agencies and the regulated community, and implemented via a systematic solution with a common format. Piecemeal implementation through individual rulemakings is an inefficient approach that should not be pursued.

Delegated agencies currently have formats and requirements for submitting test reports. If EPA is truly dedicated to improved reporting and data access, then this program should be developed with the participation of delegated agencies and the regulated community so that a *single* requirement applies. For example, EPA and states could develop a system for compilation and electronic submittal of reports from the states to EPA – i.e., data collection via delegated agencies rather that requiring multiple submittals. Until a systematic approach with standard formats is developed, EPA should not introduce duplicative reporting burden.

9. Three proposed revisions related to NOx tests should be addressed: (1) a revision that increases NOx performance test duration is not necessary, and EPA Reference Method 20 testing with 20 minute test runs should be retained; (2) annual test scheduling flexibility in the current rule that allows up to 14 months should be retained; and (3) a NOx test should not be required following component exchange overhaul.

The Proposed Rule adds three new requirements related to NOx performance tests that are not explained and not warranted. Discussion follows for each of the three items.

Revising the NOx test duration is not warranted

Subpart KKKK currently requires three test runs of at least 20 minute duration according to §60.4400(b). This is consistent with EPA Reference Method 20, which is the test method developed *specifically* for combustion turbines. §60.4400(d) of the Proposed Rule would revise the minimum time per run to 60 minutes. EPA does not explain why this change is necessary, or

why a test duration commensurate with Method 20, "Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines", is inadequate. In fact, since Method 20 is one of the few EPA Reference Methods that is specific to a type of equipment, it is puzzling that alternative criteria would be proposed. The 20 minute test run duration should be retained. If not, EPA should provide justification for the proposed revision.

Revising the annual test schedule requirements is not warranted

Section 60.4400(a) of the current rule stipulates that annual tests should be completed, "no more than 14 months following the previous performance test". Since scheduling an "annual" test in proximity to the anniversary date can be unnecessarily complicated, this flexibility was requested during the original rulemaking and is a reasonable approach. §60.4333(b)(1) of the Proposed Rule would eliminate this flexibility without explanation. That section revises the current requirement and requires an annual test within 9 to 12 months of the previous test. INGAA expects EPA may be concerned with the lack of a minimum period of separation between sequential tests because the nine month criterion is not in the current rule, but that issue can be addressed without sacrificing the flexibility in the current rule.

EPA should retain the current 14 month "upper bound", and INGAA recommends that the criteria in Proposed Rule §60.4333(b)(1) indicate subsequent performance tests be no more than 14 calendar months and no less than 9 calendar months after the previous test. If EPA is concerned that "schedule creep" may result in repeated annual tests at 14 month intervals, the annual performance test could be required within 9 to 14 months of the initial performance test anniversary date rather than the previous test. If EPA chooses not to retain the flexibility afforded by the 14 month interval, EPA should explain why it is being eliminated.

Requiring a NOx test following component exchange is not warranted

Section 60.4333(b)(6) of the Proposed Rule requires a NOx test following combustor overhaul that is completed using like-kind component exchange. NSPS typically do not require compliance tests following overhaul. The preamble briefly mentions this revision, but the need for the new requirement is not explained. EPA has selectively applied this requirement to component exchange overhaul, which is not warranted. With component exchange, the manufacturer completes overhauls in a highly controlled environment, tests the overhauled unit, and guarantees the exchange will meet the same emission standard as the original combustor. Thus, exchange overhaul quality control is at least as rigorous as on-site overhaul. EPA should not retain this provision in the Final Rule, or justify its need and unique treatment for component exchange.

10. INGAA supports revisions that allow non-operational units to not be re-started solely for conducting performance tests. However, the requirement for at least 60 days without operation is arbitrary and additional time to complete the test following restart is necessary to address other obligations (e.g., state requirements for test notice).

The Proposed Rule adds flexibility by not requiring a non-operational unit to be restarted solely for a performance test. INGAA supports this revision. However, the criteria in §60.4333(b)(3) are unnecessarily arbitrary and fail to consider other obligations associated with delegated agency requirements.

In adding the allowance to not re-start an idle turbine solely for testing, §60.4333(b)(3) requires that the unit has not operated 60 days prior to the due date, and also requires that the test be completed within 45 days of re-start. In addition, the delegated authority must be notified of recommencement consistent with §60.4375(d) – which requires that initial and subsequent performance tests meet §60.8 criteria.

INGAA supports added flexibility, but EPA does not explain why 60 inoperable days is required for this provision to be applicable. Units may be taken offline and remain inoperable for extended periods due to pipeline demands, maintenance, etc. Pipelines typically include reciprocating engines as compressor drivers to provide load flexibility and prefer to use turbines for "baseload" because efficiency suffers at reduced loads. Reciprocating engines may be used when demand is lower and more variable while turbines are used when a base load can be ensured (e.g., during higher demand). Thus, turbines may be idle for days, weeks or months at a time. INGAA does not understand the basis for requiring 60 days of in-operation and recommends a shorter duration such as one week, because demand may result in a unit being shutdown with the possibility that it will remain inoperable for an extended period.

In addition, more than 45 days may be needed to address other obligations for conducting compliance tests. For example, states may require 60 days notice for a performance test, which conflicts with the proposed 45 day requirement. As referenced within the Proposed Rule, §60.8 provides a reasonable basis from existing regulations. INGAA recommends that reference to 45 days be deleted, and criteria based on §60.8(a) should apply – i.e., the test should be completed within 60 days after achieving the maximum production rate and no later than 180 days after startup. At a minimum, 60 days must be allowed so that state requirements to provide a 60 day notice can be met.

11. INGAA supports allowing a single test for up to five similar units.

The Proposed Rule adds flexibility by allowing a performance test on a single unit when up to five similar units are located at a site, as long as the criteria in §60.4333(b)(5) are met. INGAA supports this proposed revision and the flexibility provided.

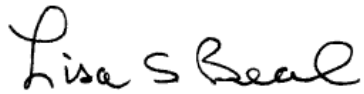
12. Revisions to Subpart KKKK, Table 1, column 2 may cause confusion because it is unusual to use megawatts (MW) as engineering units for heat *input* – i.e., MW typically is used for output power.

To define different turbine sizes, the current rule presents heat input in Table 1 using "MMBtu/h", which is a common engineering unit for heat input. The Proposed Rule revises Table 1, column 2 (titled "Combustion turbine heat input at peak load (HHV)") to also add "megawatt (MW)" engineering units. It is unusual to use MW for heat *input* – i.e., engineering units like MW, horsepower, etc. typically represent *output power*. When using standard engineering units, heat input is typically expressed in units such as joules or gigajoules (GJ) per hour. The proposed revision to Table 1 will likely cause unnecessary confusion. If the proposed Table 1 revision is intended to present output-based MW, then the conversion from MMBtu/hr to MW is erroneous because unit efficiency or heat rate is not considered.

To avoid unnecessary confusion during implementation, INGAA recommends that heat input in MW be removed from Table 1 column 2, replaced with GJ/hr engineering units, or clearly explained in a footnote as thermal heat input.

INGAA appreciates the opportunity to comment on this rulemaking. If you have any questions, please contact me at 202-216-5935 or lbeal@ingaa.org.

Sincerely,



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