



June 20, 2012

Environmental Protection Agency  
EPA Docket Center (EPA/DC)  
Mailcode 2822T

**Attention: Docket ID No. EPA-HQ-OAR-2011-0147**  
1200 Pennsylvania Avenue, NW  
Washington, DC 20004

**Re: Docket ID No. EPA-HQ-OAR-2011-0147**

***2012 Technical Corrections, Clarifying and Other Amendments to the Greenhouse Gas Reporting Rule, and Proposed Confidentiality Determinations for Certain Data Elements of the Fluorinated Gas Source Category***

Dear Docket Clerk:

The Interstate Natural Gas Association of America (INGAA), a trade association of the interstate natural gas pipeline industry, respectfully submits these comments on the proposed 2012 Technical Corrections, Clarifying and Other Amendments to the Greenhouse Gas Reporting Rule (Proposed Rule) dated May 21, 2012 (77 FR 29935 to 29953). The Proposed Rule includes technical corrections to the reporting requirements for greenhouse gas (GHG) sources in the petroleum and natural gas sectors, as published in Title 40, Part 98, Subpart W of the Code of Federal Regulations (40 CFR 98, Subpart W). Although the Proposed Rule also addresses industry segments other than those affected by Subpart W, INGAA's comments are specific to the proposed revisions to Subpart W.

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 over 6,000 stationary, natural gas-fired, spark ignition, internal combustion engines and 1,000 stationary, natural gas-fired, combustion turbines. INGAA's members install these engines and turbines at compressor stations along their pipelines to transport natural gas to residential, commercial, industrial and electric utility customers. Many natural gas transmission and storage (T&S) facilities are subject to GHG reporting per Subpart C of the Mandatory Reporting Rule, "General Stationary Fuel Combustion Sources." These facilities and additional T&S facilities are affected by Subpart W.

## **INTRODUCTION**

As INGAA notes in these comments and, more importantly, in previous comments and ongoing discussions with EPA, significant implementation concerns with Subpart W remain due to unclear, conflicting, or unnecessarily burdensome requirements. In this comment letter, INGAA understands and abides by EPA's request that commenters confine their remarks to the issues specifically included in the Proposed Rule. That said, INGAA also understands, as stated in the

preamble, that EPA plans to consider additional revisions (e.g., to compressor requirements) at a later time.

The proposed revisions are intended to improve and correct the equations for compressor-related calculations in §§ 98.233(o) and (p).<sup>\*</sup> Unfortunately, the proposed revisions still include errors and may cause additional confusion or uncertainty. Through these comments, INGAA offers recommendations to improve and clarify the equations and related parameter definitions. These comments generally are consistent with comments INGAA provided in a June 2011 submittal to EPA that provided recommended redlines to Subpart W.

## COMMENTS

### I. Technical Corrections and Clarifications to Equations:

- A. *For centrifugal compressors, additional revisions are needed to clarify Equation W-23 in § 98.233(o)(5), Equation W-24 in § 98.233(o)(6), and the associated parameters.*

*Similarly, for reciprocating compressors, additional revisions are needed to clarify Equations W-27 and W-28 in § 98.233(p)(7), and the associated parameters.*

The Proposed Rule corrects equations for centrifugal compressors and reciprocating compressors. The proposed revisions introduce inter-related issues regarding the centrifugal compressor emission estimation equations in § 98.233(o) and analogous equations for reciprocating compressors in § 98.233(p). Parts 1 and 2 of this section of INGAA's comments walk through the proposed revisions, noting the additional technical corrections that are needed for centrifugal compressor equations. Analogous issues apply to reciprocating compressors and those corrections are described briefly in part 3. Part 4 addresses a nomenclature problem common to §§ 98.233(o) and (p).

INGAA members are currently assisting EPA in testing the Subpart W e-GGRT template, and data requirements based on e-GGRT data fields document that EPA's intent for compressor calculations and data roll-up is consistent with INGAA's understanding of Subpart W's intent. However, the equations in §§ 98.233(o) and (p) do not adequately accomplish that intent and additional technical corrections are needed.

#### 1. Equation W-23

In § 98.233(o)(5), EPA proposes to revise Equation W-23 by removing the summation. This change is not adequate to correct Equation W-23, and additional revisions are warranted. INGAA recommends clarifications that are consistent with EPA's stated intent that compressor emissions be reported based on measurements when measured data is available for the site that year, and that emission factors be developed for reporting compressor emissions for modes not measured. EPA's intent has been expressed in meetings, and is also reflected in the data elements reported in § 98.236(c) and the data fields in the Subpart W e-GGRT template.

\* In this comment letter all section references are to 40 C.F.R.

It appears that § 98.233(o)(5) is intended to calculate annual emissions based on reporter-defined emission factors for modes not measured in a particular year, and EPA desires reporting that considers not only the mode but also the emission source. For example, for centrifugal compressors with wet seals in the operating mode, an emission factor would be developed and emissions calculated for the two sources: blowdown valve leakage for wet and dry seal compressors per § 98.233(o)(1)(i) and wet seal oil degassing vent emissions per § 98.233(o)(1)(ii).

In the current rule with the summation, the implication is that a single mode-based estimate would be completed that adds the emissions from the two sources. By removing the summation in Equation W-23 in the Proposed Rule, that is no longer the case. However, the equation needs to capture not only emissions from the mode (i.e., subscript “m” in the equation), but also from the unique mode-source combination (e.g., operating mode-wet seal degassing and operating mode-blowdown valve leakage). This could be achieved by *adding another subscript* to the parameters in Equation W-23 or *re-defining subscript “m”* to apply to the relevant combination of operating mode and emission source. In the latter case, the mode-source combinations should be listed after the equation to add clarity. There are three unique mode-emission source combinations for centrifugal compressors:

- Operating mode-blowdown valve leakage [see § 98.233(o)(1)(i)];
- Operating mode-wet seal oil degassing vent [see § 98.233(o)(1)(ii)]; and
- Not operating, depressurized mode-unit isolation valve leakage [see § 98.233(o)(1)(iii)].

To summarize, the current rule needs to be corrected because the summation term is not properly annotated and the summation would not provide an emission estimate specific to the unique combination of emission source and operating mode, as intended by EPA. The Proposed Rule removes the summation term, but results in an equation that is incomplete because it addresses the mode but does not address the associated unique emission source. If there is only one relevant source for the mode, then this is not an issue. For modes with more than one source (i.e., operating mode for both centrifugal and reciprocating compressors), the revised equation and parameter definitions are incomplete. If Equation W-23’s parameters are not revised to capture each distinct combination of operating mode and emission source, the Proposed Rule’s technical corrections will simply replace one unclear equation with another.

## 2. Equation W-24

Equation W-24 for centrifugal compressors suffers from the same problem. The Proposed Rule appropriately corrects the summation term by placing it in the numerator of the equation. However, the summation is mode-specific, so Equation W-24 would provide two emission factors – one for operating mode and one for not operating, depressurized mode. That is not consistent with reporting requirements and proposed e-GGRT data fields for unique mode-source combinations. To correct this problem, EPA should clarify Equation W-24 by revising the definition of parameter “m” to, “**Unique** compressor mode **and emissions source combinations** as listed in paragraph (o)(1)(i) through (o)(1)(iii).” For clarity, the three unique combinations should be listed along with the definition of “m”.

3. Equations W-27 and W-28

The same issue applies for reciprocating compressors in proposed revisions to Equations W-27 and W-28 in § 98.233(p)(7). For reciprocating compressors, there are four unique mode-source combinations, as identified in § 98.233(p)(1) through (p)(3). Without repeating the details, similar revisions to those discussed above for centrifugal units are needed for § 98.233(p).

4. Nomenclature

The difference in subsection numbering for §§ 98.233(o) and (p) identifies another technical correction that should be considered at some point. For example, the unique mode-source combinations are presented in § 98.233(o)(1)(i)-(iii) for centrifugal units and § 98.233(p)(1)-(3) for reciprocating units. These two sections include analogous requirements but do not consistently present the information and requirements in the same manner. To facilitate regulatory interpretation, these two sections should strive for consistency in their language, equations, parameter definitions, etc., whenever possible. Additional examples are discussed in comments below.

***B. In the compressor sections, corrections to or clarification of additional equation parameters should be addressed in this technical correction rulemaking.***

1. Content of methane and CO<sub>2</sub> in natural gas: default value

In late 2011 EPA introduced changes that reference § 98.233(u) and allow T&S sources to use default values for methane and CO<sub>2</sub> content in natural gas. However, following Equation W-23 for centrifugal units and Equation W-27 for reciprocating units, the parameter “GHG<sub>i</sub>” is defined as “1” (i.e., assume 100% CO<sub>2</sub> and 100% methane in the gas). This conflicts with other Subpart W requirements and should be corrected. References to GHG<sub>i</sub> should consistently refer to the default values and/or section § 98.233(u).

2. Content of methane and CO<sub>2</sub> in natural gas: nomenclature

The parameters that define methane and CO<sub>2</sub> content also do not use consistent nomenclature. Throughout Subpart W, “GHG<sub>i</sub>” is used to define the concentration of gas “i” (i.e., methane or CO<sub>2</sub>). However, in Equation W-22 and Equation W-26, another term, “M<sub>i,m</sub>”, is used to define GHG<sub>i</sub>. This inconsistency is unwarranted and GHG<sub>i</sub> should be used consistently in the equations.

3. Parameter EF<sub>m</sub>

For parameter EF<sub>m</sub> in Equation W-24, the reference to “three modes” should be revised. This relates to the discussion above regarding modes versus unique mode-emission source combinations. Based on revisions discussed above, the EF<sub>m</sub> definition should refer to three “unique mode-emission source combinations” for centrifugal units. Similarly, following Equation W-28 for reciprocating compressors, EF<sub>m</sub> refers to three modes. In this case, it should refer to “four unique mode-emission source combinations.”

**C. Additional equation corrections are necessary for consistency.**

As discussed above, consistency between §§ 98.233(o) and (p) is warranted unless there is a sound reason for a difference. For centrifugal units, Equation W-22 includes the term “1-B<sub>m</sub>” to address control via vapor recovery, flaring etc. For reciprocating units (and other source types in § 98.233), the analogous equation does not include this parameter. Instead, § 98.233(p)(8) addresses vapor recovery for reciprocating compressors. For consistency, INGAA recommends deleting the “1-B<sub>m</sub>” term from Equation W-22 and adding a subsection analogous to § 98.233(p)(8) to § 98.233(o).

**D. For the equations in the compressor sections, introductory text should be added to clarify the intent of the equations and how reporting entities are to use them.**

As Subpart W has undergone revisions and additional material is released by EPA, the intended approach for compressor emissions — measurement, calculations, and data roll-up — is becoming clear. For example, it appears that measured data are to be used for estimates when annual measurements are completed in that mode. For modes not measured, operator emission factors are used. To express this intent clearly, EPA should adopt introductory text, as summarized in section E below, to accompany the equations in §§ 98.233(o) and (p).

**E. Summary of technical corrections and clarifications for compressor equations.**

- Equations W-22 and W-26 should include an introductory phrase to clarify that these equations are for estimating emissions based on the annual site measurement:
  - Revise § 98.233(o)(4): “**For modes measured in the reporting year, estimate** ~~Estimate~~ annual emissions using the flow measurement ...”
  - Revise § 98.233(p)(6): “**For the modes measured in the reporting year, estimate** ~~Estimate~~ annual emissions using the flow measurement...”
- Similarly, Equations W-23 and W-27 should include an introductory phrase to clarify that these equations are for estimating emissions based on operator emission factors for modes not measured that year: :
  - Revise § 98.233(o)(5): “**For the mode not measured in the reporting year, calculate** ~~Calculate~~ annual emissions from each centrifugal compressor...”
  - Revise § 98.233(p)(7): “**For modes not measured in the reporting year, calculate** ~~Calculate~~ annual emissions from each reciprocating compressor ...”
- Parameter “m” should be re-defined in both § 98.233(o) and § 98.233(p) to address not just the mode, but the unique mode-emission source combination. When “m” is defined, the three unique combinations for centrifugal units and four unique combinations for reciprocating units should be re-iterated to provide clarity.
- The erroneous reference to “GHG<sub>i</sub> = 1” following Equations W-23 and W-27 should be deleted and § 98.233(u) should be consistently referenced for gas quality.
- The term “GHG<sub>i</sub>” should be used consistently in all equations rather than adding the mole fraction term in Equations W-22 and W-26.
- For the term “EF<sub>m</sub>” in Equations W-24 and W-28, reference to the number of modes should be revised to reflect the number of unique mode-emission source combinations.

- For Equation W-22, the term “1–B<sub>m</sub>” should be deleted because it is not consistent with the § 98.233 format for addressing vapor recovery (or flaring, etc.). Instead, a section analogous to § 98.233(p)(8) should be added to § 98.233(o).

## II. Consistent Reporting In Mass-Based Units

In the Subpart W reporting section, annual emissions should be reported as metric tons of CO<sub>2</sub>-e, and equations should not be cited in § 98.236(c)(13) and § 98.236(c)(14) that provide results with different engineering units.

Reporting by emission source type is defined in § 98.236(c). For centrifugal compressors, the Proposed Rule revises § 98.236(c)(13)(iii)(C) because it references engineering units of cubic feet per hour. For reporting, the desired engineering unit is metric tons. INGAA agrees, and recommends that data elements that report annual emissions in §§ 98.236(c)(13) and (14) consistently report on a mass basis.

However, throughout § 98.236(c)(13) for centrifugal compressors and § 98.236(c)(14) for reciprocating compressors, annual emissions data elements are identified where reporting in metric tons is desired, but the sections reference equations in § 98.233(o) and § 98.233(p) that calculate emissions with results in volume (scf) engineering units. This direct reference of engineering units from the equations conflicts with the mass-based units desired. The reference to § 98.233 equations should be deleted from the data elements in §§ 98.236(c)(13) and (14) that report annual emissions.

## III. Timing

Implementing these proposed amendments and incorporating them into the requirements for the data that must be reported to EPA by September 2012 is inappropriate and could cause significant problems, especially since the effective date of final rules is unknown and reporting is due in approximately three months.

INGAA cannot support a rulemaking process that issues final rules that require response times in weeks or less. For Subpart W reporting of 2011 emissions, operators have been developing systems, compiling data, and completing calculations for reportable data elements for more than 18 months. In addition, operators have submitted requests to use Best Available Monitoring Methods (BAMM), often due to the ongoing evolution and uncertainty with Subpart W requirements. The pending BAMM requests were filed in the context of the current rule (that is, without the Proposed Rule’s technical corrections). Conflicts could result if Subpart W changes. The burden of requiring operators to assess and incorporate summertime revisions to Subpart W is not trivial, and mandating that reports filed in September reflect content rules unknown until July or August is not reasonable.

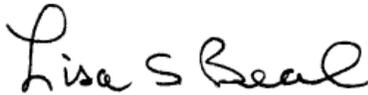
For example, while INGAA can note inconsistencies within the Proposed Rule’s compressor equations and areas within those equations where clarity remains lacking — as INGAA has done in these comments — operators cannot presume how these issues will be reconciled. Meanwhile, reports are being prepared based on the current interpretation and as reflected in BAMM requests. Thus, while INGAA recommends that EPA complete this technical correction rulemaking expeditiously, it should not mandate conformance for September 2012 reporting.

## CONCLUSION

Based on these comments and through ongoing dialogue with EPA, INGAA is hopeful that additional technical corrections will result in a rule that meets EPA's reporting and policy objectives while ensuring safe, reasoned, and technically-sound regulatory requirements that clearly and succinctly afford compliance certainty to INGAA members.

INGAA appreciates your consideration of these comments and looks forward to your response. Please contact me at 202-216-5935 or lbeal@ingaa.org if you have any questions. Thank you.

Sincerely,



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