Mandatory Greenhouse Gas Reporting Rule: EPA's Response to Public Comments

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Subpart G—Ammonia Manufacturing

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Subpart G—Ammonia Manufacturing

U. S. Environmental Protection Agency
Office of Atmosphere Programs
Climate Change Division
Washington, D.C.

FOREWORD

This document provides EPA's responses to public comments on EPA's Proposed Mandatory Greenhouse Gas Reporting Rule. EPA published a Notice of Proposed Rulemaking in the Federal Register on April 10, 2009 (74 FR 16448). EPA received comments on this proposed rule via mail, e-mail, facsimile, and at two public hearings held in Washington, DC and Sacramento, California in April 2009. Copies of all comments submitted are available at the EPA Docket Center Public Reading Room. Comments letters and transcripts of the public hearings are also available electronically through *http://www.regulations.gov* by searching Docket ID *EPA-HQ-OAR-2008-0508.*

Due to the size and scope of this rulemaking, EPA prepared this document in multiple volumes, with each volume focusing on a different subject area of the rule. This volume of the document provides EPA's responses to the significant public comments received for 40 CFR Part 98, Subpart G—Ammonia Manufacturing.

Each volume provides the verbatim text of comments extracted from the original letter or public hearing transcript. For each comment, the name and affiliation of the commenter, the document control number (DCN) assigned to the comment letter, and the number of the comment excerpt is provided. In some cases the same comment excerpt was submitted by two or more commenters either by submittal of a form letter prepared by an organization or by the commenter incorporating by reference the comments in another comment letter. Rather than repeat these comment excerpts for each commenter, EPA has listed the comment excerpt only once and provided a list of all the commenters who submitted the same form letter or otherwise incorporated the comments by reference in table(s) at the end of each volume (as appropriate).

EPA's responses to comments are generally provided immediately following each comment excerpt. However, in instances where several commenters raised similar or related issues, EPA has grouped these comments together and provided a single response after the first comment excerpt in the group and referenced this response in the other comment excerpts. In some cases, EPA provided responses to specific comments or groups of similar comments in the preamble to the final rulemaking. Rather than repeating those responses in this document, EPA has referenced the preamble.

While every effort was made to include the significant comments related to 40 CFR Part 98, Subpart G—Ammonia Manufacturing in this volume, some comments inevitably overlap multiple subject areas. For comments that overlapped two or more subject areas, EPA assigned the comment to a single subject category based on an assessment of the principle subject of the comment. For this reason, EPA encourages the public to read the other volumes of this document with subject areas that may be relevant to 40 CFR Part 98, Subpart G—Ammonia Manufacturing.

The primary contact regarding questions or comments on this document is:

Carole Cook (202) 343-9263

U.S. Environmental Protection Agency
Office of Atmospheric Programs
Climate Change Division
Mail Code 6207-J
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

ghgreportingrule@epa.gov

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SUBPART G–AMMONIA MANUFACTURING

1. DEFINITION OF SOURCE CATEGORY

Commenter Name: Claire Olson
Commenter Affiliation: Basin Electric Power Cooperative
Document Control Number: EPA-HQ-OAR-2008-0508-0637.1
Comment Excerpt Number: 15

Comment: Basin Electric supports the EPA decision to provide a separate source GHG emission reporting for ammonia facilities.

Response: EPA acknowledges Basin's comments. See Subpart G (Ammonia Manufacturing) in the final proposed rule.

Commenter Name: John M. McManus
Commenter Affiliation: American Electric Power
Document Control Number: EPA-HQ-OAR-2008-0508-0725.1
Comment Excerpt Number: 6

Comment: At some of AEP's electricity generating facilities ammonia is produced by dissolving solid urea in water and adding heat to produce ammonia for use in air pollution control equipment (selective catalytic reduction (SCRs) and selective non-catalytic reduction (SNCRs) systems). In these systems, process steam is used for heating and the resulting ammonia is injected into the flue gas to achieve reductions in NOx emissions. We are concerned that this process could be considered ammonia manufacturing under Subpart G even though all GHG emissions of this ammonia production are captured by the CEMS on the generating unit. AEP recommends that an exclusion be provided stating that ammonia production for SCRs and SNCRs is not required to be separately reported under Subpart D or Subpart G.

Response: EPA acknowledges that the commenter's concern and we did not intend to cover ammonia produced from the decomposition of urea and we believe the rule is clear because of the definition in 40 CFR §98.70 and the methods presented under 40 CFR §98.73. In particular, the production of ammonia from the decomposition of urea is not produced via steam reforming of a hydrocarbon or the gasification of solid or liquid raw material, and, hence is not covered. Additionally, subpart G does not provide methods for estimating CO_2 released from ammonia produced from the decomposition of urea. We did not add the requested language because we believe the rule language is clear as written.

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2. SELECTION OF PROPOSED GHG EMISSIONS CALCULATION AND MONITORING METHODS

Commenter Name: Thomas Siegrist
Commenter Affiliation: Koch Nitrogen Company LLC

Document Control Number: EPA-HQ-OAR-2008-0508-0351.1
Comment Excerpt Number: 1

Comment: Subpart G's monthly carbon content sampling and analysis requirement is overly burdensome given the minimal improvement in data accuracy it would yield. Proposed § 98.74(b) (68 Fed. Reg. at 16646) would require an ammonia manufacturing facility to collect a sample of each feedstock on a monthly basis and analyze it for carbon content. This would impose a new monitoring requirement for ammonia manufacturing facilities and would require a change in operating and monitoring procedures. KNC believes that the use of an estimated carbon content value for incoming feedstock, particularly where the contents of that feedstock are relatively consistent, would provide sufficient carbon information to EPA. The burden of requiring new sampling and analysis is disproportionate to the minor benefit the site-specific monitoring would yield in the form of greater data accuracy of the emissions inventory. This is especially true at facilities like KNC's that use pipeline-quality natural gas as feedstock. In its preamble to the Proposed Rule, EPA notes that the Tier B methodology established by The Climate Registry ("TCR") and the Tier 2 methodology established by the Intergovernmental Panel on Climate Change suggest the use of a default carbon content value to calculate emissions from ammonia manufacturing facilities. Id. at 16493. Likewise, EPA should revise the Proposed Rule to allow ammonia manufacturing facilities that use pipeline-quality natural gas as feedstock the choice to utilize either a default carbon content value or carbon content data generated by the natural gas supplier to the facility, as opposed to requiring them to sample incoming feedstock to generate monthly site-specific carbon content data.

Response: The response to this comment was provided in the Preamble Section III, Section.G (Ammonia Manufacturing). EPA concurs with the comment and has modified the monitoring and QA/QC procedures in §98.74(d) to allow use of carbon content data obtained from the feedstock supplier(s). Facilities that obtain monthly carbon content information from their supplier are required to QA/QC supplier information through an annual sample and analysis of the feedstock.

Commenter Name: William C. Herz
Commenter Affiliation: The Fertilizer Institute (TFI)
Document Control Number: EPA-HQ-OAR-2008-0508-0952.1
Comment Excerpt Number: 35

Comment: The TSDs for nitric acid and ammonia producers make unsubstantiated assumptions that all CO_2 in urea will constitute a release to ambient air. These documents also support requirements in the NPRM for specific QA/QC requirements that would vary depending on monitoring methods, but facilities would (despite that variability) be required to prepare an in-depth QA/QC plan, which would include checks on production data and calculations performed to estimate GHG emissions. EPA should develop guidance on how to prepare such a QA/QC plan when monitoring methods vary so greatly, not only from facility to facility, but from source to source.

Response: The commenter has provided two comments in the above paragraph. With regard to Urea, EPA appreciates clarification or updated information from commenters. EPA has revised the reporting rule to collect information on urea production and uses of the urea if known. We have also requested that producers report, if known, the uses of the urea sold. Collecting information on urea production and its uses will help EPA to improve methodologies for

estimating emissions from ammonia manufacturing, urea production and urea consumption in the future. The commenter did not provide additional information on the CO_2 released from uses or consumption of urea for EPA to respond further.

The commenter provides a recommendation that EPA should develop guidance on how to prepare a QA/QC plan when monitoring methods vary so greatly. First, EPA would like to clarify that the proposed monitoring and QA/QC requirements associated with estimating process emissions from ammonia manufacturing are outlined in the proposed rule under Subpart A (General Provisions) and under Subpart G, (Ammonia Manufacturing), 98.74 "Monitoring and QA/QC procedures, not in the TSD. Under Subpart A (General Provisions), the final rule requires facilities to maintain a monitoring plan. The recordkeeping requirements under Subpart A, the general provisions, (98.3(g)(5)) outline or itemize the components of a monitoring plan that all affected facilities under this rule will be required to retain in the context of the applicable subpart. Under §98.74, facilities are required to follow the listed procedures to determine quantity of feedstock, carbon contents of feedstock, and other calculation parameters. The rule requires that facilities retain records of all calculations and analyses used to estimate emissions.

In addition, ammonia manufacturing facilities will likely have to review the "Monitoring and QA/QC procedures" under Subpart C (General Stationary Combustion) 98.34, as applicable.

Commenter Name: William C. Herz
Commenter Affiliation: The Fertilizer Institute (TFI)
Document Control Number: EPA-HQ-OAR-2008-0508-0952.1
Comment Excerpt Number: 18

Comment: Most ammonia facilities utilize natural gas combustion combined with approximately 5 percent recycle flow of gas containing methane from the process. The carbon content of the recycle stream is already accounted for when measuring the feedstock flow rate and carbon content to the process. EPA should allow ammonia manufacturers to exclude this recycle stream in estimating combustion emissions, as the carbon in the recycle stream would be double counted.

Response: The response to this comment is provided in section III of the preamble to this rule (see section G, Ammonia Manufacturing).

Commenter Name: Edgar O. Morris
Commenter Affiliation: Mosaic Fertilizer Company LLC
Document Control Number: EPA-HQ-OAR-2008-0508-0687.1
Comment Excerpt Number: 9

Comment: For calculating GHG emissions from ammonia manufacturing, EPA's proposal would require analysis of the carbon content of the feedstock on a monthly basis. See § 98.73(b)(1) (defining (CC) as the average carbon content from monthly analysis for gaseous feedstock). Mosaic questions the benefit of monthly analysis of a homogeneous feedstock such as natural gas. Mosaic suggests that, for such demonstrated homogenous feedstocks, a default value would be proper and avoid the burden of monthly analysis.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0351.1, excerpt 1.

3. DETAILED GHG EMISSION CALCULATION PROCEDURES/EQUATIONS IN THE RULE

Commenter Name: George Woods
Commenter Affiliation: E. Roberts Alley & Associates, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0269.1
Comment Excerpt Number: 3

Comment: On page 16645 under subpart G, the term (RCO2)n appears to be missing from equations G-2 and G-3. The (RCO2)n term is not shown in either equation G-2 or G-3 but is mentioned in the nomenclature below both equations. In Equation G-2 there is a (.) character prior to the S which is not defined.

Response: EPA has corrected the rule text and removed this variable under 98.73. As the commenter notes, this is not a parameter used in the equations. The term (RCO2)n was a typo and was incorrectly listed under equations G-2 and G-3.

Commenter Name: Thomas Siegrist
Commenter Affiliation: Koch Nitrogen Company LLC
Document Control Number: EPA-HQ-OAR-2008-0508-0351.1
Comment Excerpt Number: 3

Comment: The language of proposed § 98.73, regarding the calculation of GHG emissions, is imprecise and should be revised for clarity. Proposed § 98.73 specifies that certain ammonia manufacturing facilities must calculate total carbon dioxide emissions using continuous emissions monitors ("CEMS"). 68 Fed. Reg. at 16645. The proposed language in this section, however, is imprecise. Section 98.73 says a facility must determine carbon dioxide emissions in accordance with either § 98.73(a) or § 98.73(b). Section 98.73(a) applies only to certain types of facilities with CEMS units, but § 98.73(b) states "If the facility does not measure total emissions with a CEMS, you must calculate the annual CO_2 process emissions from feedstock..." Because § 98.73(a) does not apply to all units with CEMS, and should apply to process units, not the entire facility, 98.73(b) should be revised to state: "If the process unit does not meet the conditions in § 98.73(a), you must calculate..."

Response: The response to this comment is provided in section III of the preamble to this rule (see section G, Ammonia Manufacturing).

Commenter Name: William C. Herz
Commenter Affiliation: The Fertilizer Institute (TFI)
Document Control Number: EPA-HQ-OAR-2008-0508-0952.1
Comment Excerpt Number: 15

Comment: As written, the proposed 40 C.F.R. § 98.73(a) is misleading because proposed 40 C.F.R. § 98.3 3(b)(5)(ii)(A) applies to all units with a maximum rated heat input capacity greater than 250 mmBtu/hr and could pull in all ammonia manufacturing units. 74 Fed. Reg. at 16,645.

On the other hand, proposed 40 C.F.R. § 98.33(b)(5)(iii)(A), (B) and (C) only apply to units with less than 250 mmBtu/hr capacity and clarify that facilities are subject to Tier 4 requirements only if the unit already uses a stack gas volumetric flow rate monitor and a CO_2 concentration monitor. Many ammonia manufacturing units have not installed these monitors. For example, a major ammonia manufacturing company and TFI member has six ammonia manufacturing units, and none have stack gas volumetric flow rate monitors or CO_2 concentration analyzers. The cost for a single facility to install these monitors is at least $375,000. Ammonia manufacturing units without these monitors should thus be allowed to use Tier 3 measurement requirements. Tier 4 requirements are overly burdensome because ammonia plant reformers are no different than the combustion sources – i.e., reliable CO_2 data from ammonia plants can be ascertained using the Tier 3 methodology. Furthermore, any requirement to install stack gas volumetric flow rate monitors and CO_2 concentration monitors would run contrary to EPA's language in the NPRM Preamble that units will not be required to install monitoring systems to comply with the NPRM. 74 Fed. Reg. at 16,493. EPA should revise proposed 40 C.F.R. § 98.73(a) to clarify that ammonia production units must use Tier 4 calculation methodologies only if all of the conditions under 40 C.F.R. § 98.3 3(b)(5)(ii) (A) through (F) apply to the unit and only where the ammonia manufacturing unit already has installed a stack gas volumetric flow rate monitor and a CO_2 concentration monitor. TFI recommends the following revised language: "98.73(b) All other ammonia manufacturing facilities can use the Tier 3 methodology utilizing the equations that follow."

Response: The response to this comment is provided in section III of the preamble to this rule (see section G, Ammonia Manufacturing).

Commenter Name: Edgar O. Morris
Commenter Affiliation: Mosaic Fertilizer Company LLC
Document Control Number: EPA-HQ-OAR-2008-0508-0687.1
Comment Excerpt Number: 10

Comment: The requirements for calculating GHG emissions for ammonia manufacturing facilities described in proposed Section 98.73 reference the requirements for calculating GHG emissions for stationary fuel combustion sources pursuant to the proposed Section 98.3.3. Section 98.73(a) states that Tier 4 is required of any ammonia manufacturing process unit meeting all of the requirements of 98.33(b)(5)(iii)(A),(B), and (C), but is ambiguous as to whether the units subject to Section 98.33(b)(5)(ii) must satisfy all of the relevant criteria or only one or more of these criteria. Mosaic suggests that this language be clarified to make clear that Tier 4 applies only to units satisfying all of the criteria of Section 98.33(b)(5)(ii)(A) through (F): 98.73(a) Any ammonia manufacturing process unit that meets all of the conditions specified in § 98.33(b)(5)(iii)(A),(B), and (C), or all of the conditions specified in § 98.33(b)(5)(ii)(A) through (F) shall calculate total CO_2 emissions using a continuous emissions monitoring system according to the Tier 4 calculation methodology specified in § 98.33(a)(4).

Response: The response to this comment is provided in section III of the preamble to this rule (see section G, Ammonia Manufacturing).

4. MONITORING AND QA/QC REQUIREMENTS

Commenter Name: William C. Herz
Commenter Affiliation: The Fertilizer Institute (TFI)
Document Control Number: EPA-HQ-OAR-2008-0508-0952.1
Comment Excerpt Number: 17

Comment: Additionally, the proposed 40 C.F.R. § 98.74(c) requires all fuel flow meters and gas composition monitors to be calibrated using a suitable method published by a consensus standards organization (e.g., ASTM, ASME, API, AGA, or others). 74 Fed. Reg. at 16646. TFI requests that EPA provide an interpretation as to whether this means the flow meter installation is required to be in accordance with these standards. For an ammonia manufacturing complex, the custody transfer meters from a natural gas supplier to the site are installed according to the appropriate standard. Reconciliation for site natural gas usage is based on these meters. Inside the facility, each production unit uses meters to allocate the natural gas accordingly. However, the required accuracy for these meters is not as significant as the custody transfer meters. They are used for trending over time, and relative measurements are accurate to detect a change in unit performance. TFI proposes that EPA define this more precisely under 40 C.F.R. § 98.7(c) (i.e., that the flow meters are to be calibrated according to a standard, but not necessarily require that the meters be installed according to the standards).

Response: EPA acknowledges the commenter's concerns. The commenter is correct in interpreting that the flow meters are to be calibrated according the standard, but EPA is not necessarily requiring that the meters be installed according to the standards.

For consistency in the application of calibration procedures across the rule, we have provided a reference for ammonia manufacturing facilities to follow the calibration procedures in 98.3 (i). The calibration procedures in 98.3 (i) provide flexibility to sources. For calibration, facilities may use any of the applicable test standards listed in 98.3 (i), the calibration procedures specified by the flow meter manufacturer, or an industry accepted or consensus standard calibration method**.**

5. PROCEDURES FOR ESTIMATING MISSING DATA

Commenter Name: Thomas Siegrist
Commenter Affiliation: Koch Nitrogen Company LLC
Document Control Number: EPA-HQ-OAR-2008-0508-0351.1
Comment Excerpt Number: 2

Comment: The proposed procedures for estimating emissions in the event of missing feedstock data would yield significant overstatements of GHG emissions. As proposed, if feedstock supply rate data is missing for a specific day or days (e.g., if a meter malfunctions during unit operation), the reporting entity must use the lesser of the maximum supply rate that the production unit is capable of processing or the maximum supply rate that the meter can measure. Id. at 16646 (proposed section 98.75). If this substitution is applied to the feedstock for reformers used in ammonia production, either of these proposed approaches would likely result in

significant over reporting of carbon emissions. KNC proposes as an alternative that a reporting entity be provided with the following two options: either (1) substitute an estimated value for feedstock supply rate, based on the arithmetic average of the previous thirty days of available feedstock supply rate data; or (2) utilize missing data estimating procedures similar to the procedure proposed under §98.35(b)(2), based upon all available process data. These approaches would result in much more accurate estimates of emissions derived from the true historical operation of a specific ammonia manufacturing source.

Response: The response to this comment is provided in section III of the preamble to this rule (see section G, Ammonia Manufacturing).

Commenter Name: William C. Herz
Commenter Affiliation: The Fertilizer Institute (TFI)
Document Control Number: EPA-HQ-OAR-2008-0508-0952.1
Comment Excerpt Number: 38

Comment: The estimation of missing natural gas feedstock data in the Technical Support Document for the Ammonia Production Sector would require using max meter capability or max processing capability, rather than representative values based on remaining available data.

Response: The response to this comment is provided in section III of the preamble to this rule (see section G, Ammonia Manufacturing).

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6. DATA REPORTING REQUIREMENTS

Commenter Name: Bill Herz
Commenter Affiliation: The Fertilizer Institute
Document Control Number: EPA-HQ-OAR-2008-0508-0212f
Comment Excerpt Number: 2

Comment: The production of ammonia results in the production of carbon dioxide. This process is chemically fixed, wherein the production of a single ton of ammonia produces 2 tons of carbon dioxide. This carbon dioxide can be utilized -- much of it is utilized -- in the manufacture of urea. Some is sold into the beverage and food industry, and some may be used for enhanced oil recovery as well. I would point out that the CO_2 that is generated, again, is fixed chemically, and that process is not changeable. However, appropriate uses of CO_2 can be found, including the manufacture of urea. I would like to draw an analogy to the Draft Greenhouse Gas Inventory in which within the last couple of years, the emissions from urea that were field applied were tied back to the nitrogen manufacturing industry. Currently, within the Greenhouse Gas Inventory, the emissions from industrial urea are tied to the industry. To our knowledge -- and this is simply analogy between these two, and I would like to sort of warn this group away from taking this approach within the mandatory rule -- these emissions from urea appear to be unique in terms of this appears to be the only product in which once a product has been sold, the emissions are still tied back to the producing industry. For example, coal emissions from powerplants are not tied back to coal miners, nor gasoline emissions from light-duty or car tailpipes are not tied back to gasoline refiners. So I would like to point that out.

Response: The response to this comment is provided in section III of the preamble to this rule (see section G, Ammonia Manufacturing).

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7. OTHER SUBPART G COMMENTS

Commenter Name: Thomas Siegrist
Commenter Affiliation: Koch Nitrogen Company LLC
Document Control Number: EPA-HQ-OAR-2008-0508-0351.1
Comment Excerpt Number: 4

Comment: There is an error with respect to KNC's facilities in the Ammonia Manufacturing Technical Support Document, EPA-HQ-OAR-2008-0508-007. The Ammonia Manufacturing Technical Support Document should be amended to remove KNC's Sterlington, Louisiana plant from Table 1 – the list of ammonia production facilities that were manufacturing in 2006. The Sterlington facility did not operate in 2006 and is no longer in operation as an ammonia production facility.

Response: EPA confirmed that KNC's Sherlington, Lousiana plant is no longer manufacturing ammonia and has made the appropriate updates to the Regulatory Impact Analysis (RIA) to appropriately reflect the estimated number of facilities affected by the rule.

Comment: Generally across the rule, commenter's requested clarificaton on use of standards and in some cases proposed alternative standards for determining particular parameters used to estimate emissions**.**

Response: For Supbart G, in some cases we have decided to specify a list of specific industry consensus standards for a key calculation parameter (e.g. carbon contents of feedstock) and for other parameters we allow flexibility such as calibration of fuel flow meters, quantity of feedstock consumption. For these other parameters, EPA has not prescribed specific methods, but provided guidance, requiring that facilities use methods and/or plant instruments used for accounting purposes. In the case of calibrating fuel flow meters, there are a large number of industry consensus standards and further some calibration procedures are specific to equipment being used on site at the facility, so we have provided guidance to follow the manufacturer's specifications. Where we have prescribed specific methods, there are fewer applicable methods for determining carbon contents of feedstock. We have prescribed standards commonly used by industry and also allow supplier information for this determination to minimize burden. Use of these methods ensures consistency in the determination of key parameters and calculated emissions from the ammonia manufacturing industry.