



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

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Subpart P—Hydrogen Production

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Subpart P—Hydrogen Production

**U. S. Environmental Protection Agency
Office of Atmospheric 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 broad subject area of the rule. This volume of the document provides EPA's responses to significant public comments received for 40 CFR Part 98, Subpart P—Hydrogen Production.

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 significant comments related to 40 CFR Part 98, Subpart P—Hydrogen Production 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 P—Hydrogen Production.

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SUBPART P—HYDROGEN PRODUCTION

1. DEFINITION OF SOURCE CATEGORY

Commenter Name: Robert D. Bessette

Commenter Affiliation: The Council of Industrial Boiler Owners (CIBO).

Document Control Number: EPA-HQ-OAR-2008-0508-0513.1

Comment Excerpt Number: 40

Comment: It appears the Hydrogen Production provisions are intended to apply to facilities that purposely produce hydrogen as a product for sale, and not facilities that incidentally produce hydrogen or hydrogen-containing process byproduct gases that are subsequently combusted either onsite or at a facility that is adjacent to the producing site. The Preamble indicates the intent to be merchant production, and EPA should clarify that to be the case in the rule. Facilities incidentally producing hydrogen or hydrogen-containing process byproduct gases would almost certainly be required to report due to meeting other conditions of §98.2 in any event. 74 FR 16513.

Response: EPA concurs and will revise §98.160(a) to make clear that a hydrogen production source category consists of facilities that produce hydrogen gas sold as a product to other entities, as defined under §98.6. Also, to add clarity, EPA has revised §98.160(c) as follows: "This source category includes merchant hydrogen production facilities located within a petroleum refinery if they are not owned by, or under the direct control of, the refinery owner and operator."

Commenter Name: Lorraine Krupa Gershman

Commenter Affiliation: American Chemistry Council (ACC)

Document Control Number: EPA-HQ-OAR-2008-0508-0423.2

Comment Excerpt Number: 99

Comment: EPA should clarify that this subpart is only applicable to commercial hydrogen production facilities, and not those units that incidentally produce hydrogen or hydrogen-containing byproduct gases that are typically combusted.

Response: See the above response to comment EPA-HQ-OAR-2008-0508-0513.1, Comment Excerpt Number 40.

Commenter Name: Sarah B. King
Commenter Affiliation: DuPont Company
Document Control Number: EPA-HQ-OAR-2008-0508-0604.1
Comment Excerpt Number: 40

Comment: §98.160 - The Hydrogen Production provisions are intended to apply to facilities that purposely produce hydrogen as a product for sale, and not facilities that incidentally produce hydrogen or hydrogen-containing process byproduct gases that are subsequently combusted either onsite or at a facility that is adjacent to the producing site. Preamble p16513 indicates the intent to be merchant production, so EPA should clarify that to be the case in the rule. Facilities incidentally producing hydrogen or hydrogen-containing process byproduct gases would almost certainly be required to report due to meeting other conditions of 98.2 in any event.

Response: See the above response to comment EPA-HQ-OAR-2008-0508-0513.1, Comment Excerpt Number 40.

Commenter Name: See Table 1
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0679.1
Comment Excerpt Number: 124

Comment: §98.160(c). Subpart P includes hydrogen production facilities located within a petroleum refinery and that are not owned or under the direct control of the refinery owner and operator. Captive hydrogen plants, where owned or operated by a third party, should not be reported as refinery emissions, even if located inside the refinery fence. The regulation should be revised to require the party that owns or operates the hydrogen plant to report the hydrogen plant emissions.

Response: See hydrogen production preamble response for "Definition of Source Category." EPA considers a hydrogen production facility which is owned or operated by a third party to be a merchant hydrogen plant, not a captive hydrogen plant.

Commenter Name: Marc J. Meteyer
Commenter Affiliation: Compressed Gas Association (CGA)
Document Control Number: EPA-HQ-OAR-2008-0508-0981.1
Comment Excerpt Number: 41

Comment: The proposed rule described the applicability of Subpart P as those hydrogen production facilities not owned or under the direct control of the refinery owner or operator. The determination of control can, under some circumstances, be ambiguous and, at least under the California mandatory GHG reporting rule, further clarification on reporting responsibility was added to include a default provision that the entity that holds the air permit for the affected facility is the reporting entity. CGA Comment: If the operator of the facility is the holder of the air permit, then the operator should be responsible for reporting GHG emissions. EPA should also clarify the responsibility for reporting where the owner/operator may not hold the applicable air permit for an affected facility.

Response: See hydrogen production preamble response for "Definition of Source Category." EPA cannot guarantee that the entity that holds the Title V or other air permit is the reporting entity for this rule.

Commenter Name: Edward N. Saccoccia
Commenter Affiliation: Praxair Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0977.1
Comment Excerpt Number: 8

Comment: The proposed rule described the applicability of Subpart P as those hydrogen production facilities not owned or under the direct control of the refinery owner or operator. The determination of control can, under some circumstances, be ambiguous. Under the California mandatory GHG reporting rule, further clarification on reporting responsibility was added to include a default provision that the entity holding the air permit for the affected facility is the reporting entity. The operator of the facility should be responsible for reporting GHG emissions from the hydrogen process it operates only if the actual emissions from that process exceed the reporting threshold.

Response: See hydrogen production preamble response for "Definition of Source Category." EPA cannot guarantee that the entity that holds the Title V or other air permit is the reporting entity for this rule.

Commenter Name: Keith Adams
Commenter Affiliation: Air Products and Chemicals, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-1142.1
Comment Excerpt Number: 39

Comment: The proposed rule described the applicability of Subpart P as those hydrogen production facilities not owned or under the direct control of the refinery owner or operator. The determination of control can, under some circumstances, be ambiguous and, at least under the California mandatory GHG reporting rule, further clarification on reporting responsibility was added to include a default provision that the entity that holds the air permit for the affected facility is the reporting entity. If the operator of the facility is the holder of the air permit, then the operator should be responsible for reporting GHG emissions. EPA should also clarify the responsibility for reporting where the owner/operator may not hold the applicable air permit for an affected facility.

Response: See hydrogen production preamble response for "Definition of Source Category." EPA cannot guarantee that the entity that holds the Title V or other air permit is the reporting entity for this rule.

Commenter Name: Lorraine Krupa Gershman
Commenter Affiliation: American Chemistry Council (ACC)
Document Control Number: EPA-HQ-OAR-2008-0508-0423.2
Comment Excerpt Number: 100

Comment: The proposed rule described the applicability of Subpart P as those hydrogen production facilities not owned or under the direct control of the refinery or other manufacturing operation owner or operator. The determination of control can, under some circumstances, be ambiguous. Under the California mandatory GHG reporting rule, further clarification on reporting responsibility was added to include a default provision that the entity that holds the air permit for the affected facility is the reporting entity. EPA needs to clarify the responsibility for reporting where the owner/operator may not hold the applicable air permit for an affected facility. ACC proposes that the operator of the hydrogen plant should assume the reporting responsibility.

Response: See hydrogen production preamble response for "Definition of Source Category." EPA cannot guarantee that the

entity that holds the Title V or other air permit is the reporting entity for this rule.

Commenter Name: Sam Chamberlain

Commenter Affiliation: Murphy Oil Corporation

Document Control Number: EPA-HQ-OAR-2008-0508-0625

Comment Excerpt Number: 34

Comment: Murphy does not have a hydrogen plant. However, at our Pressure Swing Absorption (PSA) unit, we purify Hydrogen generated from the refinery's Platformer. Hydrogen purity is increased from 84% to about 99.9%. The fuel gas exiting the PSA is routed to the reformer furnace and CO₂ is accounted for in the combustion emissions as identified in Subpart C, per 98.162(b). Murphy wants to confirm with EPA that this process, which does not generate or vent CO₂ emission, is not a reportable process under Subpart P, Hydrogen Production.

Response: EPA suggests that the commenter review 40 CFR §98.2 (Do I need to report), §98.6 (What definitions do I need to understand), Subpart P §98.160 (Definition of the [hydrogen production] source category), Subpart Y §98.250 (Definition of the [petroleum refinery] source category), Subpart P §98.162 (GHGs to report), and Subpart Y §98.252 (GHGs to report). A hydrogen production process unit that is part of a larger facility is a captive hydrogen production facility that does not report emissions under Subpart P. Their emissions are reported under the subpart applicable to the larger facility. EPA infers that Murphy Oil has a single "facility" under the definition in §98.6 and the facility is a petroleum refinery, not a hydrogen production facility, and therefore Subpart Y applies.

Commenter Name: Dan F. Hunter

Commenter Affiliation: ConocoPhillips Company

Document Control Number: EPA-HQ-OAR-2008-0508-0515.1

Comment Excerpt Number: 28

Comment: This source category requires reporting of facilities located within a petroleum refinery that are not owned or under direct control of the refinery. From 98.6, the definition of a "facility" means any physical property, plant, building, structure, source, or stationary equipment located on one or more contiguous or adjacent properties in actual physical contact or separated solely by a public roadway or other public right-of-way and under common ownership or common control, that

emits or may emit any greenhouse gas. ConocoPhillips recommends removing 98.160(c) from the final regulation and relying on the definition of a facility. An owner or operator of a refinery should not be responsible for gathering data and estimating GHG emissions for a source it does not have direct control or ownership. Furthermore, the refinery owner or operator could not certify to the accuracy and report as described in 98.4.

Response: EPA concurs that a hydrogen production process unit that is not part of a larger facility, as defined above, is a merchant hydrogen production facility which reports emissions under Subpart P, separately from the emissions reported by the larger facility. For clarity in response to other commenters, however, EPA has chosen to keep §98.160(c) in combination with §98.6, but EPA has revised §98.160(c) as follows: "This source category includes merchant hydrogen production facilities located within a petroleum refinery if they are not owned by, or under the direct control of, the refinery owner and operator."

Commenter Name: Stephen B. Kemp

Commenter Affiliation: Occidental Chemical Corporation (OCC)

Document Control Number: EPA-HQ-OAR-2008-0508-0644.1

Comment Excerpt Number: 8

Comment: EPA defines the source category for hydrogen production as follows: "(a) A hydrogen production source category produces hydrogen gas that is consumed at sites other than where it is produced. (b) This source category comprises process units that produce hydrogen by oxidation, reaction, or other transformations of feedstocks. (c) This source category includes hydrogen production facilities located within a petroleum refinery and that are not owned or under the direct control of the refinery owner and operator." In the preamble to the proposed rule (see page 16513), the following is stated "about 95 percent of all hydrogen produced in the U.S. today is made from natural gas via steam methane reforming. This process consists of two basic chemical reactions: (1) Reformation of the CH₄ feedstock with high temperature steam supplied by burning natural gas to obtain a synthesis gas (CH₄ + H₂O = CO + 3H₂); and (2) Using a water-gas shift reaction to form hydrogen and CO₂ from the carbon monoxide produced in the first step ((CO + H₂O = CO₂ + H₂). Other processes used for hydrogen production include steam naphtha reforming, coal or biomass gasification, partial oxidation of coal or hydrocarbons, autothermal reforming, electrolysis of water, recovery of byproduct hydrogen from electrolytic cells used to produce chlorine and other products,

and dissociation of ammonia." OCC is particularly concerned that the source category could be interpreted to include GHG emissions associated with the generation of hydrogen as a byproduct at chlor-alkali (i.e., chlorine-caustic soda) production facilities. OCC is a major chlorine and caustic soda manufacturer and has operated chlor-alkali facilities for many years and thus is very familiar with chlorine, caustic soda and hydrogen manufacture. Our chlor-alkali manufacturing operations are located in Houston, Texas; Corpus Christi, Texas; Geismar, Louisiana; Convent, Louisiana; Taft, Louisiana; Niagara Falls, New York, and Wichita, Kansas. The chlor-alkali manufacturing process utilizes an electrolytic cell ("cell") to manufacture chlorine and caustic soda. Hydrogen is generated as a byproduct of the electrolysis reaction. Specifically, sodium (or potassium) chloride and water (i.e., brine) is transformed into chlorine, liquid caustic soda and hydrogen in an electrolytic cell. The chemical reaction is represented as follows: $2\text{NaCl} + 2\text{H}_2\text{O} = 2\text{NaOH} + \text{Cl}_2 + \text{H}_2$. Hydrogen from the process is cooled and is used as a fuel or transferred off-site for sale. No carbon-containing chemicals are associated with the processing of hydrogen from chlor-alkali process and no more than a trace amount of GHGs are emitted from the process. [footnote: Note that depending on the specific type of brine treatment process, carbon dioxide may be generated as a result of brine treatment prior to its introduction into the cells. If so, we estimate these emissions are very minor, and if necessary, would be reported under proposed Subpart U "Miscellaneous Uses of Carbonate."] As mentioned on page 16513 of the preamble: "National emissions from hydrogen production were estimated to be approximately 60 million metric tons CO₂ (1 percent of U.S. GHG emissions) annually. The source category covered by the hydrogen production subpart of the proposed rule is merchant hydrogen production." As noted above, there are not any Cpl ICS emissions associated with the byproduct production of hydrogen at chlor-alkali facilities, irrespective of its final destination. Respectively, we request that the Agency amend the language found at proposed §98.160 to state the following: §98.160 Definition of the source category. (a)... (b) This source category comprises process units that produce hydrogen by oxidation, reaction, or other transformations of feedstocks. This source category does not include chlor--alkali manufacturing processes that produce hydrogen as a byproduct. (c)...

Response: EPA concurs that this source category does not include chlor--alkali manufacturing processes that produce hydrogen as a byproduct. Like hydrogen produced by electrolysis and hydrogen

produced at methanol plants, the chlor-alkali operations do not produce CO₂ and are therefore excluded under §98.2(a)(2) because their GHG emissions are well below the reporting threshold of 25,000 metric tons of CO₂eq. per year.

Commenter Name: See Table 1

Commenter Affiliation:

Document Control Number: EPA-HQ-OAR-2008-0508-0679.1

Comment Excerpt Number: 123

Comment: §98.160. The definition in Subpart P uses the phrase "transformations of feedstocks." There is a concern that the term "transformation" could be broadly interpreted to apply to operations that do not emit CO₂ in the generation of H₂. The rule should specify by name which processes are included versus excluded. API suggests that the detail in the technical support documentation on this topic be brought into the rule.

Response: EPA recognizes the commenters concern and does not intend for the rule to cover any transformation process that does not emit CO₂ in the generation of H₂. Since "operations that do not emit CO₂ in the generation of H₂" are specifically excluded under §98.2(a)(2) because their GHG emissions are well below the reporting threshold of 25,000 metric tons of CO₂eq. per year, EPA has concluded that the specific language in §98.2(a)(2) is sufficient. To add some clarity, however, EPA has revised the definition in §98.160(b) to read "This source category comprises process units that produce hydrogen by reforming, gasification, oxidation, reaction, or other transformations of feedstocks."

2. REPORTING THRESHOLD

None

3. GHGS TO REPORT

Commenter Name: Gregory A. Wilkins

Commenter Affiliation: Marathon Oil Corporation

Document Control Number: EPA-HQ-OAR-2008-0508-0712.1

Comment Excerpt Number: 58

Comment: Clarification should be added that the methodologies presented in Subpart P apply only to hydrogen plants which vent CO₂. Marathon operates a steam methane reforming hydrogen plant that is built with a pressure swing absorption (PSA) system without a CO₂ removal step. PSA systems without a CO₂ removal step do not vent CO₂ emissions, as all of the fuel exiting the PSA unit (purge gas) is routed to the refinery furnace. This is shown in Figure H-1 of the Technical Support Document for Hydrogen Production (EPA, 2008). The only sources of emissions from steam methane reforming plants with a PSA unit and no CO₂ removal step, are from combustion of the PSA purge gas in the reformer furnace. These combustion emissions would be estimated using the methodologies described in Subpart C.

Response: See hydrogen production preamble response for "GHGs to Report." The emissions from the combustion of the PSA purge gas in the reformer furnace are process emissions. Combustion emissions result from the combustion of fuel or feedstock, not PSA purge gas.

Commenter Name: See Table 1

Commenter Affiliation:

Document Control Number: EPA-HQ-OAR-2008-0508-0679.1

Comment Excerpt Number: 125

Comment: §98.160, §98.163. Clarification should be added that the methodologies presented in Subpart P apply only to hydrogen plants that vent CO₂. Most modern steam CH₄ reforming hydrogen plants are built with a pressure swing absorption (PSA) system without a CO₂ removal step. PSA systems without a CO₂ removal step do not vent CO₂ emissions, as all of the fuel exiting the PSA unit (purge gas) is routed to the reformer furnace. This is shown in Figure 11-1 of the Technical Support Document for Hydrogen Production (EPA, 2008). Emissions from steam CH₄ reforming plants with a PSA unit and no CO₂ removal step will only be from combustion of the PSA purge gas in the reformer furnace. These combustion emissions would be estimated using the methodologies described in Subpart C, as indicated in §98.162(b).

Response: See hydrogen production preamble response for "GHGs to Report." The emissions from the combustion of the PSA purge gas in the reformer furnace are process emissions. Combustion emissions result from the combustion of fuel or feedstock, not PSA purge gas.

Commenter Name: Marc J. Meteyer
Commenter Affiliation: Compressed Gas Association (CGA)
Document Control Number: EPA-HQ-OAR-2008-0508-0981.1
Comment Excerpt Number: 42

Comment: The proposed rule describes the emission reporting obligation in §98.162(a) and (b), separately, as the "CO₂ process emissions..." and "CO₂ ... emissions from the combustion of fuels..." respectively. It is not clear if EPA intended for these emissions to be reported separately or combined. This is unnecessary since all carbon in fuel and feed at a hydrogen plant will be eventually emitted as CO₂ unless the facility also produces other products containing carbon (e.g. carbon monoxide, syngas, etc.). In some emission calculation methods (most obviously in Tier 4 CEMS method), the calculation method does not distinguish between "process" CO₂ and "combustion" CO₂, so it is impractical to report these as separate, discrete emissions. Of even greater concern is the fact that through separate reporting of process vs. combustion CO₂ emissions, it is a relatively straightforward back-calculation to determine the process efficiency of the hydrogen production process. This is considered critical confidential business information that cannot be allowed to be revealed in reports accessible to domestic and international competitors and customers of the regulated source. CGA Comment: Clarify the CO₂ emission reporting obligation as combined "process" and "combustion" CO₂ emissions, regardless of the calculation method employed. If separate, discrete reporting of such emissions is actually required, provide explicit protection for this very critical confidential business information.

Response: See hydrogen production preamble response for "GHGs to Report."

Commenter Name: H. Allen Faulkner
Commenter Affiliation: Ascend Performance Materials, LLC,
Decatur Plant
Document Control Number: EPA-HQ-OAR-2008-0508-1578
Comment Excerpt Number: 7

Comment: Ascend requests that a revision is made to 98.162(b) on the CO₂, CH₄ and N₂O emission from combustion fuels to state that emissions already accounted for in the process emissions by using the feedstock material balance approach are not required to be counted a second time in under the combustion unit requirements. The feedstock material balance approach 96. I

63(b) assumes 100% conversion of the feedstock from carbon to into CO₂. However, in actuality, this is not the case. There is some un-reacted gaseous feedstock that is fed from the reformer portion of the production unit into the firebox portion of the unit and burned as a fuel. Technically, according to the current rule wording, the facility would be forced to double count these CO₂ emissions.

Response: See hydrogen production preamble response for "GHGs to Report."

Commenter Name: Lorraine Krupa Gershman
Commenter Affiliation: American Chemistry Council (ACC)
Document Control Number: EPA-HQ-OAR-2008-0508-0423.2
Comment Excerpt Number: 101

Comment: The proposed rule describes the emission reporting obligation in §§98.162(a) and (b), separately, as the CO₂ process emissions... and CO₂ ... emissions from the combustion of fuels... respectively. It is not clear if EPA intended for these emissions to be reported separately or combined. In some emission calculation methods (most obviously in Tier 4 CEMS method), the calculation method does not distinguish between process CO₂ and combustion CO₂, so it is impractical to report these as separate, discrete emissions.

Response: See hydrogen production preamble response for "GHGs to Report."

Commenter Name: Edward N. Saccoccia
Commenter Affiliation: Praxair Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0977.1
Comment Excerpt Number: 9

Comment: The proposed rule describes the emission reporting obligation in §98.162(a) and (b), separately, as "CO₂ process emissions..." and "CO₂ ... emissions from the combustion of fuels..." respectively. It is not clear if EPA intended for these emissions to be reported separately or combined. This is unnecessary since all carbon in fuel and feed at a hydrogen plant will be eventually emitted as CO₂ unless the facility also produces other products containing carbon (e.g. carbon monoxide). In some emission calculation methods (most obviously in Tier 4 CEMS method), the calculation method does not distinguish between "process" CO₂ and "combustion" CO₂, so it is

impractical to report these as separate, discrete emissions. Clarify the CO₂ emission reporting obligation as combined "process " and "combustion" CO₂ emissions, regardless of the calculation method employed.

Response: See hydrogen production preamble response for "GHGs to Report."

Commenter Name: Keith Adams

Commenter Affiliation: Air Products and Chemicals, Inc.

Document Control Number: EPA-HQ-OAR-2008-0508-1142.1

Comment Excerpt Number: 40

Comment: The proposed rule describes the emission reporting obligation in §98.162(a) and (b), separately, at the "CO₂ process emissions..." and "CO₂ ... emissions from the combustion of fuels..." respectively. It is not clear if EPA intended for these emissions to be reported separately or combined. This is unnecessary since all carbon in fuel and feed at a hydrogen plant will be eventually emitted as CO₂ unless the facility also produces other products containing carbon (e.g. carbon monoxide, syngas, etc.). In some emission calculation methods (most obviously in Tier 4 CEMS method), the calculation method does not distinguish between "process" CO₂ and "combustion" CO₂, so it is impractical to report these as separate, discrete emissions. Of even greater concern is the fact that through separate reporting of process vs. combustion CO₂ emissions, it is a relatively straightforward back-calculation to determine the process efficiency of the hydrogen production process. This is considered critical confidential business information that cannot be allowed to be revealed in reports accessible to domestic and international competitors and customers of the regulated source. Clarify the CO₂ emission reporting obligation as combined "process" and "combustion" CO₂ emissions, regardless of the calculation method employed. If separate, discrete reporting of such emissions is actually required, provide explicit protection for this very critical confidential business information.

Response: See hydrogen production preamble response for "GHGs to Report."

Commenter Name: Gary Moore

Commenter Affiliation: Pensacola Plant of Ascend Performance
Materials LLC

Document Control Number: EPA-HQ-OAR-2008-0508-0366.1

Comment Excerpt Number: 15

Comment: Methane reforming to produce hydrogen typically uses methane for reforming into hydrogen and methane as a fuel for the process heater. In addition, the purge gas that has had the hydrogen removed is sent to the process heater. Thus total CO₂ emissions would be related to total methane supplied to the hydrogen plant. In § 98.162(a) one is required to calculate process CO₂ emissions from the reformer and in § 98.162(b) one is required to calculate combustion emissions of CO₂, CH₄ and N₂O from the process heater portion of the unit. These units typically exhaust through a single stack. If a CEMS is not used, the calculation method double counts CO₂ from the reformer. The reported CO₂ is calculated based on the total carbon input. The carbon which is then recycled to the process heater would be counted a second time based on the process off gas methods for stationary combustion. In addition carbon content and molecular weight content would need to be measured daily. The issues of CH₄ and N₂O emission factors for non-listed fuel raised above would need to be addressed. The question of double counting carbon and emission factors from the recycled gas needs to be clarified to enable accurate reporting of greenhouse gases from hydrogen plants.

Response: There are two issues here. In response to "If a CEMS is not used, the calculation method double counts CO₂ from the reformer.", EPA concurs and has reworded §98.162 to provide operators the options of (1) reporting CO₂ process emissions and, separately, CO₂, CH₄ and N₂O combustion emissions, or (2) providing combined process and combustion CO₂, CH₄, and N₂O emissions for each hydrogen production process unit. In response to "The issues of CH₄ and N₂O emission factors for the non-listed fuel raised above would need to be addressed.", EPA agrees that CH₄ and N₂O combustion emissions factor data are necessary to apply the calculation methodology described in 98.33(c), but EPA has not determined the non-listed emission factors. Until the non-listed emission factors are determined, apply the appropriate combustion emissions factors for the fuel that are listed in Table C-1 and C-2 in Subpart C. See the preamble and separate comment response document volume for the response on selection of GHGs to report. Also, EPA reviewed CBI comments received across the rule (both general and subpart-specific comments) and our response is discussed in Section II.R of the preamble and in the comment response document for legal issues.

Commenter Name: J. P. Blackford
Commenter Affiliation: American Public Power Association (APPA)
Document Control Number: EPA-HQ-OAR-2008-0508-0661.1
Comment Excerpt Number: 12

Comment: Methane (CH₄) and nitrous oxide (N₂O) make up a very small portion of total GHG emissions from the combustion of fossil fuels. APPA supports simplified methodology for calculating these emissions as the opportunity to enhance the accuracy of the total GHG emissions in aggregate would not justify the additional effort required.

Response: EPA concurs that CH₄ and N₂O make up a very small portion of the GHG emissions from hydrogen production and has provided default emissions factors for a simplified methodology in §98.33(c). The simplified methodology consists of multiplying the mass or volume of fuel combusted times the higher heating value of that fuel, times the CH₄ or N₂O emission factor provided in Table C-3 for the appropriate fuel.

4. SELECTION OF PROPOSED GHG EMISSIONS CALCULATION AND MONITORING METHODS

Commenter Name: See Table 1
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0679.1
Comment Excerpt Number: 122

Comment: "The first method requires direct measurement of emissions by CEMS from all reporting facilities [...]. We invite comment on the practicality of adopting the first method." (pp. 16514- 16515) API Comments: API supports keeping both options in the final rule, giving facilities the flexibility to install CEMS if that is their preferred approach.

Response: EPA concurs and has retained the flexibility for you to install CEMS if that is your preferred approach. §98.163(a) states the conditions under which CEMS must be used; and §98.163(b) states that if CEMS are not used, the fuel and feedstock material balance approach must be used; but neither paragraphs disallow the use of CEMS.

Commenter Name: Keith Adams
Commenter Affiliation: Air Products and Chemicals, Inc.

Document Control Number: EPA-HQ-OAR-2008-0508-1142.1

Comment Excerpt Number: 41

Comment: The proposed rule defines the emission calculation methods appropriate for hydrogen production facilities as those described in Subpart C for stationary combustion sources. Of particular concern is the (mis-)applicability of the Tier 4 calculation methodology unless it is clarified that all of the conditions described in §98.33(b)(5)(ii)(A), (B), (C) and (D) are necessary in order to trigger the Tier 4 method requirement.

Air Products Comment: EPA should be more flexible as it relates to the applicability to the alternate combustion emission calculation methods. In particular:

1. Allow use of the Tier 1 method for units of any size (currently restricted to units <250 mmBTU/hr or less), particularly for standard fuels of commerce such as natural gas, LP gas and fuel oils, where billing-quality consumption data is accurate and readily available and the default H HV and CO₂ emission factors are well known constants (as noted in the Preamble for the proposed rule - natural gas carbon content is always within 1% of the default ratio).
2. Recognize that a source's current practices of occasionally characterizing fuels for HHV or carbon content does not necessarily constitute having data "available" consistent with the compliance expectations of Tiers 2 and 3. Where Tiers 2 or 3 would be required, existing fuel characterization may not be according to the specified analytical methods or at the required frequency. Do not require Tier 2 or 3 where data fully meeting the defined compliance expectation is not currently being obtained.
3. Do not require the use of the Tier 4 method where alternative fuel consumption data is available. Allow optional use of the Tier 4 method where, at the source's discretion. This may be a suitable calculation method where a source uses multiple fuels and/or non-commercial fuels or where existing CEMS systems include CO₂ measurement or can be modified at lower cost than alternative fuel consumption and/or characterization devices/practices. In any case, let the regulated source determine which method is most cost effective for their particular situation. And,
4. Clarify the requirement to employ the Tier 4 calculation method. Resolve the apparent discrepancy between the intent to limit Tier 4 to only Solid Fossil Fuel fired combustion units, per Table C-1 of the Preamble, with the actual imposition of Tier 4 described under §98.33(b)(5)(ii). Clarify that in order for Tier 4 to be required under §98.33(b)(5)(ii), all the conditions under §98.33(b)(5)(ii)(A), (B), (C), and (D) must be met. Specifically, conditions (A), (B), (C), and (D) should be separated by the word "and" - absent that, an implied "or" would force this calculation method on

many other combustion units for which it was not intended. Further, do not require the use of the Tier 4 method where alternative fuel consumption data is available. Tier 1, 2, and 3 offer viable alternatives for many combustion sources that will yield comparable (and in many cases more) accurate emission estimates. Allow optional use of the Tier 4 method where, at the source's discretion. This may be a suitable calculation method where a source uses multiple fuels and/or non-commercial fuels or where existing CEMS systems include CO₂ measurement or can be modified at lower cost than alternative fuel consumption and/or characterization devices/practices. In any case, let the regulated source determine which method is most cost effective for their particular situation.

Response: EPA has clarified §98.162 to allow combustion emissions to be reported under Subpart C, with the tier choices allowed under Subpart C. EPA notes that §98.163(a) applies only to facilities that already have CEMS installed, choose to use CEMS, or are required to have CEMS. If your facility does not have or need CEMS, you may select from the options included under Subpart C to report combustion emissions as appropriate and follow §98.163(b) to report process emissions, or you may select from the options included under Subpart C to report combined process and combustion emissions.

Commenter Name: See Table 1

Commenter Affiliation:

Document Control Number: EPA-HQ-OAR-2008-0508-0679.1

Comment Excerpt Number: 126

Comment: §98.163. A material balance approach based on hydrogen production rate is not presented in the proposed rule. The Compendium provides a CO₂ emission estimation method based on the amount of H₂ produced and the stoichiometric ratio of H₂ formed to CO₂ formed (note that this approach is not ideal where the feedstock gas contains H₂)

Response: EPA reviewed this approach and concluded that it is not preferred for the following reasons. First, the feedstock method will provide accurate results at lower cost to the facility than "a CO₂ emission estimation method based on the amount of H₂ produced and the stoichiometric ratio of H₂ formed to CO₂ formed." Second, such a method would not be practical or appropriate for those hydrogen production facilities where the feedstock inputs and process operating parameters do not remain consistent over the reporting period. Third, such a method

would not be sufficiently accurate for facilities having the potential for significant variations in the fuel and feedstock characteristics (composition, temperature, flow rate) and the process operating parameters.

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

Commenter Name: Susan Amodeo Cathey
Commenter Affiliation: Air Liquide USA, LLC
Document Control Number: EPA-HQ-OAR-2008-0508-0464.1
Comment Excerpt Number: 7

Comment: Emission calculation methods in the proposed rule assume that all feedstock carbon exits the process as CO₂ which does not account for situations where carbon is contained in a product or co-product (such as synthesis gas). EPA should provide a calculation method to account for feedstock carbon that does not exit the hydrogen production facility as CO₂, but rather as a result of products or co-products that contain carbon (CO or CO₂),

Response: See hydrogen production preamble response for "Method for Calculating GHG Emissions." See "Summary of Comments and Responses on GHGs to Report" in the preamble.

Commenter Name: Lynn D. Westfall
Commenter Affiliation: Tesoro Corporation
Document Control Number: EPA-HQ-OAR-2008-0508-0669.1
Comment Excerpt Number: 4

Comment: Equation P-1 (74 FR 16664) assumes that the entire mass of carbon that enters a hydrogen production unit is emitted from that unit in the form of CO₂. For hydrogen units that utilize pressure-swing adsorption (PSA) technology, the off gas from the PSA section of the plant contains all of the carbon that was originally contained in the feedstock and is utilized as fuel in the hydrogen plant furnace. For the plants utilizing PSA technology, care must be taken to insure that the CO₂ emissions are not counted twice (as hydrogen unit emissions and combustion emissions). Solvent-based plants typically produce hydrogen of lower purity compared the hydrogen product from PSA units, and a significant portion of the carbon in the feedstock remains as an impurity in the hydrogen product stream. For solvent-based

hydrogen plants the assumption embodied in Equation P-1 that the entire mass of carbon that enters the hydrogen production unit is emitted from that unit in the form of CO₂ will lead to material over-reporting of CO₂ emissions due to double-counting. In solvent-based units the hydrogen product often contains up to 5% or 6% of unconverted methane as an impurity. In a refinery setting this methane passes through the hydrotreating units which use the hydrogen product and eventually makes its way into the refinery's fuel gas system, ultimately being burned in (and reported as an emission from) a combustion source. Carbon emissions from the combustion of this methane impurity in the hydrogen stream would therefore be double-counted if equation P-1 were utilized. This problem was recognized when the California Air Resources Board promulgated Section 95114 of its mandatory GHG reporting rule. As noted in Section 11 (Hydrogen Plants) of the Instructional Guidance for Mandatory GHG Emissions Reporting (December 2008): "...you may need to account for carbon which is emitted and reported elsewhere and the S term in the equation would be used to quantify this carbon stream. For instance if CO₂ and/or CH₄ originating in the feedstock were diverted as Pressure Swing Adsorption (PSA) off-gas to a flare or into a refinery fuel gas system and quantified and reported elsewhere, you should quantify this stream and report it using the S term. The carbon content and volume of these gases must be accurately measured. The S term is included to avoid double-counting feedstock carbon dioxide emissions." (emphasis added, p. 11-4) To avoid this double-counting of a material mass of CO₂ emission Tesoro requests that EPA revise equation P-1 to include a factor for unconverted methane entering the hydrogen plant as a feedstock that is quantified and reported elsewhere in the source emissions. This factor should be derived from monthly sampling of the hydrogen product.

Response: See hydrogen production preamble response for "Method for Calculating GHG Emissions." See "Summary of Comments and Responses on GHGs to Report" in the preamble.

Commenter Name: Marc J. Meteyer

Commenter Affiliation: Compressed Gas Association (CGA)

Document Control Number: EPA-HQ-OAR-2008-0508-0981.1

Comment Excerpt Number: 44

Comment: The proposed rule provides specific equations (designated P-1, P-2, and P-3) under §98.163(b)(1), (2), and (3) for calculating the process emissions arising from the feedstock consumption of hydrogen production. These equations do not

recognize the situation where synthesis gas (a mixture of hydrogen and carbon monoxide) and/or carbon monoxide, itself, is a purposeful co-product of the reforming process to form hydrogen. In these instances, some of the feedstock carbon is not exiting the process as CO₂, but rather as CO (as a product), and therefore, a term should be added to the equation to reduce the process emissions accordingly. Correct equations P-1, P-2 and P-3 to account for feedstock carbon that does not exit the hydrogen production facility as CO₂ as a result of products that are manufactured which contain carbon. Proposed corrected equations are provided below: Where: CO₂ = Annual CO₂ process emissions arising from feedstock consumption (metric tons). (Fdstk)_n = Volume of the gaseous feedstock used in month n (scf of feedstock). (CC)_n = Average carbon content of the gaseous feedstock, from the analysis results for month n (kg C per kg of feedstock). MW = Molecular weight of the gaseous feedstock (kg/kg-mole). MVC = Molar volume conversion factor (849.5 scf per kg-mole at standard conditions). k = Months per year. 44/12 = Ratio of molecular weights, CO₂ to carbon. S_n = carbon accounted for in carbon containing products in month n (kg carbon). and 0.001 = Conversion factor from kg to metric tons. Where: CO₂ = Annual CO₂ process emissions arising from feedstock consumption (metric tons). (Fdstk)_n = Volume of the gaseous feedstock used in month n (scf of feedstock). (CC)_n = Average carbon content of the gaseous feedstock, from the analysis results for month n (kg C per kg of feedstock). k = Months per year. 44/12 = Ratio of molecular weights, CO₂ to carbon. S_n = carbon accounted for in carbon containing products in month n (kg carbon). and 0.001 = Conversion factor from kg to metric tons. Where CO₂ = Annual CO₂ process emissions arising from feedstock consumption (metric tons). (Fn dstk) = Volume of the gaseous feedstock used in month n (scf of feedstock). (CC)_n = Average carbon content of the gaseous feedstock, from the analysis results for month n (kg C per kg of feedstock). k = Months per year. 44/12 = Ratio of molecular weights, CO₂ to carbon. S_n = carbon accounted for in carbon containing products in month n (kg carbon). 0.001 = Conversion factor from kg to metric tons.

Response: See hydrogen production preamble response for "Method for Calculating GHG Emissions." See "Summary of Comments and Responses on GHGs to Report" in the preamble.

Commenter Name: Keith Adams

Commenter Affiliation: Air Products and Chemicals, Inc.

Document Control Number: EPA-HQ-OAR-2008-0508-1142.1

Comment Excerpt Number: 42

Comment: The proposed rule provides specific equations (designated P-1, P-2, and P-3) under §98.163(b)(1), (2), and (3) for calculating the process emissions arising from the feedstock consumption of hydrogen production. These equations do not recognize the situation where synthesis gas (a mixture of hydrogen and carbon monoxide) and/or carbon monoxide, itself, is a purposeful co-product of the reforming process to form hydrogen. In these instances, some of the feedstock carbon is not exiting the process as CO₂, but rather as CO (as a product), and therefore, a term should be added to the equation to reduce the process emissions accordingly. Correct equations P-1, P-2 and P-3 to account for feedstock carbon that does not exit the hydrogen production facility as CO₂ as a result of products that are manufactured which contain carbon. Proposed corrected equations are provided [See DCN:EPA-HQ-OAR-2008-0508-1142.1 for equations provided by the commenter].

Response: See hydrogen production preamble response for "Method for Calculating GHG Emissions." See "Summary of Comments and Responses on GHGs to Report" in the preamble.

Commenter Name: Table 2

Commenter Affiliation:

Document Control Number: EPA-HQ-OAR-2008-0508-0433.2

Comment Excerpt Number: 44

Comment: Equation P-1 (74 FR 16664) assumes that the entire mass of carbon that enters a hydrogen production unit is emitted from that unit in the form of CO₂. While that is essentially correct for a hydrogen unit that utilizes pressure-swing adsorption (PSA) technology, it is not true for solvent-based hydrogen plants. Solvent-based plants typically produce hydrogen of lower purity compared the hydrogen product from PSA units. This technology-driven difference will lead to material over-reporting of CO₂ emissions due to double-counting. In solvent-based units the hydrogen product often contains up to 5% or 6% of unconverted methane as an impurity. In a refinery setting this methane passes through the hydrotreating units which use hydrogen to remove sulfur from intermediate naphtha and distillate products and eventually makes its way into the refinery's fuel gas system, ultimately being burned in (and reported as an emission from) a combustion source. Carbon emissions from the combustion of this methane impurity in the hydrogen stream would therefore be double-counted if equation P-

1 were utilized. This problem was recognized when the California Air Resources Board promulgated Section 95114 of its mandatory GHG reporting rule. As noted in Section 11 (Hydrogen Plants) of the "Instructional Guidance for Mandatory GHG Emissions Reporting" (December 2008): "...you may need to account for carbon which is emitted and reported elsewhere and the S term in the equation would be used to quantify this carbon stream. For instance if CO₂ and/or CH₄ originating in the feedstock were diverted as Pressure Swing Adsorption (PSA) of-gas to a flare or into a refinery fuel gas system and quantified and reported elsewhere, you should quantify this stream and report it using the S term. The carbon content and volume of these gases must be accurately measured. The S term is included to avoid double-counting feedstock carbon dioxide emissions. " (p. 11-4) To avoid this double-counting of a material mass of CO₂ emission NPRA requests that EPA revise equation P-1 to include a factor for unconverted methane entering the hydrogen plant as a feedstock that is quantified and reported elsewhere in the source emissions. This factor should be derived from monthly sampling of the hydrogen product.

Response: See hydrogen production preamble response for "Method for Calculating GHG Emissions." See "Summary of Comments and Responses on GHGs to Report" in the preamble.

Commenter Name: Lorraine Krupa Gershman
Commenter Affiliation: American Chemistry Council (ACC)
Document Control Number: EPA-HQ-OAR-2008-0508-0423.2
Comment Excerpt Number: 104

Comment: The proposed rule provides specific equations (designated P-1, P-2, and P-3) under §§98.163(b)(1), (2), and (3) for calculating the process emissions arising from the feedstock consumption of hydrogen production. These equations do not recognize the situation where synthesis gas (a mixture of hydrogen and carbon monoxide) and/or carbon monoxide, itself, is a purposeful co-product of the reforming process to form hydrogen. In these instances, some of the feedstock carbon is not exiting the process as CO₂, but rather as CO, and therefore, a term should be added to the equation to reduce the apparent process emissions accordingly. This approach has been successfully defined under the California mandatory GHG reporting methodology for hydrogen plants, depicted as the ³S' term in their equations under CA §§951 14(b)(2) and (3)(B). EPA needs to correct equations P-1, P-2 and P-3 to account for feedstock carbon that does not exit the hydrogen production

facility as CO₂.

Response: See hydrogen production preamble response for "Method for Calculating GHG Emissions." See "Summary of Comments and Responses on GHGs to Report" in the preamble.

6. MONITORING AND QA/QC REQUIREMENTS

Commenter Name: Gregory A. Wilkins

Commenter Affiliation: Marathon Oil Corporation

Document Control Number: EPA-HQ-OAR-2008-0508-0712.1

Comment Excerpt Number: 55

Comment: In Subpart P (Hydrogen Plants), EPA states that Tier 1 and 2 methods can be used for natural gas combustion while also allowing vendor supplied heating values from sampling. On page 74 FR 16514 of the preamble EPA states, "The carbon fraction in the feedstock may be provided as part of an ultimate analysis performed by the supplier (e.g., the local gas utility in the case of natural gas feedstock). If the feedstock supplier does not provide the gas composition or ultimate analysis data, the facility would be required to analyze the carbon content of the feedstock on a monthly basis using the appropriate test method..." Also on page 74 FR 16515 of the preamble EPA states, "Because 95 percent of hydrogen is produced using steam methane reforming, and the carbon content of natural gas is always within 1 percent of the ratio: one mole of carbon per mole of natural gas, the local utility QA/QC requirements should be more than adequate." However this provision is not made clear in Subpart P of the rule language. Marathon requests that EPA clarify Subpart P of the rule with the use of the language above. Marathon also proposes the allowance of vendor supplied natural gas information for the calculation of emissions.

Response: See hydrogen production preamble response for the first comment under "Monitoring and QA/QC Requirements."

Commenter Name: Lorraine Krupa Gershman

Commenter Affiliation: American Chemistry Council (ACC)

Document Control Number: EPA-HQ-OAR-2008-0508-0423.2

Comment Excerpt Number: 105

Comment: In §98.164(c), the proposed rule indicates that a sample of feedstock must be collected and analyzed at least

monthly. The language as written implies the regulated source will conduct the sampling and analysis. In many instances, feedstock characterization is conducted by the supplier of that feedstock, particularly when the feedstock is a standard hydrocarbon fuel of commerce (natural gas, LP gas, fuel oils, etc.) that is supplied to multiple consumers. In such instances, such feedstocks are more efficiently characterized by their suppliers than by their consumers. In addition, the most common feedstock for hydrogen production is natural gas. As we commented previously, and reiterated in the Preamble to the proposed rule, the carbon content of standard natural gas is well known and very consistent. Monthly characterization of natural gas is not necessary to develop a sufficiently accurate calculation of hydrogen process emissions. EPA should allow the characterization of feedstocks (sampling and analysis) to be conducted by either the feedstock consumer (the regulated source) or the feedstock supplier. The characterization of standard fuels of commerce used as hydrogen production feedstocks, such as natural gas, should not be required since default values will yield a sufficiently accurate emission estimate. The characterization of such standard fuels of commerce used as feedstocks should be optional and at the source's discretion.

Response: See hydrogen production preamble response for the first comment under "Monitoring and QA/QC Requirements."

Commenter Name: Marc J. Meteyer

Commenter Affiliation: Compressed Gas Association (CGA)

Document Control Number: EPA-HQ-OAR-2008-0508-0981.1

Comment Excerpt Number: 45

Comment: The proposed rule indicates that a sample of feedstock must be collected and analyzed at least monthly. The language as written implies the regulated source will conduct the sampling and analysis. In many instances, feedstock characterization is conducted by the supplier of that feedstock, particularly when the feedstock is a standard hydrocarbon fuel of commerce (natural gas, LP gas, fuel oils, etc.) that is supplied to multiple consumers. In such instances, such feedstocks are more efficiently characterized by their suppliers than by their consumers. In addition, the most common feedstock for hydrogen production is natural gas. As commented previously (§98.33(c) and (d)), and reiterated in the Preamble to the proposed rule, the carbon content of standard natural gas is well known and very consistent. Monthly characterization of natural gas is not

necessary to develop a sufficiently accurate calculation of hydrogen process emissions. EPA should allow the characterization of feedstocks (sampling and analysis) to be conducted by either the feedstock consumer (the regulated source) or the feedstock supplier. The characterization of standard fuels of commerce used as hydrogen production feedstocks, such as natural gas, should not be required since default values will yield a sufficiently accurate emission estimate. Characterization of such standard fuels of commerce used as feedstocks should be optional, at the source's discretion.

Response: See hydrogen production preamble response for the first comment under "Monitoring and QA/QC Requirements."

Commenter Name: See Table 1

Commenter Affiliation:

Document Control Number: EPA-HQ-OAR-2008-0508-0679.1

Comment Excerpt Number: 127

Comment: §98.164(c). The carbon content analysis requirements for hydrogen plant feedstocks are not completely consistent with the carbon content analysis requirements for combustion sources under subpart C. Under subpart P, the feedstock carbon content must be analyzed monthly at a minimum. However, under subpart C, carbon content analyses are gas-specific—the carbon contents for natural gas and biogas must be analyzed monthly, but the carbon content for other gases must be analyzed daily. API supports the use of the natural gas factor in Table C-1, or where the gas stream composition does fluctuate with operational changes, allow the reporters to determine a sampling frequency that is consistent with the variability of the stream.

Response: See hydrogen production preamble response for the first comment under "Monitoring and QA/QC Requirements."

Commenter Name: Keith Adams

Commenter Affiliation: Air Products and Chemicals, Inc.

Document Control Number: EPA-HQ-OAR-2008-0508-1142.1

Comment Excerpt Number: 43

Comment: The proposed rule indicates that a sample of feedstock must be collected and analyzed at least monthly. The language as written implies the regulated source will conduct the sampling and analysis. In many instances, feedstock characterization is

conducted by the supplier of that feedstock, particularly when the feedstock is a standard hydrocarbon fuel of commerce (natural gas, LP gas, fuel oils, etc.) that is supplied to multiple consumers. In such instances, such feedstocks are more efficiently characterized by their suppliers than by their consumers. In addition, the most common feedstock for hydrogen production is natural gas. The carbon content of standard natural gas is well known and very consistent. Monthly characterization of natural gas is not necessary to develop a sufficiently accurate calculation of hydrogen process emissions. EPA should allow the characterization of feedstocks (sampling and analysis) to be conducted by either the feedstock consumer (the regulated source) or the feedstock supplier. The characterization of standard fuels of commerce used as hydrogen production feedstocks, such as natural gas, should not be required since default values will yield a sufficiently accurate emission estimate. Characterization of such standard fuels of commerce used as feedstocks should be optional, at the source's discretion.

Response: See hydrogen production preamble response for the first comment under "Monitoring and QA/QC Requirements."

Commenter Name: J. P. Blackford

Commenter Affiliation: American Public Power Association (APPA)

Document Control Number: EPA-HQ-OAR-2008-0508-0661.1

Comment Excerpt Number: 10

Comment: APPA has concerns about the sampling requirements in the Proposed Rule for gaseous fuels other than natural gas. The daily carbon content sampling requirement seems overly onerous and it is recommended that sampling requirements for these fuels be required monthly, consistent with requirements for other fuels. APPA is concerned that a daily sampling requirement could discourage the use of landfill gas a co-fire fuel within an existing natural gas fired plant. Many times these projects have been marginal in the past, and additional regulatory barriers can discourage innovation. A further concern is that the monthly sampling for other fuel types might not provide any additional information to EPA. Some of the units operated by APPA member utilities are utilized as peaking units and as such may not operate often, therefore, monthly analysis would not be practical and overly burdensome. Many of our member utilities receive fuel shipments less frequently than monthly, so it serves little purpose to require them to sample fuel which will have the identical composition to the fuel that was sampled the

previous month since no new fuel was delivered. APPA also believes that the carbon content in the fuel will have minimal variation from delivery to delivery thus minimizing the increase in accuracy gained by requiring monthly sampling. APPA recommends that EPA lower the requirement for sampling non-gaseous fuels to new deliveries rather than monthly in order to pinpoint the onset of fuel parameter variations.

Response: See hydrogen production preamble response for the second comment under "Monitoring and QA/QC Requirements."

Commenter Name: Edward N. Saccoccia

Commenter Affiliation: Praxair Inc.

Document Control Number: EPA-HQ-OAR-2008-0508-0977.1

Comment Excerpt Number: 11

Comment: The proposed rule requires all fuel flow meters, gas composition meters and heating value monitors to be calibrated initially and annually, or at the meter manufacturer's specified frequency, thereafter. This requirement fails to recognize that some on-line measurement device installations do not allow calibration without taking the line out of service, thereby forcing a shutdown of the combustion/manufacturing process. In many instances, scheduled maintenance shutdowns for such equipment/processes will not occur on this prescribed frequency. Unless provisions are added to the proposed rule which provide relief from this required calibration frequency, manufacturing processes will be required to shutdown solely to complete the required calibration, resulting in significant cost, business disruption and, in many cases, increase environmental impacts from the inefficiencies of the start-up/shutdown activity. This need is comparable to provisions under many EPA rules regarding the repair of leaking VOC fugitive emissions components where repair would require a process shutdown, and instead the repair deadline is extended to the next scheduled maintenance shutdown. The rule should include provisions for an extension of the required meter/monitor calibration deadline (as well as the initial calibration, if appropriate) where the calibration would require removing the process line from service. The calibration requirement should then be extended to the next scheduled maintenance shutdown for the impacted unit/process.

Response: See hydrogen production preamble response for the third comment under "Monitoring and QA/QC Requirements."

Commenter Name: Keith Adams

Commenter Affiliation: Air Products and Chemicals, Inc.

Document Control Number: EPA-HQ-OAR-2008-0508-1142.1

Comment Excerpt Number: 44

Comment: The proposed rule requires all fuel flow meters, gas composition meters and heating value monitors to be calibrated initially and annually, or at the meter manufacturer's specified frequency, thereafter. This requirement fails to recognize that some on-line measurement device installations do not allow calibration without taking the line out of service, thereby forcing a shutdown of the combustion/manufacturing process. In many instances, scheduled maintenance shutdowns for such equipment/processes will not occur on this prescribed frequency. Unless provisions are added to the proposed rule which provide relief from this required calibration frequency, manufacturing processes will be required to shutdown solely to complete the required calibration, resulting in significant cost, business disruption and, in many cases, increase environmental impacts from the inefficiencies of the start-up/shutdown activity. This need is comparable to provisions under many EPA rules regarding the repair of leaking VOC fugitive emissions components where repair would require a process shutdown, and instead the repair deadline is extended to the next scheduled maintenance shutdown. Air Products Comment: The rule should include provisions for an extension of the required meter/monitor calibration deadline (as well as the initial calibration, if appropriate) where the calibration would require removing the process line from service. The calibration requirement should then be extended to the next scheduled maintenance shutdown for the impacted unit/process.

Response: See hydrogen production preamble response for the third comment under "Monitoring and QA/QC Requirements."

Commenter Name: Lorraine Krupa Gershman

Commenter Affiliation: American Chemistry Council (ACC)

Document Control Number: EPA-HQ-OAR-2008-0508-0423.2

Comment Excerpt Number: 106

Comment: The proposed rule in §98.164(d) requires all fuel flow meters, gas composition meters and heating value monitors to be calibrated initially and annually, or at the meter manufacturer's specified frequency, thereafter. This requirement fails to recognize that some on-line measurement device installations do not allow calibration without taking the line

out of service, thereby forcing a shutdown of the combustion/manufacturing process. In many instances, scheduled maintenance shutdowns for such equipment/processes will not occur on this prescribed frequency. Unless provisions are added to the proposed rule which provide relief from this required calibration frequency, manufacturing processes will be required to shutdown solely to complete the required calibration, resulting in significant cost, business disruption and, in many cases, increase environmental impacts from the inefficiencies of the start-up/shutdown activity. These issues are comparable to provisions under many EPA rules regarding the repair of leaking VOC fugitive emissions components where repair would require a process shutdown, and instead the repair deadline is extended to the next scheduled maintenance shutdown. The final rule should include provisions for an extension of the required meter/monitor calibration deadline (as well as the initial calibration, if appropriate) where the calibration would require removing the process line from service. The calibration requirement should then be extended to the next scheduled maintenance shutdown for the impacted unit/process.

Response: See hydrogen production preamble response for the third comment under "Monitoring and QA/QC Requirements."

Commenter Name: Marc J. Meteyer

Commenter Affiliation: Compressed Gas Association (CGA)

Document Control Number: EPA-HQ-OAR-2008-0508-0981.1

Comment Excerpt Number: 46

Comment: The proposed rule requires all fuel flow meters, gas composition meters and heating value monitors to be calibrated initially and annually, or at the meter manufacturer's specified frequency, thereafter. This requirement fails to recognize that some on-line measurement device installations do not allow calibration without taking the line out of service, thereby forcing a shutdown of the combustion/manufacturing process. In many instances, scheduled maintenance shutdowns for such equipment/processes will not occur on this prescribed frequency. Unless provisions are added to the proposed rule which provide relief from this required calibration frequency, manufacturing processes will be required to shutdown solely to complete the required calibration, resulting in significant cost, business disruption and, in many cases, increase environmental impacts from the inefficiencies of the start-up/shutdown activity. This need is comparable to provisions under many EPA rules regarding the repair of leaking VOC fugitive emissions components where

repair would require a process shutdown, a steady the repair deadline is extended to the next scheduled maintenance shutdown. The rule should include provisions for an extension of the required meter/monitor calibration deadline (as well as the initial calibration, if appropriate) where the calibration would require removing the process line from service. The calibration requirement should then be extended to the next scheduled maintenance shutdown for the impacted unit/process.

Response: See hydrogen production preamble response for the third comment under "Monitoring and QA/QC Requirements."

Commenter Name: See Table 1

Commenter Affiliation:

Document Control Number: EPA-HQ-OAR-2008-0508-0679.1

Comment Excerpt Number: 128

Comment: [Page 16664] Sec. 98.164 Monitoring and QA/QC requirements. API offers the following revised language for this section's paragraph (d) at this time. (a) Facilities that use CEMS must comply with the monitoring and QA/QC procedures specified in Sec. 98.34(e). (b) The quantity of gaseous or liquid feedstock consumed must be measured continuously using a flow meter. The quantity of solid feedstock consumed can be obtained from company records and aggregated on a monthly basis. (c) You must collect a sample of each feedstock and analyze the carbon content of each sample using appropriate test methods incorporated by reference in Sec. 98.7. The minimum frequency of the fuel sampling and analysis is monthly. (d) All fuel flow meters, gas composition monitors, and heating value monitors shall be calibrated or verified following good manufacturing practice, using a suitable method published by a consensus standards organization (e.g., ASTM, ASME, API, AGA, or others). Alternatively, calibration/verification procedures specified by the flow meter manufacturer may be used.

Response: For consistency with other subparts of the rule, EPA has defined the calibration accuracy requirements for the rule in 40 CFR 98.3(i) under the discussion of the general monitoring, reporting, recordkeeping and verification requirements.

Commenter Name: H. Allen Faulkner

Commenter Affiliation: Ascend Performance Materials, LLC,
Decatur Plant

Document Control Number: EPA-HQ-OAR-2008-0508-1578

Comment Excerpt Number: 1

Comment: ISO 5167-1: 2003 through ISO 5167-4, Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full, are standard methods used in industry for flow meters. We request that these methods be added to the list of standards incorporated by reference.

Response: See hydrogen production preamble response for the fourth comment under "Monitoring and QA/QC Requirements."

7. PROCEDURES FOR ESTIMATING MISSING DATA

Commenter Name: Marc J. Meteyer

Commenter Affiliation: Compressed Gas Association (CGA)

Document Control Number: EPA-HQ-OAR-2008-0508-0981.1

Comment Excerpt Number: 47

Comment: The proposed rule prescribes methodology to substitute for missing data used in the emission calculations. For **missing feedstock supply rates**, the method prescribed is using the lesser of the maximum supply rate the unit is capable of processing or the maximum supply rate that the meter can measure. This approach is in contrast to the method prescribed for substitution missing fuel consumption data under §98.35(b)(2), where the "best available estimate" is deemed an appropriate substitution. In many cases, use of valid data points before and after, use of long-term consumption averages or estimates derived from other measured process data (e.g. production rate) can yield sufficiently accurate estimates to substitute for missing data. The data substitution method for missing feedstock supply rate data should be changed to be consistent with §98.35(b)(2), allowing use of the "best available estimate".

Response: See hydrogen production preamble response for "Procedures for Missing Data."

Commenter Name: Keith Adams

Commenter Affiliation: Air Products and Chemicals, Inc.

Document Control Number: EPA-HQ-OAR-2008-0508-1142.1

Comment Excerpt Number: 45

Comment: The proposed rule prescribes methodology to substitute for missing data used in the emission calculations. For **missing feedstock supply rates**, the method prescribed is using the lesser of the maximum supply rate the unit is capable of processing or the maximum supply rate that the meter can measure. This approach is in contrast to the method prescribed for substitution for missing fuel consumption data under §98.35(b)(2), where the "best available estimate" is deemed an appropriate substitution. In many cases, use of valid data points before and after, use of long-term consumption averages or estimates derived from other measured process data (e.g. production rate) can yield sufficiently accurate estimates to substitute for missing data. Air Products Comment: The data substitution method for missing feedstock supply rate data should be changed to be consistent with §98.35(b)(2), allowing use of the "best available estimate".

Response: See hydrogen production preamble response for "Procedures for Missing Data."

Commenter Name: Edward N. Saccoccia

Commenter Affiliation: Praxair Inc.

Document Control Number: EPA-HQ-OAR-2008-0508-0977.1

Comment Excerpt Number: 12

Comment: The proposed rule prescribes methodology to substitute for missing data used in the emission calculations. For **missing feedstock supply rates**, the method prescribed is using the lesser of the maximum supply rate the unit is capable of processing or the maximum supply rate that the meter can measure. This approach is in contrast to the method prescribed for substitution for missing fuel consumption data under §98.35(b)(2), where the "best available estimate" is deemed an appropriate substitution. In many cases, use of valid data points before and after, use of long-term consumption averages or estimates derived from other measured process data (e.g. production rate) can yield sufficiently accurate estimates to substitute for missing data. The data substitution method for missing feedstock supply rate data should be changed to be consistent with §98.35(b)(2), allowing use of the "best available estimate".

Response: See hydrogen production preamble response for "Procedures for Missing Data."

Commenter Name: Keith Adams
Commenter Affiliation: Air Products and Chemicals, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-1142.1
Comment Excerpt Number: 46

Comment: The proposed rule prescribes methodology to substitute for missing data used in the emission calculations. For **missing feedstock carbon content** data, however, the proposed rule does not offer any alternative to substitute appropriate alternate values for any missing data. The only option offered in the proposed rule for missing carbon content data under §98.165(b) is to perform a retest. This approach is in contrast to the method prescribed for substitution for missing fuel carbon content data under §98.35(b)(1), which averages before/after values to substitute for missing data. The data substitution method for missing feedstock carbon content data should be changed to be consistent with §98.35(b)(1), allowing use of the average before/after values.

Response: See hydrogen production preamble response for "Procedures for Missing Data."

Commenter Name: Edward N. Saccoccia
Commenter Affiliation: Praxair Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0977.1
Comment Excerpt Number: 13

Comment: The proposed rule prescribes methodology to substitute for missing data used in the emission calculations. For **missing feedstock carbon content** data, however, the proposed rule does not offer any alternative to substitute appropriate alternate values for any missing data. The only option offered in the proposed rule for missing carbon content data under §98.165(b) is to perform a retest. This approach is in contrast to the method prescribed for substitution for missing fuel carbon content data under §98.35(b)(1), which averages before/after values to substitute for missing data. The data substitution method for missing feedstock carbon content data should be changed to be consistent with §98.35(b)(1), allowing use of the average before/after values.

Response: See hydrogen production preamble response for "Procedures for Missing Data."

Commenter Name: Marc J. Meteyer
Commenter Affiliation: Compressed Gas Association (CGA)
Document Control Number: EPA-HQ-OAR-2008-0508-0981.1
Comment Excerpt Number: 48

Comment: The proposed rule prescribes methodology to substitute for missing data used in the emission calculations. For **missing feedstock carbon content** data, however, the proposed rule does not offer any alternative to substitute appropriate alternate values for any missing data. The only option offered in the proposed rule for missing carbon content data under section §98.165(b) is to perform a retest. This approach is in contrast to the method prescribed for substitution for missing fuel carbon t data under §98.35(b)(1), which averages before/after values to substitute for missing data. The data substitution method for missing feedstock carbon content data should be changed to be consistent with §98.35(b)(1), allowing use of the average before/after values.

Response: See hydrogen production preamble response for "Procedures for Missing Data."

Commenter Name: Lorraine Krupa Gershman
Commenter Affiliation: American Chemistry Council (ACC)
Document Control Number: EPA-HQ-OAR-2008-0508-0423.2
Comment Excerpt Number: 107

Comment: Section 98.165(a) prescribes methodology to substitute for missing data used in the emission calculations. For **missing feedstock supply rates**, the method prescribed is using the lesser of the maximum supply rate the unit is capable of processing or the maximum supply rate that the meter can measure. This approach is in contrast to the method prescribed for substitution for missing fuel consumption data under §98.35(b)(2), where the 'best available estimate' is deemed an appropriate substitution. In many cases, use of valid data points before and after the unit, use of long-term consumption averages or estimates derived from other measured process data (e.g. production rate) can yield sufficiently accurate estimates to substitute for missing data. The data substitution method for missing feedstock supply rate data should be changed to be consistent with §98.35(b)(2), allowing use of the 'best available estimate.' For **missing feedstock carbon content** data, however, the proposed rule does not offer any alternative to substitute appropriate alternate values for any missing data. The only option offered in the proposed rule for missing carbon

content data under §98.165(b) is to perform a retest. This approach is in contrast to the method prescribed for substitution for missing fuel carbon content data under §98.35(b)(1), which averages before/after values to substitute for missing data. The data substitution method for missing feedstock carbon content data should be revised in §98.165(b) to be consistent with §98.35(b)(1), allowing use of the average before/after values.

Response: See hydrogen production preamble response for "Procedures for Missing Data."

Commenter Name: J. P. Blackford
Commenter Affiliation: American Public Power Association (APPA)
Document Control Number: EPA-HQ-OAR-2008-0508-0661.1
Comment Excerpt Number: 11

Comment: APPA has no objections to EPA including a provision to require a minimum standard for reported data (e.g., only 10 percent of the data reported can be generated using missing data procedures). Our utility members have operated CEMS with less than 10% downtime so those provisions would not cause difficulties for APPA member utilities.

Response: None required.

8. DATA REPORTING REQUIREMENTS

Commenter Name: Bill Grygar
Commenter Affiliation: Anadarko Petroleum Corporation
Document Control Number: EPA-HQ-OAR-2008-0508-0459.1
Comment Excerpt Number: 4

Comment: Annual reports should be due on June 30th of each year not March 31st. Anadarko objects to EPA's proposal to require annual reporting on March 31st, which does not provide adequate time to prepare and submit accurate data. EPA should revise the rule to require annual reports to be submitted by June 30th. Emissions calculations for many oil and gas facilities will require accurate throughput information which is often not available until the end of the third quarter leaving a tight timeframe to complete the inventory, if reports are required by March 31st. Moreover, a June 30th reporting date would be in keeping with existing reporting requirements for certain

registries, such as the Climate Registry. The Climate Registry is a nonprofit collaboration among 42 States, and it provides for a June 30th date in its General Reporting Protocol.

Response: EPA reviewed and balanced multiple considerations in selecting the date for submitting the annual emissions reports to be March 31. See "Summary of Comments and Responses on Submittal Date and Making Corrections to Annual Reports" in the preamble.

Commenter Name: Marc J. Meteyer

Commenter Affiliation: Compressed Gas Association (CGA)

Document Control Number: EPA-HQ-OAR-2008-0508-0981.1

Comment Excerpt Number: 50

Comment: The proposed rule prescribes reporting requirements for the **feedstock carbon content** requirement to report a monthly value for this data field is premised upon the need to characterize the feedstock on that frequency. As per comments made under §98.164(c), monthly characterization for some standard hydrocarbon fuels of commerce (natural gas, LP gas, fuel oils, etc.) used as feedstock is not warranted, particularly for natural gas. Second reporting this carbon content will provide information about the source and quality of the feedstocks used in the production process. Such process and commercial data is considered critical confidential business information that cannot be allowed to be revealed in reports accessible to domestic and international competitors and customers of the regulated source. CGA does not support the requirement to report confidential process and commercial data. If data must be reported, the reporting rules must provide explicit protection for this very critical confidential business information.

Response: See hydrogen production preamble response for "Data Reporting Requirements."

Commenter Name: Keith Adams

Commenter Affiliation: Air Products and Chemicals, Inc.

Document Control Number: EPA-HQ-OAR-2008-0508-1142.1

Comment Excerpt Number: 48

Comment: The proposed rule prescribes reporting requirements for the **feedstock carbon content**. First, the requirement to report a monthly value for this data field is premised upon the need to

characterize the feedstock on that frequency. As per comments made under §98.164(c), monthly characterization for some standard hydrocarbon fuels of commerce (natural gas, LP gas, fuel oils, etc.) used as feedstock is not warranted, particularly for natural gas. Second, reporting this carbon content will provide information about the source and quality of the feedstocks used in the production process. Such process and commercial data is considered critical confidential business information that cannot be allowed to be revealed in reports accessible to domestic and international competitors and customers of the regulated source. Air Products Comment: Air Products does not support the requirement to report confidential process and commercial data. If data must be reported, the reporting rules must provide explicit protection for this very critical confidential business information.

Response: See hydrogen production preamble response for "Data Reporting Requirements."

Commenter Name: Lorraine Krupa Gershman
Commenter Affiliation: American Chemistry Council (ACC)
Document Control Number: EPA-HQ-OAR-2008-0508-0423.2
Comment Excerpt Number: 109

Comment: Section 98.166(c) prescribes reporting requirements for the **feedstock carbon content**. Reporting this carbon content will provide information about the source and quality of the feedstocks used in the production process. Such process and commercial data is considered critical confidential business information that cannot be allowed to be revealed in reports accessible to domestic and international competitors and customers of the regulated source. Again, ACC does not support the requirement to report confidential process and commercial data. If data must be reported, the reporting rules must provide explicit protection for this very critical confidential business information.

Response: See hydrogen production preamble response for "Data Reporting Requirements."

Commenter Name: Marc J. Meteyer
Commenter Affiliation: Compressed Gas Association (CGA)
Document Control Number: EPA-HQ-OAR-2008-0508-0981.1
Comment Excerpt Number: 49

Comment: The proposed rule prescribes reporting requirements for annual **feedstock consumption** and annual hydrogen production. Such process and commercial data is unnecessary for calculating emissions and is considered critical confidential business information that cannot be allowed to be revealed in reports e regulated source accessible to domestic and international competitors and customers of the regulated source. CGA does not support the requirement to report confidential process and commercial data. If data must be reported, the reporting rules must provide explicit protection for this very critical confidential business information.

Response: See hydrogen production preamble response for "Data Reporting Requirements."

Commenter Name: Keith Adams

Commenter Affiliation: Air Products and Chemicals, Inc.

Document Control Number: EPA-HQ-OAR-2008-0508-1142.1

Comment Excerpt Number: 47

Comment: The proposed rule prescribes reporting requirements for annual **feedstock consumption** and annual hydrogen production. Such process and commercial data is unnecessary for calculating emissions and is considered critical confidential business information that cannot be allowed to be revealed in reports accessible to domestic and international competitors and customers of the regulated source. Air Products does not support the requirement to report confidential process and commercial data. If data must be reported, the reporting rules must provide explicit protection for this very critical confidential business information.

Response: See hydrogen production preamble response for "Data Reporting Requirements."

Commenter Name: Lorraine Krupa Gershman

Commenter Affiliation: American Chemistry Council (ACC)

Document Control Number: EPA-HQ-OAR-2008-0508-0423.2

Comment Excerpt Number: 108

Comment: Section 98.166(b) prescribes reporting requirements for annual **feedstock consumption** and annual hydrogen production. Such process and commercial data is considered critical and must not be revealed in reports accessible to domestic and

international competitors and customers of the regulated source. ACC does not support the requirement to report confidential process and commercial data. If data must be reported, the reporting rules must provide explicit protection for this very critical confidential business information.

Response: See hydrogen production preamble response for "Data Reporting Requirements."

9. OTHER CHANGES

To §98.163(b): The proposed rule often referred to the feedstock. In hydrogen production, the same gas, liquid, or solid material is normally used as both fuel (to heat the reformer) and feedstock (to be converted to hydrogen). Therefore, to be more precise, the word "feedstock" was changed to read "fuel and feedstock". Also, the proposed rule failed to mention combustion GHG emissions in this section. A sentence was added to include calculating and reporting combustion CO2 emissions from hydrogen production process units. Also, the requirements to "continuously measure the quantity of gaseous or liquid fuel and feedstock consumed using a flow meter and/or determine the quantity of solid feedstock consumed from company records and aggregate them on a monthly basis" were moved from §98.164(b) to §98.163(b) where they belong.

To §98.163(c): This paragraph was added to clarify how to handle the situation where GHG emissions from the hydrogen production process unit are vented through the same stack as any combustion unit or process equipment that reports CO2 emissions using a CEMS. To avoid double counting in this situation, the Tier 4 Calculation Methodology in Subpart C must be used instead of §98.163(b) of Subpart P.

To §98.164(b)(2): In the proposal, the minimum frequency of collecting and analyzing samples for carbon content was monthly. While this frequency was relaxed to annually for fuels and feedstocks having consistent composition, the frequency for more variable fuels and feedstocks, such as biogas, refinery gas, and process gas, was increased to weekly to achieve the desired level of accuracy.

To §98.164(b)(5): The list of acceptable methods to determine the carbon content for fuels and feedstocks, and molecular weight of gaseous fuels and feedstocks, was expanded to provide

greater flexibility.

To §98.164(c): For emissions data verification, a paragraph was added to the proposed rule to ensure that EPA would collect necessary information on how company records are used to estimate fuel, feedstock, and sorbent usage.

To §98.164(d): The paragraph regarding documentation of the procedures used to ensure the accuracy of the estimates of feedstock consumption was amended to provide more specificity to ensure that EPA would collect necessary information for emissions data verification.

To §98.166(b)(2): The reporting frequency for consumption of each fuel and feedstock used for hydrogen production was increased from annually to monthly to ensure that EPA would collect necessary information for emissions data verification.

To §98.166(b)(5): The monthly analyses of carbon content were moved from the "Records that must be retained" category to the "Data reporting requirements" category to ensure that EPA would collect necessary information for emissions data verification.

To §98.166(b)(6): The monthly analyses of molecular weight of gaseous fuels and feedstocks were added to the "Data reporting requirements" category to ensure that EPA would collect necessary information for emissions data verification.

To §98.167(b)(1): This paragraph amends the list of records that must be retained to include all analyses and calculations conducted under §98.166(b) to ensure that EPA would have access to necessary information for emissions data verification.

Table 1

COMMENTS	AFFILIATE	DCN
Karin Ritter	American Petroleum Institute (API)	EPA-HQ-OAR-2008-0508-0679.1
James Greenwood	Valero Energy Corporation	EPA-HQ-OAR-2008-0508-0571.1
William W. Grygar II	Anadarko Petroleum Corporation	EPA-HQ-OAR-2008-0508-0459.1

Table 2

COMMENTS	AFFILIATE	DCN
James Greenwood	Valero Energy Corporation	EPA-HQ-OAR-2008-0508-0571.1 EPA-HQ-OAR-2008-0508-0571.2
Charles T. Drevna	National Petrochemical and Refiners Association	EPA-HQ-OAR-2008-0508-0433.1 EPA-HQ-OAR-2008-0508-0433.2

