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

Volume No.:37

Subpart JJ—Manure Management

NOTE: Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

September 2009

Subpart JJ—Manure Management

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

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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 JJ—Manure Management.

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 JJ—Manure Management 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 JJ—Manure Management.

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SUBPART JJ—MANURE MANAGEMENT

1. DEFINITION OF SOURCE CATEGORY

Commenter Name: Todd Mortenson
Commenter Affiliation: South Dakota Cattlemen's Association (SDCA)
Document Control Number: EPA-HQ-OAR-2008-0508-0906.1
Comment Excerpt Number: 1

Comment: SDCA is opposed to this rule as it raises many questions regarding the regulatory burden it would place on cattle producers while providing very little benefit in reducing GHG emissions. We encourage EPA to closely evaluate the relative contribution of manure management activities to the total U.S. GHG emissions. The "2009 U.S. Greenhouse Gas Inventory Report" indicates that all agricultural GHG emissions are less than 6% (5.77%) of the total U.S. greenhouse gas emissions for the year 2007. Emissions from beef cattle manure management is a small fraction of that amount (0.127% in 2007) and should not be regulated. The relative contribution of GHG emissions from beef cattle manure management activities has actually decreased from 1990 to 2007. Total CH_4 and N_2O emissions from beef cattle manure management were 8.1 Tg CO_2e in 1990 and 9.1 Tg CO_2e in 2007. These totals represent only 0.133% of total GHG emissions in 1990, declining to 0.127% in 2007. Clearly, the additional burden placed on all beef cattle producers, as proposed in the rule, will not provide data that is useful in addressing EPA's long term goal of reducing major sources of GHG emissions. The incremental increase of GHG from non agricultural segments is much greater than the minor incremental increase from beef cattle production in the U.S. observed from 1990 to 2007.

Response: For the rationale for including manure management in this rule, see the preamble. Also, to clarify: only beef producers that have manure management systems that meet or exceed the threshold limit will be required to report under the rule. The statement that burden is placed on all beef cattle producers is inaccurate. In addition, EPA has taken several steps to assist facilities in understanding the provisions of the rule and determine whether they are covered by it. These include fact sheets and an extensive training program (via the web and meetings around the country). Refer to the preamble regarding the threshold look-up table added to the rule, as well as EPA's plans to provide a user-friendly tool to assist facilities in determining whether they need to report. In regard to the burden on producers that do have manure management systems that meet or exceed the threshold limit, the monitoring burden has been reduced in the final rule through the removal of the requirement for monthly sampling of manure. See the preamble and the response to comment EPA-HQ-OAR-2008-0508-0425.1 excerpt 11 for more information. Also, EPA plans to provide tools to assist reporters in calculating emissions for reporting. See the preamble and the response to comment EPA-HQ-OAR-2008-0508-0336.1 excerpt 10 for more information.

Commenter Name: Robert Naerebout
Commenter Affiliation: Idaho Dairymen's Association, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0314.1
Comment Excerpt Number: 11

Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

Comment: The proposed rule does not indicate if EPA will consider our liquid storage ponds to be "anaerobic lagoons", which they are not as they are not treatment systems, or "liquid/slurry" systems. If IDA members classify these systems as liquid/slurry then most dairies will probably not fall under the required reporting; if they consider them to be anaerobic lagoons then many more farms will fall under the required reporting then the EPA estimate of 50. The proposed rule does not resolve these issues.

Response: Based on the information provided by the commenter, it is not possible for EPA to determine what kind of systems all IDA members are operating. For each manure management system component, each facility should review the definitions provided by EPA in the final rule at §98.6 to determine which definition best represents the component. EPA has clarified some of the system component definitions in the final rule. See response to comment EPA-HQ-OAR-2008-0508-0672.1, excerpt 3.

If reporters have questions regarding the requirements of the rule, it is recommended that they contact EPA at ghgmrr@epa.gov or 877-GHG-1188.

Commenter Name: Meredith Niles
Commenter Affiliation: Center for Food Safety (CFS)
Document Control Number: EPA-HQ-OAR-2008-0508-0457.1
Comment Excerpt Number: 2

Comment: In the proposed rule, the EPA establishes that large scale farms with manure management systems emitting greater than 25,000 tons of CO_2e would have to report their emissions. The EPA defines a manure management system as, "A system that stabilizes or stores livestock manure in one or more of the following system components: uncovered anaerobic lagoons, liquid/slurry systems, storage pits, digesters, drylots, solid manure storage, feedlots and other dry lots, high rise houses for poultry production (poultry without litter), poultry production with litter, deep bedding systems for cattle and swine, and manure composting." The definition also explicitly includes the treatment of wastewaters from manures and further, "does not include components at a livestock operation unrelated to the stabilization or storage of manure such as daily spread or pasture/range/paddock systems." CFS and ICTA appreciate the comprehensive definition of "manure management systems" that the EPA has adopted which will include a wide variety of systems utilized for various animals. Further, CFS and ICTA believe that the EPA is accurate in not requiring pasture/range/paddock systems to be included within the manure management system, based on the current sources of CH_4 and N_20 in relation to agricultural emissions, as discussed below. In the United States, the majority of GHG emissions from manure management are from CH_4 —44 Tg compared to 14.6 Tg of N_20 in 2007 according to the EPA. Notably, these CH_4 emissions account for a 45% increase since 1990, with the large majority being from swine and dairy cow manure, where emissions increased 51 and 60 percent. It is likely that these emissions increases are a direct result of confined animal feeding operations" (CAFO) manure lagoons. The EPA acknowledges "the general trend in manure management, particularly for dairy and swine (which are both shifting towards larger facilities), is one of increasing use of liquid systems." The implications of these shifts have clearly been significant for CH_4 emissions. The EPA notes, "When livestock or poultry manure are stored or treated in systems that promote anaerobic conditions (e.g. as a liquid/slurry in lagoons, ponds, tanks, or pits), the decomposition of materials in the manure tends to produce CH_4. When manure is

handled as a solid (e.g., in stacks or drylots) or deposited on pasture, range, or paddock lands, it tends to decompose aerobically and produce little or no CH_4." Given that the majority of manure management emissions in the United States are from CH_4, and that the storage of manure in confined systems has created the rise in emissions, CFS and ICTA support the EPA's definition of "manure management systems" to include these types of facilities and to exclude pasture, grassland and paddock lands. Requiring the reporting of such emissions will enable greater understanding of emissions sources which can assist in creating legislation and regulations to reduce such emissions. CFS and ICTA applaud the EPA for choosing to include manure management in the proposed rule, since it is the fifth largest source of CH_4 and N_20 emissions in the United States.

Response: EPA agrees with the commenter that the definition of "manure management systems" is comprehensive, and that excluding pasture/range/paddock systems from this definition is appropriate.

Commenter Name: See Table 2
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0395.1
Comment Excerpt Number: 2

Comment: As proposed, Section IV.JJ—Manure Management would require beef cattle producers to report CH_4 and N_2O emissions from manure management activities. This would primarily include GHG emissions from drylot corrals and stormwater ponds. However, we encourage EPA to closely evaluate the relative contribution of these activities to the total U.S. GHG emissions. The relative contribution of GHG emissions from beef cattle manure management activities has actually decreased from 1990 to 2007. Total CH_4 and N_2O emissions from beef cattle manure management were 8.1 Tg CO_2e in 1990 and 9.1 Tg CO_2e in 2007. These totals represent only 0.133% of total GHG emissions in 1990, declining to 0.127% in 2007. Clearly, the additional burden placed on all beef cattle producers (as proposed in the rule – see below for details) will not provide data that is useful in addressing EPA's long-term goal of reducing major sources of GHG emissions. The incremental increase of GHG from non-agricultural segments is much greater than the minor incremental increase from beef cattle production in the U.S. observed from 1990 to 2007.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0906.1 excerpt 1.

Commenter Name: Paul Sherman
Commenter Affiliation: North Carolina Farm Bureau Federation (NCFB)
Document Control Number: EPA-HQ-OAR-2008-0508-0429.1
Comment Excerpt Number: 3

Comment: The proposed rule projects that manure management systems from beef, dairy, hogs and poultry may be covered by the reporting requirements of this rule. The proposal also estimates that a total of about 40 to 50 beef, dairy or swine operations might be subject to the rule. This analysis omits any discussion of the number of poultry operations that may be affected by this rule. Information from one state indicates there may be as many as 26 facilities in that state alone that will be subject to the reporting requirements. We have good reason to suspect

that the number of manure management facilities affected by this rule is greatly understated if poultry operations are considered. We request that the Regulatory Impact Analysis be amended to reflect the possible impact on poultry operations.

Response: See the preamble for a discussion of how the threshold numbers were estimated and corrections made in response to comments. Based on our threshold analysis, EPA does not expect any poultry facilities to exceed the threshold and be required to report under the rule. Although the comment notes that one state believes that there may be as many as 26 facilities, no data were provided to substantiate this claim. Based on the information provided, it appears likely this estimate only considered the number of birds present on the farm but did not reflect the manure management systems in place on poultry farms.

Commenter Name: G. Larry Newton
Commenter Affiliation: University of Georgia
Document Control Number: EPA-HQ-OAR-2008-0508-0461.1
Comment Excerpt Number: 5

Comment: The definition of a “manure management system” in general practice is broader than that used in the proposed rule (Preamble. JJ. 1.), and includes everything used to gather, transport, treat, store, or distribute manure (everything from pumps and flush tanks to manure spreaders and irrigation guns, inclusive). Since treatment systems and storage systems are subsets of management systems that are to require reporting, the wording should be changed to “manure treatment and storage systems”.

Response: Although EPA reviewed the definition in light of the commenter’s concern about the use of the term “manure management system”, the final rule will retain the term. The definition of “manure management system” in the rule includes a list of the system components that are included in this source category. In addition, the rule clearly excludes components at livestock facilities that are unrelated to the stabilization and/or storage of manure such as daily spread activities or land application. Reporters should follow the rule to determine what system components at their facility are included. Components not listed in the definition are not covered under this source category of the rule.

Commenter Name: Stewart T. Leeth
Commenter Affiliation: Smithfield Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0553.1
Comment Excerpt Number: 7

Comment: In the event EPA disagrees with its proposed cap on the number of farms that need to report by company, and on the proposed exclusion for smaller farms, Smithfield believes changes to the definition of "Facility" are appropriate. Under the proposed definition, all contiguous manure management systems that happen to be owned by a single company in a particular area would be pulled in and aggregated regardless of whether those systems are functionally treated as single "farms." Many swine agricultural systems are based upon what are typically called "barn sites." A barn site is typically a number of barns and one or more lagoons. Depending on the location, a company may own several sets of barn sites in a single location spread out over many square miles and only separated by public roadways. EPA's expansive

definition of "Facility" could obligate owners to aggregate these barn sites together as a single facility even though they may not be functionally operated that way by the company. It is this aggregation possibility that makes it virtually impossible to readily predict the number of facilities that would have to report under the proposal, and which tends to greatly expand the number of facilities that could have to report. Two possible changes to the definition of "Facility" for purposes of Manure Management Systems would tend to bring the coverage of the reporting rule more in line with EPA's estimates on the number of swine farms that would be expected to report under its Proposed Rule, and more accurately reflect the actual operating practices for the farms. First, if the scope of "Facility" were limited to those facilities that are in actual physical contact, with the presence of a public roadway effectively defining the boundary of "facility," the possibility of aggregating farm sites that stretch over acres and are operated independently would be limited. Second, and in the alternative and consistent with the comments of NPPC, EPA should provide the flexibility provided to military facilities to classify installations as more than a single facility if such installations have distinct and independent functional groupings within otherwise contiguous farming facilities. In this way, if manure management systems share common ownership, but are operated independently of one another, they would not be aggregated. Either of these approaches would limit the otherwise overbroad reach of the reporting rule for swine facilities, and bring the number of covered facilities more in line with what EPA estimated.

Response: We received several comments on this issue, and reiterate that the definition of a facility, as presented in the rule at §98.6, applies to all sectors covered under the rule. EPA determined that it is not appropriate to change the definition of facility to resolve complex owner and operator relationships. In fact, EPA does not take a position on those issues and provides reporters the flexibility to determine an appropriate relationship through the choice of a Designated Representative. The owners and operators themselves can determine who has relevant ownership and control, and is therefore accountable for meeting the requirements of the rule. This accountability is established through execution of the documents of agreement and the certificate of representation. For more information about the Designated Representative see section V of the preamble, 98.4 of Part 98 and volume 11 of the response to comments document. For more information about EPA's decision to require facility level reporting see section II of the preamble and the relevant response to comments document.

Under the rule definition of a facility, "barn sites" that are contiguous or adjacent and under common ownership are considered one facility and would be required to report under the rule. The owner of contiguous or adjacent "barn sites" is in control of the manure management systems of these "barn sites", therefore, even if they are considered functionally different units by the owner, the current facility level reporting definition is appropriate and these "barn sites" are to report as a single facility. Barn sites that are not contiguous or adjacent, however, would not be considered a facility. Thus, several farms under common ownership that do not fall under the facility definition would not be a facility.

Subpart JJ covers only manure management systems, as such only contiguous or adjacent manure management system properties would determine the boundaries of a facility; contiguous or adjacent manure land application areas would not determine facility boundaries. In addition, contractual business relationships with the animal owners, the local elevator, the meat packer or processor, or landowners for land application areas would not determine common ownership or control.

EPA's threshold analysis was based on the best available farm and animal population data from the US Department of Agriculture (USDA). Depending on how facilities reported information to USDA, the available USDA data may not provide counts of facilities that exactly match the EPA definition. However, we have no reason to conclude that our threshold analysis is not reasonable, given the intuitive nature of the definition of the facility provided in this rule. Unless entities would have would incentives to sub-divide their farms when reporting to USDA, we expect that the reporters would follow a definition similar to the one provided in this rule.

Commenter Name: See Table 3
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0425.1
Comment Excerpt Number: 8

Comment: CLA is supportive of EPA's decision to limit the applicability of this reporting rule to the primary manure management system components of animal feeding operations. We agree with the statement, "The manure management system does not include other onsite units and processes at a livestock operation unrelated to the stabilization and/or storage of manure."

Response: EPA agrees with the commenter that the manure management system definition and included components are appropriate for this rule.

Commenter Name: See Table 3
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0425.1
Comment Excerpt Number: 9

Comment: We concur with EPA's justification to exclude nitrous oxide (N_2O) emissions from fertilizer application and fields. As stated in the proposal, "there are no direct greenhouse gas emission measurement methods available except for research methods that are prohibitively expensive and require sophisticated equipment." The ability to obtain economically feasible facility-by-facility estimates of N_2O emissions from fields does not exist today. In addition, it should be noted that food production is an essential part of maintaining human life. Economical and plentiful food production in amounts sufficient to feed the world is only possible as a result of modern production agriculture. Greenhouse gas emissions from fertilizer application and soil management are a reality that cannot be overcome. Requiring food producers to report emissions would be cost prohibitive, and controlling such emissions is currently impossible.

Response: EPA agrees with the commenter that excluding N2O emissions fertilizer application and soil management is appropriate for this rule. For the rationale on the decisions to include or exclude various agriculture and land use categories, see the response to comment EPA-HQ-OAR-2008-0508-0525.1, excerpt 25, in the response to comment document on Source Categories to Report.

Commenter Name: Brad Bateman
Commenter Affiliation: Western States Dairy Producers Trade Association
Document Control Number: EPA-HQ-OAR-2008-0508-0365.1

Comment Excerpt Number: 14

Comment: The negative impacts of this rule on the emerging dairy waste-to-energy industry have not been accounted for in the Preamble, Rule or Economic Analysis for the rule (beginning at page 774). The proposed rule will discourage dairy owners from pursuing anaerobic digestion technology, which generates renewable energy while managing waste, because emissions from digesters must be reported, but emissions from land application do not. The stifling of an emerging green business practice that over time will prevent and not help the nation reduce its greenhouse gas emissions and stimulate rural economies, is a significant adverse consequence of the proposed rule, which is not discussed. The WSDPTA was under the impression that the federal government is seeking to encourage renewable energy production, not discourage it.

Response: EPA does not agree that this rule will discourage farmers from pursuing anaerobic digestion technology. In fact, it is our view that the methodology provided will encourage the development of methane recovery projects on farms potentially affected by the rule. Facilities that calculate and report emissions under the proposed rule would be able to recognize the offsets potential of their manure management systems, and could be at an advantage over facilities that are not reporting under the proposed rule, in that they would already have stringent monitoring and data systems in place to calculate baselines and emissions reductions. Further, the accurate reporting of emissions from manure management systems will improve the confidence of offset buyers and the environmental community in the ability of these project activities to produce accurately monitored and verifiable emissions reductions.

The threshold for manure management is an actual emissions threshold. Digesters destroy and do not emit most of the methane they generate. Therefore, emissions from farms with digesters are likely to be lower than from farms that do not have digesters, and if emissions are below the threshold as a result of the digester, such farms will not be required to report. Thus, the few farms that are expected to meet the reporting threshold could avoid the requirement to report by installing GHG collection systems. Dairies would not be expected to exceed the reporting threshold if they had a GHG collection system in place.

It is also unlikely that farms would choose to, or be able to use land application of manure as an alternative to anaerobic digestion. In order for land application to result in fewer emissions than anaerobic digestion, the farm would need to switch to a daily spread system which is labor intensive and limited by available cropland. It is more likely that anaerobic lagoon or liquid slurry system would be the alternative practice, both of which would produce more emissions than anaerobic digestion.

Commenter Name: See Table 2
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0395.1
Comment Excerpt Number: 18

Comment: The proposed rule states the following: “Anaerobic manure management systems include liquid/slurry handling in uncovered anaerobic lagoons, ponds, tanks, pits, or digesters.” This sentence requires the reader to interpret that all “...ponds, tanks, pits...” are only components of anaerobic systems. In fact, “ponds, tanks, pits” may or may not be anaerobic depending on the design of the overall manure management system. We recommend that EPA separate the

references to “ponds, tanks, pits” from “anaerobic manure management systems” since those systems’ components may or may not be designed for anaerobic treatment of manure. For example, almost all ponds at beef cattle facilities across the U.S. are designed to be simple stormwater ponds used for temporary storage of rainfall prior to land application on adjacent cropland, pasture or rangeland. These stormwater ponds are typically aerobic and do not contain liquid manure. The contents of these ponds is predominantly water (99.5%+ moisture content) and is not considered slurry. Distinguishing aerobic systems used at open air beef cattle facilities from anaerobic systems used at other animal species systems is essential to accurately reflecting emission sources.

Response: Upon review of this comment, we revised the text in the final rule to reflect that not all “ponds, tanks, pits” are anaerobic.

Commenter Name: See Table 2
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0395.1
Comment Excerpt Number: 19

Comment: TCFA is supportive of EPA’s decision to limit the applicability of this reporting rule to the primary manure management system components of animal feeding operations. We agree with the statement, “The manure management system does not include other onsite units and processes at a livestock operation unrelated to the stabilization and/or storage of manure.”

Response: EPA agrees with the commenter that the manure management system definition and included components are appropriate for this rule.

Commenter Name: Robert Naerebout
Commenter Affiliation: Idaho Dairymen's Association, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0314.1
Comment Excerpt Number: 7

Comment: The EPA also does not provide a scientific basis for requiring such reporting, recordkeeping, and monitoring by the "manure management system" only. The dairy is an integrated unit, and the IDA is not able to understand where such systems end and non-manure management systems begin.

Response: For clarification on the definition of a manure management system, see the response to EPA-HQ-OAR-2008-0508-0461.1, excerpt 5. For more information on facility definition and manure management systems, see response to comment EPA-HQ-OAR-2008-0508-0553.1, excerpt 7. The definition clearly lists the components that are included in the manure management system subject to the reporting rule. All other components are excluded. EPA’s basis for requiring reporting of manure management system components is that these are the components at a facility that are expected to produce the largest quantities of greenhouse gases from manure.

Commenter Name: See Table 2

Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0395.1
Comment Excerpt Number: 22

Comment: There is good justification for EPA to include the statement, "This source category does not include systems which consist of only components classified as daily spread, solid storage, pasture/range/paddock, or manure composting." For equally compelling reasons, TCFA urges the EPA to expand these exclusions to cover similar components in typical cattle feeding facilities, and other unique situations, for the following reasons: Daily spread – We recommend that EPA revise this definition to include "all land application of manure and stormwater." There are no direct greenhouse gas emission measurement methods available except for research methods that are prohibitively expensive and require sophisticated equipment. The ability to obtain feasible facility-by-facility estimates of N_2O emissions from fields does not exist today. Consequently, EPA must clarify that the rule does not apply to any land application activities at beef cattle facilities. Solid storage – Manure solids at beef cattle facilities are stored in a "dry" condition (typically in the range of 20-35% moisture content). Research conducted by West Texas A&M University [See DCN:EPA-HQ-OAR-2008-0395.1 for Attachment #6] indicated very little methane production from dry manure storage; during cool months methane production was zero. As stated in the report, "Because most manure is stockpiled in open-lot animal feeding operations at less than 50 percent moisture content, it seems unlikely that methane will be produced from the stockpile." Pasture/range/paddock – No beef facilities exist in the U.S. that would exceed the 25,000 MT CO_2e threshold. As proposed, EPA is correct to exclude these types of facilities from the proposed rule. Manure composting – Very similar to EPA's current proposal that would create a "once in, always in" reporting paradigm, any effort to include manure composting operations would create a significant disincentive for further development and enhancement of manure composting operations in the U.S. We also recommend that EPA clarify the applicability of this exclusion to all manure composting entities/operations regardless of the proximity of the composting site to any facility that may be required to report under this rule.

Response: EPA agrees that the manure management source category does not include land application activities and has revised the definition at §98.360 (c) to explicitly exclude these activities. However, this source category does include emissions from solids storage, including dry lots. EPA acknowledges that methane emissions from these types of storages can be low, but nitrous oxide emissions can be more substantial. EPA also agrees that pasture/range/paddock operations should not be included in the rule, and that manure management operations that do not occur at the livestock operations, such as off-site land application or off-site composting activities, are not included in the source category. EPA did not exclude onsite manure composting operations from the rule because there may be significant emissions from these manure management system components. We do not agree that the inclusion of composting would be a disincentive to conducting composting operations. The rule may in fact encourage the development of composting projects on farms potentially affected by the rule; composting produces fewer emissions than many other manure management system components and the few farms that are expected to meet the reporting threshold may avoid the requirement to report by creating composting projects.

Regarding comments on the "once in, always in" provision in the proposal, see Section II.H of the preamble for a response on provisions to cease reporting.

Commenter Name: Steven M. Pirner
Commenter Affiliation: South Dakota Department of Environment and Natural Resources (SD DENR)
Document Control Number: EPA-HQ-OAR-2008-0508-0576
Comment Excerpt Number: 17

Comment: EPA's information on the rule indicates only 40 to 50 livestock operations nationwide would have to report under the rule. With the few small number of operations that would be required to report, the lack of accurate emission factors for livestock operations, and the difficulty producers will have in determining if they need to report, SD DENR recommends EPA remove all manure management systems from the reporting requirements. In addition, as the enclosed article from Range Magazine points out, livestock emissions are living carbon and not rock or fuel carbon, so the carbon being released is already being cycled through our environment. If, however, EPA decides to ignore these facts and collect carbon emissions from livestock operations, SD DENR recommends EPA collect it through the ongoing livestock emission research being done by Purdue and other educational institutions. If manure management systems are to be included within the reporting rules, these facilities should be classified the same as other sources that are not required to report until the threshold level of 25,000 metric tons of CO_2e is reached. Should EPA keep manure management systems in the rule, SD DENR recommends EPA consider the following: South Dakota Systems: Manure management systems in South Dakota can be complex and may include solids separation of bedding, solids separation of manure, digestion of manure, multiple holding ponds, solids stockpiling, manure composting, mortality composting, irrigation of liquids, and other liquid and solids manure land application methods. Because of our arid climate, evaporation is considered in manure management system design, which would make it difficult and expensive to later add covers.
Over the past few years, producers have spent significant sums of money to comply with NPDES requirements under the Clean Water Act and construct department approved manure management systems to get coverage under our general water pollution control permit for concentrated animal feeding operations. SD DENR currently has 383 livestock operations permitted under our general permit. Most of these livestock operations are very complex. For example, more than 60 of these permitted operations have more than one animal type permitted. These animals may be using the same manure containment system or have separate systems that are either adjacent or a distance apart from each other. SD DENR also has operations in certain areas of the state with different owners but the same operator where the owners hold their operation's permits.

Response: See the preamble for the rationale for including the manure management source category in this rule. With respect to the notion that livestock emissions are "living carbon", in accordance with GHG accounting principals in the Intergovernmental Panel on Climate Change guidance, and the U.S. GHG Inventory, EPA does not consider the CH4 and N2O emissions from livestock as part of the natural cycle of carbon, but as an anthropogenic source. The process of consolidating cattle and their manure in high density areas is a human activity that contributes to the anthropogenic generation of methane and nitrous oxide. As such, it is appropriate to include this type of industrialized practice under this rule.

EPA has noted your concerns about the systems in South Dakota. In response, EPA has revised the emissions equations to account for operations that have solids separation prior to treatment or

storage. Although lagoon covers may be difficult to install due to the climate in South Dakota, this is not a consideration under this rule, because covers are not required by the rule.

Commenter Name: Jeff Windett
Commenter Affiliation: Missouri Cattlemen's Association (MCA)
Document Control Number: EPA-HQ-OAR-2008-0508-0762.1
Comment Excerpt Number: 1

Comment: The EPA has proposed a rule to requiring the mandatory reporting of greenhouse gases. MCA is very much opposed to this rule. The "2009 U.S Greenhouse Gas Inventory Report" has placed all agricultural greenhouse gas emissions at less than 6% of the total of all gas emissions for the year 2007. It is clear that emissions from manure management is just a fraction of that amount and clearly does not need to be regulated. The rationale of how considerations of actual and potential emissions should be incorporated into the proposed threshold is worthless and has the potential for inaccurate reporting. Potential emissions calculations would be extremely time consuming and speculative at best.

Response: For the rational for including manure management in this rule see the preamble and refer to the response to comment EPA-HQ-OAR-2008-0508-0906.1 excerpt 1. Regarding the comment on actual vs. potential emissions, the final rule requires evaluation of threshold based only on actual emissions. Although EPA noted in the proposal that collecting data from facilities with the potential to emit above the threshold would be informative, upon review of comments we determined that the additional burden was not justified at this time, and we determined that requiring reporting of actual emissions could create an additional incentive to install methane recovery systems, as explained in the response to comment EPA-HQ-OAR-2008-0508-365.1 excerpt 14.

Commenter Name: Todd Staples
Commenter Affiliation: Texas Department of Agriculture
Document Control Number: EPA-HQ-OAR-2008-0508-0671.1
Comment Excerpt Number: 3

Comment: It is doubtful that the regulatory impact statement prepared by EPA accurately reflects the number of agriculture-related facilities that will be affected, and many industry groups have concerns with definitions and methodologies outlined in the proposed rules.

Response: As explained in the response to comment EPA-HQ-OAR-2008-0508-0553.1 excerpt 7, we have determined that the definition of "facility" in this rule is clear and that our estimate of affected facilities under the rule is sound. We received many comments on the proposed methods and have made numerous changes to the requirements, which are discussed in the preamble and later in this document. These changes simplified the methodological approach and reduced burden. For example, the threshold table in Subpart JJ will provide certainty to many livestock operations that they are not required to report under this rule. We also received several comments that identified errors in the threshold analysis in the proposal, including the absence of a conversion factor in the nitrous oxide calculation, incorrect cell references in the spreadsheet, and the use of out-dated nitrogen excretion rates. The revised estimate is that 73 beef feedlots, 27 dairies, and 8 swine operations will be required to report under the rule, for a total of 108

facilities.

In preparing the final rule, EPA has revised the Regulatory Impact Analysis to reflect the updated threshold analysis as well as the revised approaches to monitoring, recordkeeping, and reporting. The changes in the final rule decrease the costs associated with reporting in the manure management source category (see responses to comments EPA-HQ-OAR-2008-0508-0425.1 excerpt 11, and EPA-HQ-OAR-2008-0508-0336.1, excerpt 10). However, estimates of some general reporting cost estimates increased from the proposal as noted in the Regulatory Impact Analysis (EPA-HQ-OAR-2008-0508-002). EPA estimates that the average cost to gather the required data and do the emission calculations is approximately $900 per facility for the first year and $400 per facility for subsequent years. In addition to those costs, EPA used a conservative estimate for recordkeeping and reporting activities, $1,700 and $500 per year per facility, respectively. After reviewing the effects of all these changes, EPA has determined that the value of including manure management facilities justifies the cost of collecting the information.

Commenter Name: Dr. John A. Lory
Commenter Affiliation: University of Missouri et al.
Document Control Number: EPA-HQ-OAR-2008-0508-0672.1
Comment Excerpt Number: 3

Comment: We recommend that the definition of the source category be changed from “manure management systems for livestock manure” to “manure storage facilities for livestock manure.” Section 98.360 (a) defines the source category as “manure management systems for livestock manure.” The subsequent section (98.360 (b)) then clarifies that a “manure management system is a system that stabilizes or stores livestock manure in one or more of the following system components: uncovered anaerobic lagoons, liquid/slurry systems, storage pits, digesters, dry lots, solid manure storage, feedlots and other dry lots, high rise houses for poultry production (poultry without litter), poultry production with litter, deep bedding systems for cattle and swine, and manure composting. This definition of manure management system encompasses the treatment of wastewaters from manure.” The system components described by section 98.360(b) are all manure storage structures. There is no benefit to using the broader terminology “manure management system” but the proposed terminology does invite confusion because the terminology “manure management system” usually includes more than the manure storage structure. The term “manure management system” has a common use definition that is much broader than the definition suggested in the proposed definition. The term “manure management system” typically describes the how manure is collected, stored and distributed to agricultural fields. Common manure management systems in the Midwest include: 1. Anaerobic lagoons using a recycled water flush system for collecting manure and traveling gun or center pivot for land applying the effluent. 2. Under-building pit slurry system using a dragline injection or tanker wagon/truck system for land application. 3. In-building litter system for broiler chickens using truck-mounted solid spreader for land application. The terminology “manure management system” implies to the casual reader that emissions from more than the manure storage facility are to be included in the assessment. The proposed rule is very clear that the intended target of monitoring is manure storage. Using the term “manure storage facility” clearly defines the intended target of this GHG reporting requirement. A related section in the rule preamble digresses into a discussion of “anaerobic” and “primarily aerobic” manure storage facilities. This discussion includes erroneous information about the aeration status of many manure storage

facilities. The proposed language incorrectly states that solid storage, dry lot and manure composting is “primarily aerobic”. Well aerated and recently turned compost piles are aerobic but anaerobic conditions dominate in most manure piles and liquid manure storages unless some form of mechanical aeration is used. We also recommend refining the list of example manure storage structures. The current list has some duplication (dry lots are mentioned twice) and a list organized by type of storage would simplify the list. We propose the following wording for sections 98.360 (a-c): "(a) This source category consists of manure storage/treatment facilities for livestock manure. (b) A manure storage/treatment facility is a facility that stores livestock manure in one or more of the following structures: 1. earthen pits, lagoons, cement and glass-lined tanks and other structures for holding liquid manure; 2. litter, bedded manure packs, dry lots, high rise poultry and pig houses and other structures where solid manure is collected within or directly below the area animals are confined; 3. stack houses, manure pads, and other structures where dry manure is stored; 4. digesters, anaerobic lagoons, composting facilities and any other manure treatment facilities that also serves as a manure storage facility. (c) This source category does not include components of at a livestock operation unrelated to the storage of manure such as manure handling equipment or infrastructure used to distribute manure from animal pens to the manure storage facility and from the manure storage facility to the field, or greenhouse gas emissions associated with land application or other methods of manure utilization that are not a component of the manure storage/treatment facility."

Response: For a response to the definition of manure management systems, see the response at EPA-HQ-OAR-2008-0508-0461.1, excerpt 5. EPA agrees with the commenter’s note on the description of anaerobic and aerobic systems in the proposal preamble and has revised the text in the final rule. In addition, EPA has revised the language in the final rule at 98.360 (c)to be clearer.

EPA reviewed the commenter’s suggested language, and has made some changes to clarify terms used in 98.360. For example, the revisions explicitly exclude certain operations, such as land application, and correct the list of manure management systems. The revised list of manure management systems is not an example of systems, but is an inclusive list of manure management systems covered by the rule.

However, EPA selected the terms used for manure management system components to be consistent with the terms and definitions used in the methodologies that are the basis for the emission calculations, and most of the terms used in the proposal are also included in the final. For more information about the methodologies, see the preamble and the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5.

Commenter Name: Chad Gregory
Commenter Affiliation: United Egg Producers (UEP)
Document Control Number: EPA-HQ-OAR-2008-0508-0724.1
Comment Excerpt Number: 1

Comment: The arguments cited in the preamble in support of the selected GHG reporting requirements, and the applicable facts concerning measuring and reporting GHG emissions from manure, indicate to UEP that there is no justification for requiring egg and other animal agriculture facilities to report their GHG emissions as part of this particular program. Instead, the annual EPA inventory, along with the data sets that will come from the eventual cap and trade

program, are more than adequate for supporting federal GHG emissions control policy. The proposed rule preamble states that the GHG reporting rule provisions would help "to improve the development of future national inventories for particular source categories or sectors by advancing the understanding of emission processes and monitoring methodologies." We do not agree with this reasoning. There does not yet exist reasonably priced, accurate emissions monitoring techniques that are practical to use regularly on the farm. The available methods are prohibitively expensive for any operation to carry out on their own. As such, the only practical way for a producer to comply with this reporting requirement would be to use standard estimates of emission factors, apply them to their farms' manure, and report those results. There is no new information in such a report that is not already generated in the EPA inventory, and these efforts will not improve or enhance the inventory relative to the current state of the art in any way. As a result, facility level GHG emissions data from egg operations would not improve the accuracy of the inventory, would not confirm in any meaningful way the national statistics and emission estimation methodologies used to develop it, and would not help in the development of baselines. No shortcomings of the methods used to generate the national statistics would be made apparent, and nor would any needed adjustments be identified. The GHG registry would simply add significant cost to the covered facilities without adding anything to the federal base of knowledge or GHG policy.

Response: With respect to the comment on available monitoring methods for farms, EPA considered requiring direct measurement of GHG emissions from manure management systems, but rejected this approach due to the extreme expense and complexity of such a measurement program. EPA is thus promulgating an approach that allows the use of default factors, such as a system emission factor, for certain elements of the calculation, and encourages the use of some site-specific data. The cost of such an approach is significantly lower than a direct measurement program. This approach is also consistent with the methods used in offset programs throughout the world, including the California Climate Action Registry's (CCAR) Manure Management Project Reporting Protocol. For these offset programs, farms are required to complete calculations that establish their "baseline" emissions (prior to the use of a biogas collection system). These baseline emission calculations are consistent with the approaches used in EPA's Reporting Rule.

Manure management system facility level data obtained through the reporting rule will help reduce uncertainties and improve the emission estimates for manure management. EPA currently has very limited facility level information on manure management systems. Facility level information collected through the reporting rule will help to identify the number and types of animals contributing to each manure management system component and the types of manure management systems in use by region. These data will also help to improve the understanding of emission rates and actions that facilities can take to reduce emissions and may potentially improve the effectiveness of and may potentially inform the structure of offset programs designed to reduce emissions. For more information on the rationale for including manure management systems in the final rule, see the preamble.

Finally, see the response to comment EPA-HQ-OAR-2008-0508-0429.1, excerpt 3 regarding the coverage of poultry facilities under the rule.

Commenter Name: Rick R. Stowell
Commenter Affiliation: University of Nebraska

Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

Document Control Number: EPA-HQ-OAR-2008-0508-0727.1
Comment Excerpt Number: 2

Comment: Substitute the term "manure storage facility" for "manure management system" throughout the proposed rule. Common use of the term "manure management system" is much broader than the definition suggested in the proposed rule. The term "manure storage facility" clearly defines the intended target of structures where manure is contained for some period of time. There may be some hesitancy to use "manure storage facility" because this term is sometimes narrowly interpreted as a structure that "provides storage only", so some may claim that a treatment lagoon or a composting pad is not a manure storage facility." This is a semantics issue (although less of one than is "manure management system") that could be clarified in the definition to include all facilities that, regardless of other functions, provide containment of manure beyond what is involved in a daily haul system. For the facilities mentioned in the proposed rule, any treatment or processing is accomplished in-situ, so 'manure storage facility' still applies.

Response: For response to comments on the definition of a manure management system, see the comments EPA-HQ-OAR-2008-0508-0461.1, excerpt 5 and EPA-HQ-OAR-2008-0508-0672.1, excerpt 3.

Commenter Name: Chad Gregory
Commenter Affiliation: United Egg Producers (UEP)
Document Control Number: EPA-HQ-OAR-2008-0508-0724.1
Comment Excerpt Number: 2

Comment: UEP strongly concurs in EPA's finding that the proposed rule's mandatory reporting requirements should not be applied to agricultural soils management. But we find that the arguments used to support this decision also strongly suggest that manure management should be similarly treated. UEP recommends that the Agency not include GHG emissions from manure management under the mandatory reporting requirements. The current inventory estimation techniques represent the best science in use today. The inventory does the best job possible to help formulate climate change policy by assessing how an industry like agriculture would be affected. The proposed set of required measures for individual farmers to meet the GHG reporting requirements will simply be costly paperwork that adds no value for anyone. We strongly urge EPA to not include manure management under the mandatory reporting requirements.

Response: For the rationale for including or excluding various agriculture and land use categories under this rule, see the response to comment EPA-HQ-OAR-2008-0508-0525.1 excerpt 25, in the response to comment document on source categories to report. For more information on the exclusion of agricultural soils, please see the response to comment EPA-HQ-OAR-2008-0508-0435.1 excerpt 15. For the response to comments questioning the inclusion of the manure management source category in this rule, see the preamble for Subpart JJ. As discussed in the response to comment EPA-HQ-OAR-2008-0508-0724.1 excerpt 1, there is substantial benefit in collecting farm level estimates that can account for specific animal characteristics (number and type of animals present) and the manure management systems in use for those animals. EPA agrees that the US GHG Inventory estimation techniques are the best

available science for developing national emission estimates, but the national inventory does not provide farm level estimates.

Commenter Name: Robert D. Byrne
Commenter Affiliation: National Milk Producers Federation (NMPF)
Document Control Number: EPA-HQ-OAR-2008-0508-0854.1
Comment Excerpt Number: 3

Comment: NMPF absolutely concurs in EPA's finding that the proposed rule's mandatory reporting requirements should not be applied to agricultural soils management. But we find that the arguments used to support this decision also strongly suggest that manure management should be similarly treated. NMPF believes that this reasoning in the case of agricultural soils management is correct and also fully applicable to emissions from manure management. It is for these reasons that NMPF holds that GHG emissions from manure management should be excluded from the reporting requirements.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0425.1 excerpt 9 regarding the exclusion of agricultural soils under this rule. For the response to comments regarding the inclusion of manure management systems in the final rule, see the preamble, as well as the response to comment EPA-HQ-OAR-2008-0508-0724.1 excerpt 1.

Commenter Name: Rick R. Stowell
Commenter Affiliation: University of Nebraska
Document Control Number: EPA-HQ-OAR-2008-0508-0727.1
Comment Excerpt Number: 4

Comment: Re-assess whether operations with digesters need to report. While not having to report GHG emissions would be a good benefit of utilizing a digester, it would be a shame to collect all of this information and, because most operations with digesters will fall underneath the reporting threshold, end up with little or no information about the impact of the primary technology available for controlling GHG emissions.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0762.1, excerpt 1 for information on the selection of the emissions threshold instead of a generation threshold for this source.

Commenter Name: Robert D. Byrne
Commenter Affiliation: National Milk Producers Federation (NMPF)
Document Control Number: EPA-HQ-OAR-2008-0508-0854.1
Comment Excerpt Number: 6

Comment: While NMPF does not have specific technical comments on the proposed methods for dairy farms to estimate their GHG emissions, we find the use of a rulemaking process to establish these methods to be troubling and problematic. A better alternative is to develop and advance these methods and techniques in guidance. A formal notice and comment rulemaking is a highly rigid and static means to establish such methods, and lacks flexibility and ease of

amending when new research findings would suggest that the methods be changed. For example, the dairy industry is actively engaged, as part of the National Air Emissions Monitoring Study (NAEMS), in the monitoring of GHG's from a sample of representative farms. The product of those efforts will be available in 2010 and 2011. Should the findings indicate that an alternative emissions estimation method should be used relative to that advanced by this rule, an additional rulemaking will be required to amend the required approach. This will entail far more time and effort needed to incorporate this new knowledge in the program than would be the case if guidance is used instead. We encourage EPA to take out of a formal rulemaking process these more technical, methodological questions that are the subject of or soon will be of further advance research, and instead use the guidance process that can adapt more quickly and flexibly to new and important knowledge and developments.

Response: EPA has determined that a rule-making, rather than guidance, will provide the consistency and rigor needed in the data collected. EPA recognizes that there is an ongoing study of air emissions from animal feeding operations and agrees that these data will improve the understanding of emissions generated. However, the focus of the NAEMS study is emissions of ammonia, hydrogen sulfide, carbon dioxide, volatile organic compounds (VOCs), and particulate matter, although some other pollutants (such as methane) are being added as the study progresses. Therefore, it is difficult to determine if sufficient data will be collected to alter existing emission methodologies and when those data will be available. As new information becomes available, we have the flexibility to update the methodologies and look-up factors provided, but the rule establishes the specific requirements that all reporters must meet.

Commenter Name: Mark Gibbons
Commenter Affiliation: Dairy Producers of Utah
Document Control Number: EPA-HQ-OAR-2008-0508-1567
Comment Excerpt Number: 7

Comment: Several of our Dairys are considering digesters to handle waste from their operations. Enforcement of such a labor intensive rule will change some producer's opinion relating to creating a renewable energy source.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 14.

Commenter Name: Mark Gibbons
Commenter Affiliation: Dairy Producers of Utah
Document Control Number: EPA-HQ-OAR-2008-0508-1567
Comment Excerpt Number: 8

Comment: EPA's massive proposed rulemaking is arbitrary as applied to manure management systems and the dairy industry. EPA already has most, if not all, of the data being sought and is imposing non-peer reviewed scientific methodologies. EPA is further placing the dairy industry in the position of submitting guesswork data under risk of penalty and accusations of making false statements through a required certification process in 40 CFR 98.3 in spite of the fact that EPA knows the data is guesswork and unnecessary. EPA needs to meet with the dairy industry and develop a specific rule for the dairy industry tailored to scientific needs.

Response: See the preamble and EPA-HQ-OAR-2008-0508-0724.1, excerpt 1.for a response to the comment regarding inclusion of manure management systems in this rule. The approach EPA has developed is not arbitrary. A consistent and transparent process was taken across this rule for the identification of source categories to be included and the development of methodologies for reporting. See the preamble for more information about the methodologies, and also comments EPA-HQ-OAR-2008-0508-0724.1, excerpt 1 and EPA-HQ-OAR-2008-0508-0365.1, excerpt 5.

Given the approach we have taken, the final rule does not require "guesswork". EPA has provided standard methods for emission estimation and clear direction on how to develop the estimates. EPA has determined that the methodologies and data sources that are being used to estimate emissions in the rule represent the most accurate available methods and data. EPA reviewed many protocols and approaches prior to selecting the proposed methodology. EPA's selected methodology for reporting GHG emissions (methane and nitrous oxide) associated with manure management systems is based on EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, as well as the Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories. These methodologies rely on the use of activity data, such as the number of head of livestock, operational characteristics (e.g., physical and chemical characteristics of the manure, type of management system(s)), and climate data, to estimate greenhouse gas emissions associated with traditional manure management systems.

Emissions can vary based on climate, type of production, and other geographical factors. In the final rule, EPA has provided state-specific default values for volatiles solids (VS) and nitrogen (N) excretion. These values are consistent with the U.S. GHG inventory for manure management and enteric fermentation. For beef and dairy cows, heifers, and steers, state-specific VS and N excretion rates are calculated based on the relationship between animal performance characteristics such as diet, lactation, and weight gain and energy utilization. In addition, EPA has provided temperature-specific default methane conversion factors (MCF) by manure management system. The use of these default data in the emission estimate equations in the final rule will account for differences in animal diet, weather, and management practices. In addition, the selected methodology for the reporting rule uses measured values for those manure management systems (e.g., anaerobic digesters) that collect and combust biogas.

The IPCC guidelines have been established by a recognized panel of experts and have undergone significant peer review prior to their adoption. These guidelines are long-standing, published methods used throughout the world.

In addition, as described in the response to comment EPA-HQ-OAR-2008-0508-0724.1 excerpt 1, EPA does not have the detailed information on facility level emissions that will be collected under this rule. In response to comments, EPA has revised the final rule to simplify, clarify and reduce the burden of the estimation methods. EPA is also planning extensive outreach and training upon completion of the final rule, as described in the response to comment EPA-HQ-OAR-2008-0508-0336.1 excerpt 10.

Commenter Name: See Table 1
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0435.1
Comment Excerpt Number: 13

Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

Comment: As a policy matter, perhaps most important of all is the fact that given the goals cited in the preamble for the GHG registry, the arguments cited in support of the selected options and the applicable facts concerning measuring and reporting GHG emissions from manure, it is clear that there is little meaningful justification for requiring pork or other livestock facilities to report their GHG emissions as part of this particular program. Instead, the annual EPA (and USDA) inventory, along with the tremendous data sets that will come from the eventual promulgation of a greenhouse gas cap and trade program, are more than adequate for supporting federal GHG emissions control policy, particularly in light of EPA's significantly underestimated costs to livestock producers for compliance with the reporting requirement. The proposed rule preamble states that the GHG reporting rule provisions would help "to improve the development of future national inventories for particular source categories or sectors by advancing the understanding of emission processes and monitoring methodologies." (See 74 Fed. Reg 68, page 16455). We disagree. The scientific community has yet to develop low cost, accurate emissions monitoring techniques that are practical to use regularly on the farm. The available methods are so costly that they must be conducted at best intermittently on a sample of operations and would be prohibitively expensive for any operation to carry out on its own on the farm. As such, the only practical way for a producer to comply with this reporting requirement would be to use standard estimates of emissions factors, apply them to his or her farm's manure and report those results. There is no new information in such a report that is not already generated in the Inventory, and these efforts will not improve or enhance the Inventory relative to the current state of the art in any way. As a result, facility level GHG emissions data from livestock operations would not improve the accuracy of the Inventory, would not confirm in any meaningful way the national statistics and emission estimation methodologies used to develop it and would not help in the development of baselines. No shortcomings of the methods used to generate the national statistics would be made apparent nor would any needed adjustments be identified. In contrast, a cap and trade system would provide ample incentive for the farming community to work with EPA and the agricultural research community to develop GHG capture and control verification measures to ensure better data will be generated. Rather than the proposed GHG registry somehow aiding federal policy development for something like a cap and trade program, the cap and trade program will help inform and improve the data collection process and the quality of the data generated. The GHG registry would simply add significant costs to the covered facilities without adding anything to the federal base of knowledge or GHG policy. NPPC concurs in EPA's finding that the proposed rule's mandatory reporting requirements should not be applied to agricultural soils management. But we find that the arguments used to support this decision also argue persuasively for why manure management should be similarly excluded. (See the preamble discussion on page 14667). As noted in the preamble, "For these sources, currently, there are no direct greenhouse gas emissions measurement methods available except for research methods that are prohibitively expensive and require sophisticated equipment. Instead, limited modeling-based methods have been developed for voluntary GHG reporting protocols, which use general emission factors, and large-scale models have been developed to produce comprehensive national-level emissions estimates, such as those reported in the U.S. GHG inventory report. To calculate emissions using emissions factor or carbon stock change approaches, it would be necessary for landowners to report on management practices and a variety of data inputs. Activity data collection and emissions factor development necessary for emissions calculations at the scale of individual reporters can be complex and costly." Everything said here is equally applicable to manure management. The preamble goes on to say that "without reasonably accurate facility level emissions factors and the ability to accurately measure all facility-level calculation variables at a reasonable cost to reporters, facility-level emissions reporting would

not improve our knowledge of GHG emissions relative to national or regional level emissions models and data available from national databases. While a systematic measurement program of these sources could improve understanding of the environmental factors and management practices that influence emissions, this type of measurement program is technically difficult and expensive to implement and would be better accomplished through an empirical research program that establishes and maintains rigorous measurements over time." NPPC finds that this is: a) fully correct in the case of agricultural soils management; b) equally applicable to GHG emissions reporting from manure management; and c) sufficient justification for excluding manure management from the reporting requirements. The current Inventory estimation techniques represent the best science in use today. The Inventory does the best job possible to help formulate climate change policy by assessing how an industry such as agriculture would be affected. It will be an effective cap and trade program, and the financial opportunities involved, that will support the greatest amount of education and awareness in the farming community of climate change issues. The proposed set of required measures for individual farmers to meet the GHG reporting requirements will simply be costly paperwork that adds no value for anyone.

Response: EPA does not agree that the manure management source category should be excluded from this rule; see the preamble and also response to comment EPA-HQ-OAR-2008-0508-0724.1, excerpt 1. While the information collected under this rule could inform any future cap and trade legislation, EPA is also exploring possible CAA options, and the facility-level emissions collected through this rule (versus national inventory emission estimates), will assist EPA in that evaluation.

See the response to comment EPA-HQ-OAR-2008-0508-0724.1, excerpt 1 for a response to comments about facility level data and direct measurements.

The proposal preamble cited several reasons for not including certain biological sources of emissions or sequestration. For example, for agricultural soils, available methods to estimate facility-level emissions/sequestration yield uncertain results, and very few facilities would exceed a 25,000mtCO2e threshold. For more information on the rationale for not requiring agricultural soils management emissions to be reported, see section IV.B of the proposal preamble (74 FR 16467, April 10, 2009), and also the response to comment EPA-HQ-OAR-2008-0508-0525.1, excerpt 25 in the comment document on Source Categories to Report for more information. The public comments did not provide information that leads EPA to change this decision to exclude agricultural soils.

As described by the commenter, the estimation of agricultural soils emissions involves a very detailed model that requires a large quantity of data inputs. See paragraph below on complexity of N2O emissions from soils. Data collection and emissions factor development necessary for facility level emissions calculations for agricultural soils are complex and costly. In contrast, the data inputs required to estimate emissions for manure management are not as detailed or complex and may be gathered by the facility owner at a reasonable cost.

Application of N at a farm results in direct emissions onsite and also offsite through volatilization, leaching/runoff of N and later deposition where the N is made available for nitrification/denitrification, (i.e., indirect emissions). Accounting for these indirect emissions is extremely uncertain, as it is rarely known where the N is eventually emitted as N_2O. For emissions estimates, it is only practical to include direct emissions resulting from inputs of N by the landowner. Indirect emissions (those resulting from N that was not directly applied to the

land) are not under the control of the landowner and very difficult to quantify. Reporting N_2O emissions onsite and not reporting N_2O offsite would however, result in incomplete estimates. In order to capture all of the direct N_2O emissions resulting from application of N to soils, it would be necessary for farmers to report on a number of different N inputs. Synthetic N and organic N inputs (e.g., synthetic fertilizer, manure, sewage sludge) are the only inputs that may be measured with reasonable accuracy and minimal burden by a landowner. N resulting from mineralization of organic matter (plant residue or soil organic matter) would be very uncertain. This leaves synthetic and organic inputs of N as the only potentially reportable inputs. While some input data can be collected with reasonable certainty, the estimation of N_2O emission from these inputs varies greatly spatially and temporally.

Further, unlike the manure management source category, it is unlikely that any facilities would exceed thresholds analyzed under this rule for the agricultural soils category. Analysis for the GHG reporting rulemaking is focusing on thresholds of 10,000 tCO2e, 25,000 tCo2e, and 100,000 tCo2e. Using average fertilizer application rates and IPCC emission factor N_2O estimation methodologies, it becomes apparent that even at the highest N fertilization rate of 180 lbs. N/acre, it would take a farm of over 25,000 acres to equal the 10,000 tCO2e threshold. Given that the USDA Farm Census from 2002 reports as its largest farm size 5000+ acres, there is a very low probability that any farm in the US would meet even the minimum 10,000 tCO2e threshold.

Commenter Name: See Table 2
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0395.1
Comment Excerpt Number: 20

Comment: TCFA is perplexed about EPA's view of the point at which emissions from cattle manure become anthropogenic as opposed to natural. There is no unnatural process in an open air cattle feedyard situation. Cattle defecate and urinate. Manure falls to the ground. Natural biological processes occur that result in some GHG emissions. At some point the manure gets scraped from the feedyard floor, mounded, and eventually land applied as an organic fertilizer. Absent the scraping, this is the same process that occurs in manure found on pasture land. TCFA submits that GHG emissions from manure in a cattle feedyard are the result of natural, biological processes.

Response: Methane and N2O from livestock manure management systems are not considered to be a part of the natural cycle of carbon, but as anthropogenic emissions, due to the human management of this activity. See the response to comment EPA-HQ-OAR-2008-0508-0576, excerpt 17 for more explanation.

Commenter Name: Richard A. Leopold
Commenter Affiliation: State of Iowa Department of Natural Resources
Document Control Number: EPA-HQ-OAR-2008-0508-0336.1
Comment Excerpt Number: 10

Comment: The Department supports the development of the computerized screening tool proposed in the Preamble4 to help producers determine if they meet the reporting threshold. EPA

should provide outreach and education to producers to determine their applicability before investing in the cost of monthly manure analysis.

Response: In response to comments, EPA has added more information to the final rule to help manure management facilities better determine if they might be subject to the requirements of the rule. First, the rule includes a population threshold level table for beef, dairy, swine, and poultry operations. The population threshold level is based on the average annual animal population that would not emit 25,000 metric tons CO2e per year. Facilities with average annual animal populations below the threshold are not required to report or complete the calculations to determine whether they emit 25,000 metric tons of carbon dioxide equivalents (CO2e) per year. If the average annual animal population at a facility is higher than the threshold presented in the table, the facility operator is encouraged to review a more detailed applicability table.

The applicability table has a comprehensive list of manure management system types that further refines the minimum average annual animal population estimated to emit above the threshold. If the average annual animal population at the facility is lower than the minimum average annual animal populations shown in the detailed table, the facility does not have to report. If the average annual animal population at the facility is higher than the minimum average annual animal populations shown in this table, the facility is encouraged to perform calculations to determine if the facility exceeds the threshold.

To assist facilities with calculating emissions, EPA is developing a calculator tool that will guide facilities through the process of calculating the total facility emissions using the methods provided in the rule. The facility level emission estimates from the calculator tool can be used to determine if the facility is excluded or required to report under the rule.

In addition, EPA has developed guidance materials including fact sheets and monitoring checklists. EPA also plans to conduct outreach and education activities including extensive training programs (via the web and meetings around the country), and the operation of email and telephone hotlines (ghgmrr@epa.gov, 877-GHG-1188).

Commenter Name: Richard A. Leopold
Commenter Affiliation: State of Iowa Department of Natural Resources
Document Control Number: EPA-HQ-OAR-2008-0508-0336.1
Comment Excerpt Number: 11

Comment: EPA should also clearly define a facility and how the rule applies to manure management systems that contain manure from more than one facility.

Response: The definition of "facility" is clearly defined in the rule, as described in EPA-HQ-OAR-2008-0508-0553.1 excerpt 7. A livestock facility must account for all manure that is managed in their system, even if that manure is received from another facility.

Commenter Name: See Table 2
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0395.1
Comment Excerpt Number: 8

Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

Comment: TCFA also supports EPA's decision not to include emissions from field burning of agricultural residues, stand-alone composting facilities, agricultural soil management and other land uses and land-use changes since emission estimation techniques for these sources would produce large amounts of uncertainty and would require an extensive effort on the part of reporters. Id. at 13, 16, 20, 24, 34. Finally, TCFA is curious about the point at which EPA decides whether a process is anthropogenic or nonanthropogenic. All emissions from manure in open air cattle feeding facilities are the result of biological processes. Manure is excreted by cattle, hits the ground, and stays there until scraped up and removed by facility personnel. During the time it is on the ground where it naturally would be found in its natural state, manure emits methane when natural conditions are anaerobic or nitrous oxide when natural conditions are aerobic. There is nothing manmade about these biological processes. Is it at the point when manure is scraped off the feedyard floor that emissions from manure transform from being natural to anthropogenic, or is it at a different stage? Is it simply the fact that cattle are in closer confines in a feedyard? Why does this fact make a difference regarding natural or anthropogenic sources? TCFA submits that biological processes associated with manure at open air cattle feedyards are natural and not anthropogenic. Consequently, we do not believe it is appropriate for EPA to include manure management from open air cattle facilities in the list of source categories that are required to report under this proposed rule, especially in light of the fact that these emissions (all combined) represent less than 0.127% of total U.S. GHG emissions.

Response: The process of consolidating cattle and their manure in high density areas contributes to the anthropogenic generation of methane and nitrous oxide, see the response to comment EPA-HQ-OAR-2008-0508-0576, excerpt 17 for more explanation.

Manure from beef cattle manure management facilities should not be excluded from the rule. Any system that meets the definition of a manure management system, consists of one or more of the components as defined in the rule and produces emissions that exceed the threshold level are required to report under this rule. See the preamble and response to comment EPA-HQ-OAR-2008-0508-0724.1 for more information on the rationale for including manure management in the rule.

While livestock manure GHG emissions represent a relatively small fraction of the total US GHG emissions, these emissions are large in absolute terms, see the preamble for more information.

Commenter Name: Andrew Kaldenberg
Commenter Affiliation: Iowa Poultry Association
Document Control Number: EPA-HQ-OAR-2008-0508-0523.1
Comment Excerpt Number: 2

Comment: To mitigate the potential for additional increased costs of goods, we believe market-based incentives must be built into any regulations. An example would be tax credits for companies who utilize carbon sequestration methodologies. We would suggest the Agricultural Counselor to the EPA work with the USDA in incorporating carbon sequestration methodologies for animal agriculture that contribute toward the reduction in GHG in the atmosphere. In reviewing the most recent GHG inventory submitted to the UNFCCC, the Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2006 (April 2008), estimated that total U.S. GHG

emissions were 7,054.2 million metric tons of CO2e in 2006. While CO_2 emissions have increased by 18 percent since 1990, CH_4 emissions have decreased by 8 percent since 1990, while N20 emissions have decreased by 4 percent since 1990. With the decrease in CH_4 (from enteric fermentation) and N20 (nitrification in manure), to include animal agriculture and manure management in this proposed regulation is unnecessary. This EPA proposal notes that emissions of HFCs, PFCs, and SF6 have increased by 64 percent since 1990. The combustion of fossil fuels (i.e., petroleum, coal, and natural gas) was the largest source of GHG emissions in the U.S., and accounted for approximately 80 percent of total CO2e emissions. With this data in mind, we question why manure management is even part of this regulation when the magnitude of relevant gases from animal production is so miniscule. We further note mono-gastric (non-ruminant) account for only about 20% of the total GHG emissions. Therefore, we request that EPA substantiate more thoroughly the reasons for including manure management in this regulation.

Response: EPA does not believe that the manure management source category should be excluded from this rule; see the preamble for the response to this comment. Additionally, see the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 14 for more information on the reporting rule as it relates to incentives to install digesters.

Commenter Name: See Table 2
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0395.1
Comment Excerpt Number: 1

Comment: The "2009 U.S. Greenhouse Gas Inventory Report" indicates that all agricultural GHG emissions are less than 6% (5.77%) of the total U.S. greenhouse gas emissions for year 2007. Emissions from beef cattle manure management is a fraction of that amount and should not be regulated. Because the livestock industry is such a small source, our members should be allowed to voluntarily reduce greenhouse gases by creating offsets for use by regulated industry as a way to reduce economic burdens imposed by a mandatory cap and trade program.

Response: See the response to EPA-HQ-OAR-2008-0508-0395.1, excerpt 8.

Commenter Name: C.Condie
Commenter Affiliation: None
Document Control Number: EPA-HQ-OAR-2008-0508-0265
Comment Excerpt Number: 1

Comment: I urge you to include Confined Animal Feeding Operations in the proposed mandatory reporting of methane and carbon dioxide greenhouse gas emissions. The growth of CAFOs is posing a hazard for the health and safety of our local population as well as contributing to climate change. I live in a rural county in south central Idaho and have observed that dairy operators are no longer abiding by the sustainable practices of their agricultural predecessors. Instead, animal operations of 10 animal units per acre are common, and the saturation of large ventures in our area is unbearable. We are running out of space to handle the waste, and manure is piled up and left exposed to the air. Property values are affected, because nobody wants to live next to what amounts to an animal factory. The scope and pollution from this type of production and commerce can no longer be called agricultural. At this scale, it is

actually industrial and should be regulated as such. Please help us. If the source of these emissions continues, our quality of life will be diminished irreversibly. Measuring and reporting the problems of methane and carbon dioxide pollution is a good first step toward improving the environment of our community.

Response: EPA agrees with commenter on the value of collecting facility-level data from manure management systems. See response to comments EPA-HQ-OAR-2008-0508-0724.1, excerpt 1, and EPA-HQ-OAR-2008-0508-0365.1, excerpt 14.

Commenter Name: J. P. Cativiela
Commenter Affiliation: Dairy Cares
Document Control Number: EPA-HQ-OAR-2008-0508-1014.1
Comment Excerpt Number: 1

Comment: Dairy Cares opposes mandatory Greenhouse Gas reporting for livestock operations. Our coalition has carefully reviewed the proposal to require mandatory reporting of Greenhouse Gas (GHG) emissions from certain manure storage and treatment facilities at livestock operations at the level of 25,000 tons annual emissions carbon dioxide equivalents (CO2e), as well as other potential thresholds. Such a requirement will provide little or no useful data to EPA, while imposing significant costs and liability to those livestock facilities required to report. * Even at the 25,000-ton CO2e threshold level, it is likely that significantly more than 50 livestock operations would be required to report nationwide. * The data provided by reporting from large livestock operations would not improve the overall national inventory of livestock GHG emissions, because: o Doing so focuses on only a tiny fraction of the overall GHG inventory from livestock, and a vanishingly small fraction of the national inventory. * The reporting requirement exposes livestock facilities to significant civil liability because of provisions allowing enforcement through third-party citizens lawsuits, combined with significant uncertainty and complexity in the reporting process. As such, Dairy Cares does not support site-by-site reporting of GHG emissions from livestock facilities at this time. Livestock facilities are not “smokestack” operations. Rather, they are complex open-air sources and as such the process of estimating emissions from manure storage is an inexact science at best.

Response: EPA does not believe that the manure management source category should be excluded from this rule; see the preamble and response to comment EPA-HQ-OAR-2008-0508-0724.1.

Commenter Name: Craig Head
Commenter Affiliation: Nebraska Farm Bureau Federation (NFBF)
Document Control Number: EPA-HQ-OAR-2008-0508-0578.1
Comment Excerpt Number: 1

Comment: While we appreciate EPA’s decision to limit the scope of the proposed mandatory reporting of GHG emission sources only to facilities with manure management systems that meet the 25,000 metric ton threshold and not all other agriculture emission sources, we do have questions about the need and implications of such reporting. In its April 2009 “Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007”, EPA allocated out GHG emissions from industry sectors identifying Electricity Generation as accounting for 34 percent of all GHG

emissions, followed by Transportation (28 percent), Industry (19 percent), Agriculture (7 percent), Commercial (6 percent) and Residential (5 percent). While EPA clearly identifies agriculture as a GHG emission source in this report, it identifies agriculture as a small portion of overall U.S. GHG emissions. Furthermore, EPA in its proposed reporting rule seeks to single out an even smaller segment of agriculture, specifically livestock agriculture, for mandatory GHG reporting. By its own account, EPA estimates that only "40 to 50 of the largest livestock operations" would be required to report under this proposed rule. It is our understating that manure management (storage and land application) represents less than 10 percent of all agriculture emissions and accounts for less than one percent of all U.S. GHG emissions measured as CO_2 equivalents. In short, this proposed rule would create a mandatory reporting on livestock operations that account for a minute amount of overall GHG emissions. For those reasons, we question the need, viability and necessity of placing mandatory reporting on a segment of agriculture that accounts for such a miniscule portion of U.S. GHG emission sources. If the intent of the rule as EPA suggests in its fact sheet is to collect accurate and comprehensive emissions data to inform future policy decisions, it would appear such data collection would be focused on other industry segments where potential reductions of such emissions would have a significant and meaningful impact. For those reasons, we support the elimination of GHG reporting requirements from manure management systems as proposed in the rule.

Response: EPA does not believe that the manure management source category should be excluded from this rule; see the preamble and response to comment EPA-HQ-OAR-2008-0508-0724.1.

Commenter Name: Robert Naerebout
Commenter Affiliation: Idaho Dairymen's Association, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0314.1
Comment Excerpt Number: 16

Comment: Given the small number of manure management systems nationwide, no rational basis is provided for why the EPA chose to regulate these systems at all (593). GHG emissions from sources at livestock facilities unrelated to stabilization storage manure are not required to report (589). No analysis or justification is given for why some GHG emission sources are to be calculated and why field applications of manure, and manure deposited by livestock on pasture/range sources are not subject to the rule. The manure management system classification is arbitrary; given 2008 U.S. Inventory (590), there appears to be little value to having only a subset of agriculture gather, calculate and report C02e.

Response: EPA does not believe that the manure management source category should be excluded from this rule; see the preamble and response to comment EPA-HQ-OAR-2008-0508-0724.1.

Commenter Name: Rick R. Stowell
Commenter Affiliation: University of Nebraska
Document Control Number: EPA-HQ-OAR-2008-0508-0727.1
Comment Excerpt Number: 1

Comment: There does not appear to be a compelling reason for animal agriculture to be required

to report greenhouse gas (GHG) emissions, since the emissions to be reported (from "manure management systems") are expected to be a very small fraction of total U.S. emissions. As stated in the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990?2007 Annexes, agriculture as a whole contributes less than 10% of U.S. GHG emissions. Within animal agriculture, the largest component of emissions arises from enteric emissions of methane. Following good reason, EPA acknowledges that enteric emissions occur naturally and, since the intent of the proposed rule and future policy is to address man?made (anthropogenic) GHG emissions, EPA does not require that enteric emissions be reported in the proposed rule [although it is not clear why these emissions are included in the total estimate of anthropogenic emissions in the first place.] The primary source of agricultural GHG emissions is from soil management, which includes application of manure to land as a natural fertilizer. EPA does not require reporting of GHG emissions from this source either, in this case due to the uncertainty of measurements and other challenges associated with getting credible data from a large pool of small and diffuse sources, with both of these being valid reasons. This leaves GHG emissions from "manure management systems" as the agricultural candidate for reporting. EPA does not currently detail in the proposed ruling that "manure management systems" is a minor component of a very minor contributor to U.S greenhouse gases. It appears that reporting of GHG emissions from "manure management systems" is required because these emissions qualify as being anthropogenic (are controllable) and are less challenging to estimate than are emissions from other agricultural sources. This appears to be the case despite the fact that even full control of these emissions would result in possibly a 1% reduction in U.S. GHG emissions, hardly a benefit deserving of significant mandatory investment of resources. Also, given the diversity of species, facility types, regions, and management strategies employed on the reporting operations, the overall pool of reporters may be too small (noted as ~50) to have statistical relevance. Benefits that may be obtained from a small sector of large animal operations reporting GHG emissions include documentation of the very minor contribution made by this source to U.S. GHG emissions and refinement of the potential for animal agriculture to capitalize on investment in GHG emission control (e.g. digesters). While these are desirable benefits, they have little merit for the general public, can largely be achieved through existing methods and, therefore, are not deserving of a mandatory or sizeable investment of resources.

Response: EPA does not believe that the manure management source category should be excluded from this rule; see the preamble and response to comment EPA-HQ-OAR-2008-0508-0724.1.

Commenter Name: Robert D. Byrne
Commenter Affiliation: National Milk Producers Federation (NMPF)
Document Control Number: EPA-HQ-OAR-2008-0508-0854.1
Comment Excerpt Number: 1

Comment: The arguments cited in the preamble in support of the selected GHG reporting requirements, and the applicable facts concerning measuring and reporting GHG emissions from manure, indicate to NMPF that there is no justification for requiring dairy facilities to report their GHG emissions as part of this particular program. Instead, the annual EPA inventory, along with the data sets that will come from the eventual cap and trade program, are more than adequate for supporting federal GHG emissions control policy.

Response: EPA does not believe that the manure management source category should be

excluded from this rule; see the preamble and response to comment EPA-HQ-OAR-2008-0508-0724.1.

Commenter Name: See Table 1
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0435.1
Comment Excerpt Number: 4

Comment: In its proposal, EPA has decided not to require reporting of greenhouse gas emissions from natural processes such as enteric fermentation, rice cultivation, field burning of agricultural residues, composting and agricultural soils as well as other sources of emissions in industrial processes such as emissions from the fermentation of alcohol or ethanol fuel. While the pork industry supports this decision, we remain confused as to EPA's justification to then focus its efforts on the process of manure decomposition. Furthermore, while EPA justifies its decision to discriminate between these sources based on the practical challenges presented from regulating large numbers of small sources, the data before EPA clearly show two significant reasons why its policy of discrimination among agricultural sources is simply not justified. First, according to EPA's most recent emissions inventory, enteric emissions not only constitute the overwhelming majority of livestock emissions, but they are also the single largest source of domestic methane emissions. While we agree that producers shouldn't be required to report those emissions, to exempt the largest source category from reporting while at the same time imposing onerous reporting requirements on a source responsible for only 0.6 percent of total emissions seems confused, inconsistent and contradictory. Indeed, Congress has generally agreed with this view, opting in the recent House Energy and Commerce Committee markup of the "American Clean Energy and Security Act of 2009" to exempt domestic manure management systems because of their de minimis overall impact. Second, EPA's arbitrary decisions to discriminate against these sources also stands in contrast to the clear findings of the United Nations that more concentrated production systems should be encouraged because of their inherent efficiencies and ability to capture and reduce emissions. By arbitrarily targeting for regulation precisely those production practices that sound public policy dictates should be supported, EPA is encouraging producers to work toward increasing the sector's overall emissions rather than adopting the practices necessary to reduce emissions.

Response: EPA considers enteric fermentation, rice cultivation, field burning of agricultural residues, composting and agricultural soils to be anthropogenic sources of greenhouse gas emissions, but has chosen not to require reporting of these emissions. See the response to comment EPA-HQ-OAR-2008-0508-0525.1, excerpt 25 in the comment document on Source Categories to Report for more information.

EPA also believes that livestock manure GHG emissions are not de minimus, see the preamble for a response to this comment.

The largest, more concentrated facilities are not arbitrarily targeted. The largest, more concentrated facilities are required to report under the rule because they exceed the threshold established by EPA. For more information about the selection of the threshold, see the preamble. EPA selected the threshold used in the rule to target the largest emitters in order to meet the criterion of balancing the emissions coverage with a reasonable number of reporters. Including smaller emitters would not significantly increase the amount of emission coverage but would

significantly increase the number of reporters; this would increase the burden of the rule without significantly increasing the benefit.

The rule will not increase the sector's overall emissions instead of working towards the adoption of practices necessary to reduce emissions. See the preamble for a description of the benefits of this rule.

Commenter Name: Larry R. Soward
Commenter Affiliation: Texas Commission on Environmental Quality (TCEQ)
Document Control Number: EPA-HQ-OAR-2008-0508-0619
Comment Excerpt Number: 7

Comment: Agriculture, a multi-billion dollar sector of the U.S. economy, contributed six percent of total U.S. GHG emissions in 2007, according to the 2009 U.S. Greenhouse Gas Inventory Report. The EPA has almost completely exempted agricultural sources and other land uses, proposing to include only manure management as an affected GHG emissions source. Inclusion of a single emissions source in an economic sector is the bare minimum required to be consistent with the FY 2008 Consolidated Appropriations Act, in which the Congress and President George W. Bush directed the EPA to "require mandatory reporting of GHG emissions above appropriate thresholds in all sectors of the economy of the United States." The EPA considered the merits of including the many agricultural sources of GHG emissions, but proposed to include only manure management as an affected agricultural emissions source. Even then, the rule's coverage is limited since CO_2 emissions from manure management systems are not required to be reported, as those emissions are considered non-anthropogenic sources. The estimated head of livestock to meet the proposed 25,000 metric ton per year threshold is: 89,000 for beef, 5,000 for dairy, 73,000 for swine and 895,000 for poultry. These numbers are designed to and will affect agribusinesses, not small family farms. The EPA should retain the reporting requirements for manure management; deletion would result in the complete exclusion of a sector of our nation's economy, a sector that represents six percent of the nation's GHG emissions.

Response: EPA agrees with commenter on the value of collecting facility-level data from manure management systems. See response to comments EPA-HQ-OAR-2008-0508-0724.1, excerpt 1, and EPA-HQ-OAR-2008-0508-0365.1, excerpt 14. For the rationale on the decisions to include or exclude various agriculture and land use categories, see the response to comment EPA-HQ-OAR-2008-0508-0525.1, excerpt 25, in the response to comment document on Source Categories to Report.

Commenter Name: Dr. John A. Lory
Commenter Affiliation: University of Missouri et al.
Document Control Number: EPA-HQ-OAR-2008-0508-0672.1
Comment Excerpt Number: 1

Comment: EPA should reconsider if any agricultural sources should be included in the GHG monitoring program. Emissions from manure storage facilities are the only agricultural emissions covered by this proposed rule. We support EPA's decision not to include enteric fermentation in the GHG emission monitoring program. Information on animal inventories is already collected

and readily available through the National Agricultural Statistics Service so estimates of this pool of GHG emissions are readily implemented without requiring famer?based reports and estimates. The technology for direct measurement of enteric fermentation from livestock is beyond the technical capacity of most farmers. Estimates of enteric fermentation contributions to GHG emissions are readily completed using available information with no obvious benefit of farmer reporting. A similar argument can be made for excluding manure storage facilities from the GHG monitoring program. The objective of mandatory emissions reporting is to understand the contributions of the targeted sectors to greenhouse gas emissions in order to obtain more accurate emissions estimates. The Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990?2007Annexes (page A?334) lists the factors that contribute to the uncertainty in emissions estimates for manure management as lack of information on: 1) the usage of various management systems in each regional location; and 2) lack of information on the exact CH_4 generating characteristics of each type of manure management system. We contend that there are no reasonable farm specific monitoring requirements that would increase the accuracy of EPA's current estimate of GHG emissions from these facilities. Operations affected by the proposed GHG rule all exceed the CAFO regulatory threshold so the number of animals (average annual inventory) should be known in most states. Permit information also includes the type of manure storage facility(s) on each operation. It is not apparent that GHG monitoring requirements provide any new information on animal number and manure storage facility compared to these other regulatory requirements. For example, in Missouri, all operations with 1000 animal units or more are permitted and the permit information includes a declaration of the maximum inventory and the type of manure storage facility(s). The recently approved revisions to the Federal CAFO rule (FR, 2008) may result in some currently permitted operations choosing to not obtain permits. If EPA continues to consider manure storage facilities an important source of GHG's needing monitoring this change in EPA rules may justify having affected operations report animal numbers and manure storage types. The proposed EPA strategy for monitoring manure storage facilities is to estimate total volatile solids entering the manure storage facility and then use an equation to estimate methane generation. EPA is correct in concluding that direct measurement of GHG emissions from these facilities is beyond the technical and financial capabilities of most farmers. We support the use of research-based equations to estimate GHG emissions from this sector. The use of such equations means that once animal numbers and manure storage type are known the reporting requirements provide no additional information that improves the accuracy of the GHG emission estimate. As with enteric emissions from ruminants, GHG monitoring from manure storage facilities should be excluded from this rule because the proposed monitoring requirement would provide no information that would significantly increase the accuracy of emission estimates. The proposed monitoring of manure storage facilities captures a small percentage of estimated total GHG emissions and a small percentage of estimated agricultural GHG emissions according to the proposed rule. 1. Manure management (storage and land application) represents about 10% of all agricultural emissions and is less than 1% of all US GHG emissions measured as CO_2 equivalents. 2. The 25,000 metric ton equivalent annual emission rate would capture less than three percent of GHG emissions from manure management (1.5 million CO2e monitored/55.7 million CO2e from manure management X100%= 2.6%) which is a trivial amount of total US GHG emissions.

Response: EPA agrees that the objective of mandatory emissions reporting is to understand the contributions of all sectors of the economy to greenhouse gas emissions in order to obtain more accurate emissions estimates; however, EPA believes that this rule will accomplish this goal for manure management.

Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

Facility level data obtained through the reporting rule will be quite valuable; see the response to EPA-HQ-OAR-2008-0508-0724.1, excerpt 1 for more information.

Commenter Name: Kenneth Klippen
Commenter Affiliation: Sparboe Farms
Document Control Number: EPA-HQ-OAR-2008-0508-0327
Comment Excerpt Number: 5

Comment: The most recent GHG inventory submitted to the UNFCCC, the Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2006 (April 2008), estimated that total U.S. GHG emissions were 7,054.2 million metric tons of CO2e in 2006. While CO_2 emissions have increased by 18 percent since 1990, CH_4 emissions have decreased by 8 percent since 1990, while N_2O emissions have decreased by 4 percent since 1990. With the decrease in CH_4 (from enteric fermentation) and N_2O (nitrification in manure), to include animal agriculture and manure management in this proposed regulation is therefore unnecessary. EPA's proposed regulation notes that emissions of HFCs, PFCs, and SF6 have increased by 64 percent since 1990. The combustion of fossil fuels (i.e., petroleum, coal, and natural gas) was the largest source of GHG emissions in the U.S., and accounted for approximately 80 percent of total CO2e emissions. We question why manure management is even part of this regulation when the magnitude of relevant gases from animal production is so miniscule. We request that EPA substantiate more thoroughly the reasons for including manure management in this regulation.

Response: EPA does not believe that the manure management source category should be excluded from this rule; see the preamble and response to EPA-HQ-OAR-2008-0508-0724.1, excerpt 1 for more information.

Commenter Name: Doug MacTaggart
Commenter Affiliation: C-Lock Technology, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0502.1
Comment Excerpt Number: 2

Comment: Under "Emissions from agricultural sources..." the EPA explicitly excludes reporting on CH_4 from enteric fermentation, although reporting on manure management from selected facilities will be required (see further comments on this under V.JJ). This exclusion seems an unnecessary sacrifice of potentially useful data. Since facilities reporting on manure CH_4 will already need to track livestock populations and will typically keep feed records, the generation of periodic enteric CH_4 estimates using existing spreadsheet models and feed-specific emission factors (e.g., those used by the US Department of Energy (DOE) in 1605(b) voluntary reporting [1]) would not add onerous additional reporting burdens. Facility-level data collected from a significant sample of livestock operations will help us to better understand livestock production impacts and to improve future inventories and emission factors.

Response: Emissions from enteric fermentation are excluded from reporting under the final rule. For the rationale for not requiring enteric fermentation emissions to be reported, see the response to comment EPA-HQ-OAR-2008-0508-0525.1, excerpt 25 in the comment document on Source Categories to Report.

Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

In addition, EPA believes that the estimation of enteric fermentation emissions would add burdensome additional reporting requirements. The estimation of enteric fermentation emissions would require detailed records, including monthly animal populations and feed by animal type.

Commenter Name: G. Larry Newton
Commenter Affiliation: University of Georgia
Document Control Number: EPA-HQ-OAR-2008-0508-0461.1
Comment Excerpt Number: 1

Comment: We support the elimination of greenhouse gas (GHG) reporting requirements for manure treatment and storage systems (termed manure management systems in the rule) for the following reasons: 1) EPA can independently estimate contributions from this sector of agriculture with existing sources of information; and 2) the information and process called for in the reporting rule will not provide any better estimate than is currently available.

Response: EPA does not believe that the manure management source category should be excluded from this rule; see the preamble and response to EPA-HQ-OAR-2008-0508-0724.1, excerpt 1 for more information.

Commenter Name: See Table 3
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0425.1
Comment Excerpt Number: 1

Comment: CIA opposes the proposed reporting requirement for releases of GHGs from manure management at farms in the United States. CLA and its members understand that the animal agriculture industry must protect the environment and natural resources to remain viable and healthy. To this end, CLA supports environmental regulations that are based on sound science and will lead to protection of public health and welfare and/or natural resources. However, according to the 2009 U.S. Greenhouse Gas Inventory Report, all agricultural GHG emissions, including those from crop and animal production, represent less than six percent of the total US GHG emissions for 2007. As proposed, the GHG reporting requirement for manure management is misleading with regards to the number of facilities affected, will cause undue financial burden on livestock producers with little positive societal impact, and is plagued with unreasonable reporting timelines that will likely lead to initially misrepresentative emissions estimates while informing EPA of only a small fraction of the total US GHG emissions.

Response: EPA does not believe that manure management facilities should be excluded from the rule, see the preamble and response to EPA-HQ-OAR-2008-0508-0724.1, excerpt 1 for more information. In addition, while livestock manure GHG emissions represent a relatively small fraction of the total US GHG emissions, these emissions are large in absolute terms, see the preamble for more information.

Commenter Name: Calvin B. Parnell, Jr.
Commenter Affiliation: Texas A&M University et al.

Document Control Number: EPA-HQ-OAR-2008-0508-0667.1
Comment Excerpt Number: 5

Comment: The regulation of GHG emissions is limited to emissions inventories (annual emissions). The goal is to find ways to reduce annual emissions of GHG to slow down the increase in CO_2e to prevent climate change or global warming. Forcing small emitters to report their emissions when reduction of their GHG emissions would have little impact on the increase in the concentration of CO_2e in the atmosphere is illogical. Using 2005 as the base year, the total GHG emissions from all sources were 7,110 million metric tons. The total mass of CO2e emitted by cattle feed yards of CH_4 and N_2O were (2.4+6.5) = 9 million metric tons. It is assumed that CO_2 emitted by cattle feed yards will not be regulated because it is CO_2 that has been sequestered in the feed. Hence, only emissions of CH_4 (562 million metric tons) and N_2O (316 million metric tons) from manure management must be reported. These emissions amount to only 0.43% and 2.1% of the total emissions of CH_4 and N_2O emitted, respectively.

Response: EPA is including the manure management source category in this rule, see the preamble and response to EPA-HQ-OAR-2008-0508-0724.1, excerpt 1 for more information. EPA is not requiring small emitters to report emissions; only emitters that exceed the threshold must report and these emitters represent only very large manure management facilities.

Manure from cattle feedyards should not be excluded from the rule, see the response to EPA-HQ-OAR-2008-0508-0395.1, excerpt 8.

Commenter Name: Wayne Pacelle
Commenter Affiliation: The Humane Society of the United States
Document Control Number: EPA-HQ-OAR-2008-0508-0322.1
Comment Excerpt Number: 1

Comment: The HSUS/HSI are encouraged that the EPA is considering better reporting of greenhouse gas (GHG) emissions from concentrated animal feeding operations (CAFOs). We are hopeful that recent scientific evidence from the United Nations Food and Agriculture Organization (FAO), as well from your own agency, regarding the role of animal agriculture in climate change will be taken into account as regulations to control and mitigate the effects of global warming are implemented. It is already well-documented that the animal agriculture sector is a major contributor to global GHG emissions; monitoring and reporting GHG emissions from this industry will sharpen that understanding and provide a baseline to ensure that reductions are achieved. Agriculture is both a driver of climate change and is also impacted by climactic fluctuations, such as increases in temperature and rainfall, which result from a changing climate. Although some experts may disagree on the exact amount, agriculture and its related land-use changes, such as deforestation for cultivation of crops used as farm animal feed, are responsible for at least one-third of global greenhouse gas (GHG) emissions. Conversely, agriculture is a human endeavor that will likely be among the most affected by climate change. Animal agriculture, in particular, contributes significantly to GHG emissions—more than 50% of overall emissions from agriculture and its associated land-use changes. An FAO report in 2006 found that the farm animal sector is responsible for 18% of global GHGs measured in carbon dioxide (CO_2) equivalent, more than the entire transportation sector. This calculation does not, however, include the additional GHG emissions of transport of live farm animals, an omission that certainly results in an even higher share of climate-changing responsibility carried by the

animal agriculture sector. Specifically, animal agriculture is responsible for 9% of global CO_2 emissions, accounting for sources such as on-farm fossil fuel use for lighting, temperature control, automated machinery, and ventilation (90 million tonnes per year); the packaging, transportation, and application of nitrogen fertilizer for feed crops (more than 40 million tonnes per year); and deforestation for grazing (2.4 billion tonnes per year). Animal agriculture is also responsible for 40% of global methane emissions and 65% of global nitrous oxide emissions. Enteric fermentation from ruminant farm animals and farm animal manure management accounted for more than 16% of U.S. nitrous oxide emissions, more than all energy-related nitrous oxide emissions combined. This enteric fermentation also accounted for 27% of all U.S. methane emissions, making animal agriculture the leading source of methane emissions in this country. To put this into context, FAO estimates that a cow/calf pair on a beef farm is responsible for more GHG emissions than a person traveling 8,000 miles in a mid-sized car. In the United States, a substantial portion of the GHGs emitted from agriculture come from concentrated animal feeding operations (CAFOs). Specifically, the EPA noted in 2006 that the primary reason for the overall increase in methane emissions is the shift to confining pigs and dairy cows in larger facilities that use liquid manure management systems. In addition, according to the EPA, the overall increase in nitrous oxide emissions is largely due to the concentration and industrialization of the poultry industries, namely the shift toward litter-based manure management systems, confinement in high-rise houses, and an overall increase in the U.S. poultry population. Because of their size and production levels, each CAFO is capable of emitting hundreds or thousands of tons of pollutants into the ambient air annually. CAFOs are responsible for 47-60% of the 500 million tons of manure produced by animal feeding operations each year, more than three times the amount of waste produced by humans in the United States annually. Although preliminary studies have been published and we know enough to recognize the significant contribution of animal agriculture to climate change, there is a continued and urgent need for more analysis and research regarding GHG emissions from different farm animal production systems, as well as different mitigation strategies. This type of research will be crucial for stakeholders, including farmers, lawmakers, businesses, and consumers, to better identify which kind of production systems will reduce GHGs, as well as understand the impact food choices can have on both personal health and climate change. The EPA should require CAFOs to measure their emissions and institute plans to reduce GHGs from their facilities. In addition, the GHG-reducing potential of mitigation technologies—such as the installation of large-scale anaerobic digesters at CAFOs or the production of biofuels from farm animals' waste and fat— should be more thoroughly investigated.

Response: Although EPA agrees that there is a need for more analysis and research regarding GHG emissions from animal production systems, EPA does not believe that direct measurements be required for manure management facilities covered under this rule, see the response to EPA-HQ-OAR-2008-0508-0724.1, excerpt 1 for more information.

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2. REPORTING THRESHOLD

Commenter Name: Brad Bateman
Commenter Affiliation: Western States Dairy Producers Trade Association
Document Control Number: EPA-HQ-OAR-2008-0508-0365.1
Comment Excerpt Number: 5

Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

Comment: The EPA emission thresholds for manure management systems are irrational because as GHG emissions vary greatly by climate zone, dairy production, and geographical factors, all of which impact emissions of CO_2e. Owners and operators of manure management systems will be unable to calculate with any level of scientific certainty if they emit CO_2e at levels greater than the EPA threshold.

Response: EPA has added more information to the final rule to help manure management facilities better determine if they might be subject to the requirements of the rule, see the preamble and also response to comment EPA-HQ-OAR-2008-0508-0724.1, excerpt 1. EPA agrees that emissions can vary based on climate, type of production, and other geographical factors, and the methods provided in the rule take account of these factors. EPA does not agree that the fact that emissions will vary with climate zone or other factors would prevent a facility from being able to calculate their emissions under the rule.

For more information on the methodologies used by EPA for the threshold analysis and used by reporters to calculate emissions, see EPA-HQ-OAR-2008-0508-1567, excerpt 8.

Commenter Name: See Table 3
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0425.1
Comment Excerpt Number: 4

Comment: Information provided by ERG, EPA's contractor for determining the animal population thresholds in the proposed rule, indicated that it used a slightly different equation to estimate emissions from the equations EPA outlined in the proposed rule. The equation in the proposed rule uses "manure excretion rate" and separate percentages for "volatile solids" and "nitrogen content". However, the calculations provided by ERG include single values to represent a "volatile solids excretion rate" and a "nitrogen excretion rate." For the sake of clarity and transparency in the calculations, CLA strongly urges the EPA to be consistent and use equations in the proposed rule that are backed up by supporting and supplementary documents provided by EPA and its contractors. Otherwise, any rationale behind equations proposed is suspect.

Response: Based on comments, EPA has removed the requirements for VS and N measurement data, as described in the response to EPA-HQ-OAR-2008-0508-0425.1 excerpt 11. The proposed rule presented calculations that were slightly different from the threshold analysis equations because the proposed rule was suggesting the use of facility-specific measured VS and nitrogen N data. Because EPA has removed the requirement for VS and N measurement data, the equations presented in the final rule match the equations used in the threshold analysis.

Commenter Name: Justin Oldfield
Commenter Affiliation: California Cattlemen's Association
Document Control Number: EPA-HQ-OAR-2008-0508-0228b
Comment Excerpt Number: 3

Comment: Actual emission measurements from manure should be used to determine the total number of head that exceeds the 25,000 metric tons of CO_2 equivalent threshold.

Response: EPA is not considering the use of direct measurement for manure management, see the response to EPA-HQ-OAR-2008-0508-0724.1, excerpt 1 for more information. Facilities should use actual emission measurements to determine whether they are covered by the rule, and, if so, also report their actual emissions following the methods contained in the rule. Note that "actual emission measurements" are not synonymous with "direct measurements".

Commenter Name: See Table 2
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0395.1
Comment Excerpt Number: 11

Comment: EPA requests comments on other capacity thresholds that should be developed for different types of facilities and states that such comments should contain data and analysis to support the use of different thresholds. We would offer for EPA's consideration an alternative reporting threshold for manure management from open air beef cattle facilities of 54,436 MT CO_2e per year for reasons set forth below. Throughout the proposal, EPA evaluated the number of facilities in every sector of the economy that would be required to report, with the majority of those facilities subject to a 25,000 MT CO_2e per year threshold. In the manure management analysis, EPA was presumably satisfied that 11 facilities at 88,923 head or larger would exceed the threshold and be required to report. However, the calculations provided to EPA by ERG, a long-time EPA contractor, were in error. After careful review of supporting materials for EPA's equations entitled "Beef Threshold_050109.xls," it became clear to TCFA that an error occurred as a result of ERG's failure to include a critical molecular weight conversion of N_2O-N to N_2O in its GHG calculations that resulted in its determination that only 11 cattle facilities would be required to report. The reality is that if EPA were to use the equation in the proposed rule, approximately 130 cattle facilities would be required to report. This number is approximately 12 times greater than EPA's estimated number. EPA's equation (corrected for N_2O conversion factor and using ASABE data—see Attachment #4) shows that in order to meet its stated balance of "reporting" and "burden" on facilities the reporting threshold for manure management at open air beef cattle facilities would have to be increased to 54,436 MT CO_2e per year. TCFA encourages the EPA to make this adjustment in an effort to enable the EPA to be consistent with the expressed intent of only subjecting 11 beef cattle facilities to the GHG mandatory reporting requirement.

Response: For information on the spreadsheet calculation revisions for the threshold analysis, see response to comment EPA-HQ-OAR-2008-0508-671.1 excerpt 3. As stated in the proposed rule, EPA is requiring all manure management facilities that emit more than 25,000 metric tons of CO2e per year to report under this rule. EPA reviewed TCFA's threshold proposal and determined it is not appropriate for this rule. It was EPA's intent to cover facilities that emitted above the 25,000 metric tons or more of CO2e per year; not to cover a specific number of agricultural facilities. As noted elsewhere, we have corrected the estimate of the number of facilities that would be covered by the rule at a 25,000 tpy of CO2e threshold. The commenter's suggested approach may exclude large farms with significant emissions from reporting under this rule, which will not provide a consistent data set for farms above the threshold. We determined broadly that the 25,000 metric ton CO2e threshold effectively balanced the reporting burden with

the value of the data collected. Based on the updated threshold analysis, we have still concluded that the 25,000 metric ton threshold is appropriate. See the preamble for response to comments on the thresholds. See the preamble for response to comments on the inclusion of manure management systems and response to comment EPA-HQ-OAR-2008-0508-0724.1, excerpt 1.

Commenter Name: Stewart T. Leeth
Commenter Affiliation: Smithfield Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0553.1
Comment Excerpt Number: 8

Comment: Because the number of facilities impacted by the rule and the economic analysis are greatly affected by the calculations, EPA should verify the calculations and republish the rule with the complete methodology so that all potentially impacted facilities may have an opportunity to review and comment on the rule.

Response: In response to comments, EPA corrected the threshold calculations, see the preamble and the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3 for more information. The threshold analysis spreadsheet and the economic analysis are both publicly available in the docket for this rule. The threshold analysis approach EPA used remains the same as in the proposal; the Agency merely corrected errors as indicated by commenters. The purpose of notice and comment is to allow the Agency to gather additional information and correct assumptions made in the proposal. It is entirely appropriate for the Agency to make changes in the final rule in response to comments received on the proposal. The changes made in response to comments here do not require that EPA renotice the rule; they merely reflect corrected input to calculations. Given the number and scope of comments EPA received on this subpart, potentially impacted facilities have had an adequate opportunity to comment on the methods and calculations EPA used to develop the proposal and final rule. We note that many smaller entities often rely on their trade associations to track and comment on rulemakings that may apply to them; indeed EPA received numerous comments from a variety of agriculture trade associations.

As discussed in the response to EPA-HQ-OAR-2008-0508-0671.1 excerpt 3, even with the corrected estimates of coverage and burden, EPA determined that the manure management thresholds and reporting requirements are reasonable.

Commenter Name: Doug MacTaggart
Commenter Affiliation: C-Lock Technology, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0502.1
Comment Excerpt Number: 8

Comment: We would like to highlight some issues related to the reporting threshold as it affects livestock facilities.

1. If, as stated, facility-level reporting is supposed to improve inventories, but less than 100 operations nationwide would be required to report, the sample size will be too small and selective to significantly improve the national inventory or reduce uncertainty. Based on the 2007 Ag Census, just 16% of livestock and less than 0.1% of operations are accounted for in operations of greater than 5,000 head, which is the minimum population that would exceed the

reporting threshold according to Table JJ- 1. Moreover, it is unlikely that these very large operations would be representative of the sector as a whole.

2. Similarly, if the aim is to use reporting data to inform future policy, for example to help set project baselines in an offset system, this selective and limited sample would not provide a good baseline representation.

3. Using the emission threshold rather than a size or capacity threshold is likely to cause confusion among operators, especially since annual CH_4 emissions are entirely contingent on stocking rates and manure management decisions. Since most livestock operations have no history of or experience with calculating their GHG emissions, there exists broad scope for error, confusion, and gaming the system. Moreover, water quality priorities (enclosed manure management) may conflict with a desire to reduce GHG emissions in order to avoid reporting (open manure management). Therefore, we propose that GHG reporting be required of all facilities classified as large Concentrated Animal Feeding Operations (CAFO) under 40 CFR 122.23. The resulting sample of approximately 11,000 facilities would represent a statistically valid sample of livestock operations nationwide and significantly improve the basis for national inventory and policy development. Because, by agricultural standards, these are already large businesses that for business purposes maintain good population and management records, the additional burden of estimating GHG emissions should not be onerous. Flexibility in monitoring and quantification methods, as discussed in Part V.H, could be designed to allow operations that are not actively metering or destroying digester methane to use models or emission factors to estimate their emissions based on activity data, feed quality and manure management method. There may be additional unintended consequences of the high reporting threshold for livestock operations. Because of the unavoidable association between reporting requirements and anticipated regulation, the perception that very few livestock producers are likely to be regulated will reduce the incentive to participate in proactive, voluntary emission reduction programs such as AgStar. At present, the entirely voluntary nature of participation in the methane-reduction program has resulted in a relatively small number of registered participants – only 98 dairy operations and far fewer in other livestock classes (per the AgStar database). However, it is notable that even with such minimal incentives in place, operations as small as 200 head (dairy) or 1,000 head (beef) have found it worthwhile to install digesters. Reporting requirements would, at minimum, increase awareness of GHG issues and of the potential for mitigation, and, as such, would likely increase participation in voluntary GHG reduction schemes among small and medium-sized producers.

Response: In response to point 1 and 2, EPA believes that any facility level data obtained by the rule will be useful and informative, see the response to EPA-HQ-OAR-2008-0508-0724.1, excerpt 1 for more explanation. In response to point 3, EPA has developed more detailed tables and tool to help facilities determine if they exceed the threshold, see the response to comment EPA-HQ-OAR-2008-0508-0336.1 excerpt 10 for more information. EPA does not agree that the manure management threshold level be changed to encompass all CAFOs. Requiring that all CAFOs report their emissions would create too much industry burden and would include some facilities with low GHG emissions. EPA does not believe that facilities will sacrifice water quality concerns with a desire to reduce GHG emissions. In fact, EPA has concluded that this rule will increase the incentive to install digester systems--which can both reduce of GHG emissions and water pollution--for the reasons described in the response to comment EPA-HQ-OAR-2008-0508-365.1 excerpt 14.

Commenter Name: Brad Bateman
Commenter Affiliation: Western States Dairy Producers Trade Association
Document Control Number: EPA-HQ-OAR-2008-0508-0365.1
Comment Excerpt Number: 8

Comment: EPA's assertion that the rulemaking will only apply to a small number of dairy farms or "fewer than 50 manure management systems" (page 594) is not based on peer reviewed science. How are the smaller (less than 5,000 animals) dairies—the ones who are supposed to be assured by this assertion—able to know whether they will be required to report if the scientific basis for calculating emissions thresholds are wrong?

Response: EPA does not agree that basis for calculating emissions thresholds is wrong; in addition, this is not an analysis that would typically be peer-reviewed, although it has been subject to the notice and comment procedures with this rulemaking. However, the methodologies and data for the analysis are from sources subject to peer review. See EPA-HQ-OAR-2008-0508-365.1 excerpt 5 for more information about these sources. See the response to comment EPA-HQ-OAR-2008-0508-0671.1 excerpt 3 for more information about the threshold analysis. In response to comments, EPA has developed more detailed tables and a tool to help facilities determine if they exceed the threshold, as described in the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10.

Commenter Name: Brad Bateman
Commenter Affiliation: Western States Dairy Producers Trade Association
Document Control Number: EPA-HQ-OAR-2008-0508-0365.1
Comment Excerpt Number: 7

Comment: EPA's rulemaking creates a litigation trap for dairy farm owners and operators. The certification requirements (page 860-865) in 40 CFR 98.4 mandate that each dairy farm designate an individual to certify the accuracy of the GHG emissions report, under penalty of perjury. However, EPA admits that the GHG information requested is not available and that the mathematical formulas upon which such calculations are made are basically guesswork. The EPA does not present peer review scientific formulas to assist dairy farm owners and operators in calculating emissions. A better alternative is for the EPA to set a reporting threshold in terms of (1) the number of animals, (2) the type of dairy system, and (3) climate zone. Then, the EPA can calculate the emission factors using available science. Under this system, dairy owners will save costs, paperwork will be reduced, and dairies will be protected from civil and criminal penalties resulting from disputes regarding the lack of scientific basis of the calculations.

Response: Regarding the comment that the emissions methodologies are “guesswork”, see the response to comment EPA-HQ-OAR-2008-0508-365.1, excerpt 5. For more information on the steps EPA is taking in response to comments to help manure management facilities better determine if they might be subject to the requirements of the rule, see comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10.

Facilities must estimate emissions using the methodologies provided in the rule and based on their facility specific activity data and conditions; because the facility has access to these data and are familiar with the facility operating practices and conditions, this should not be overly

burdensome. In fact, as discussed in this document and the preamble, EPA made several changes to the proposal in response to comments to reduce burden and simplify emissions reporting. For information on compliance and enforcement see response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 6.

Commenter Name: Brad Bateman
Commenter Affiliation: Western States Dairy Producers Trade Association
Document Control Number: EPA-HQ-OAR-2008-0508-0365.1
Comment Excerpt Number: 6

Comment: The EPA admits that Table JJ-1 "Estimated head of Livestock to meet Thresholds" is scientifically inaccurate with EPA stating that it presents "the estimated head of livestock" to meet thresholds. EPA states that Table JJ-1 is to be used as a "screening" guide to determine the approximate facility size that meets the applicability requirements.". This advice is not helpful as Table JJ-1 does not give dairy owners and operators sufficient information to determine with any confidence if they meet or exceed the EPA emissions threshold. Since errors in calculating emissions are punishable by civil and criminal penalties, the EPA needs to develop accurate emissions in calculation methods through peer reviewed scientific studies which are understandable by the regulated community. The EPA's discussion of the emission thresholds as being designed to affect "fewer than 50 manure management systems" is inaccurate given the EPA's admission that Table 3.1-1 is not accurate.

Response: In response to comments, EPA has added more information to the final rule to help manure management facilities better determine if they might be subject to the requirements of the rule, see the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10 for more details.

The emission calculations developed by EPA are based on methodologies used by the U.S. GHG inventory and the IPCC; both of these sources have undergone a review process during their development. See the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5 for more information about the methodologies. The estimated numbers of affected farms are based on the threshold analysis, see the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3 for a response to comments about the threshold analysis.

In the proposal, the qualifications related to Table JJ-1 were intended to clarify that this Table provided general information, and that reporters should evaluate the applicability of the threshold under their specific farm conditions if it appeared from the general assessment that they were close to the threshold. This table has been replaced in the final rule with a threshold look-up table. We consider the information provided in the rule to be helpful because it will enable most facilities, especially small ones, to quickly determine that the rule does not apply to them. For more information on the threshold table, and on other guidance to livestock operations, see response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10. If reporters accurately apply the methods in the rule at their facilities and report the required information to EPA on time, they need not worry about compliance and enforcement. See the preamble, Section VI on Compliance and Enforcement for responses to general comments on this issue.

Commenter Name: Stewart T. Leeth

Commenter Affiliation: Smithfield Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0553.1
Comment Excerpt Number: 6

Comment: Smithfield makes the following recommendations on different reporting thresholds for the swine segment of the manure management category. First, the reporting rule should focus on expected results, not generic (and disputed) criteria that will produce uncertain results. Since EPA estimated (twice, using different head counts) that 8 swine farms would report at an emissions threshold of 25,000 mtCO_2e, and, since EPA proposed the rule, EPA appears to be satisfied with this level of reporting by the industry. In order to provide EPA with at least the results it expected, but also to protect smaller farming companies and limit somewhat the reporting burden on any company, Smithfield believes that (1) all companies with 20 or fewer farms should be excluded from the reporting rule altogether; and (2) that no company (including subsidiaries) should be required to report emissions from more than its four largest farms, regardless of how many are covered under the (disputed) applicability criteria. Smithfield expects that this approach will provide EPA with data on substantially more than the eight farms it expected as a result of the proposal, but will limit the burdens on any one company and also protect smaller companies. This approach will also limit any dispute over the number of head required to meet the reporting threshold, since even under the lower number of head Smithfield believes would trigger the reporting obligation as proposed, the number of farms that need to report would be capped at four.

Response: For more information about the threshold analysis, see comment EPA-HQ-OAR-2008-0508-0671.1 excerpt 3. EPA is requiring all manure management facilities that meet the GHG reporting threshold level of 25,000 metric tons of CO2e per year to report emissions in accordance with the rule. EPA acknowledges that companies may be required to report on more than one of their facilities. EPA is requiring facilities with the largest quantity of emissions to report under this rule in order to obtain site specific facility-level data. The importance of facility level data is discussed in EPA-HQ-OAR-2008-0508-0724.1, excerpt 1.

The commenter's suggested approach may exclude large farms with significant emissions from reporting under this rule, which will not provide a consistent data set for farms above the threshold The fact that we estimated that 8 swine farm were covered by the rule at proposal does not mean that we "were satisfied" with that specific number of farms. In fact, we determined broadly that the 25,000 metric ton CO2e threshold effectively balanced the reporting burden with the value of the data collected. Based on the updated threshold analysis, we have still concluded that the 25,000 metric ton threshold is appropriate. It was EPA's intent to cover facilities that emitted above the 25,000 metric tons or more of CO2e per year; not to cover a specific number of agricultural facilities. For more information, see the response to comment EPA-HQ-OAR-2008-0508-0395.1, excerpt 11.

Finally, the applicability criteria are not "disputed". The provisions of the rule are applicable to facilities covered under the rule at 25,000 metric tons CO2e. EPA agrees that the initial estimate of the number of farms was in error, and the error has been corrected.

Commenter Name: Steven M. Maruszewski
Commenter Affiliation: Pennsylvania State University (Penn State)
Document Control Number: EPA-HQ-OAR-2008-0508-0409.1
Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

Comment Excerpt Number: 15

Comment: According to the preamble, the threshold for manure management (p595) "includes the largest emitters of GHG from this source category, while avoiding reporting from many small farms with less significant emissions" and (p594) "it is estimated that at the proposed threshold, fewer than 50 manure management systems at beef, dairy, and swine operations would be required to report." Penn State's animal program is not considered a CAFO (Concentrated Animal Feeding Operation). It is a small farm operation by regulatory standards. Using Table H-1 (Preamble p593) as a guide, Penn State's animal management and research programs are significantly below these limits. As discussed previously, Penn State has diverse operations and research activities that could inadvertently place the facility in the situation of reporting under SS 98.2 (a)(2). The reporting threshold for manure management, SS 98.361, states "You must report GHG emissions under this subpart if your facility contains a manure management system and the facility meets the requirements of either SS 98.2(a)(1) or (2)." It is unlikely that EPA intended for a facility such as Penn State to report under this subcategory. In fact, the additional burden associated with the complex reporting for these research and academic activities could harm the program. Penn State recommends a research exemption be added to the manure management source category.

Response: : The requirements listed at § 98.2(a)(1) state that only manure management systems that emit CH4 and N2O in amounts equivalent to 25,000 metric tons CO2e or more per year must report under this rule. Because manure management is covered by § 98.2(a)(1), it is not added to emissions from other source categories at the facility to determine applicability for the entire facility. A manure management system emitting fewer than 25,000 metric tons/yr CO2e per year does not meet the description of the manure management source category, as listed in 98.2(a)(1). A facility would only have to report emissions from manure management if emissions from the manure management system exceeded the 25,000 metric tons of CO2 per year threshold (e.g., if the University triggered the rule due to emissions of stationary fuel combustion, but emissions from the manure management system were below 25,000 metric tons per year CO2e, it would not report emissions from manure management).

Based on the number of head of livestock needed to reach the 25,000 metric tons CO2e, EPA doesn't expect any facilities categorized as research farms to be required to report. However, the final rule does include an exemption for research and development activities. See the preamble discussion under other general rule requirements for the full explanation of the research and development exemption.

See also the preamble and the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10 for information on the threshold table provided in the final rule.

Commenter Name: Justin Oldfield
Commenter Affiliation: California Cattlemen's Association (CCA)
Document Control Number: EPA-HQ-OAR-2008-0508-0383
Comment Excerpt Number: 5

Comment: CCA suggests EPA closer evaluate emissions from dry lot corrals measured under the National Air Emission Monitoring Study (NAEMS). Preliminary work has been completed measuring methane emissions from dry lot corrals on dairies in California. While methane

emissions from dry lot corrals should not be used to estimate methane emissions from feedlots, evaluating the NAEMS data will provide better insight on whether or not data gathered by flux chambers and other technologies used to calculate the thresholds under the proposed rule are consistent with data gathered by the methods used in the NAEMS study. EPA should make every effort to conduct this exercise to be sure any proposed regulations are based on sound science and research.

Response: EPA recognizes that there is an ongoing study of air emissions from animal feeding operations that has conducted preliminary measurements, including those in California, see the response to comment EPA-HQ-OAR-2008-0508-0854.1, excerpt 6.

The methodologies EPA developed for estimating emissions are based on sound science and research, see the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5 for more discussion of the methodologies.

Commenter Name: See Table 2
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0395.1
Comment Excerpt Number: 25

Comment: TCFA has carefully and thoroughly reviewed EPA's proposed farm size thresholds for beef cattle facilities. Based on this review; additional discussions with EPA and ERG on April 27, 2009; receipt of a follow-up email from Mr. Tom Wirth, EPA on May 4, 2009 with an attached updated Memo from Ms. Deborah Bartram, ERG dated May 4, 2009, TCFA has documented that EPA and ERG were way off the mark on the farm size threshold for beef cattle facilities that will be affected by this proposed rulemaking. The error is extreme. EPA's proposed beef cattle farm size threshold of 88,923 head one-time capacity is overstated by a factor of 1.7. A reporting threshold of 25,000 MT CO_2e per year would require approximately 130 beef cattle facilities to report emissions, not 11 beef cattle facilities suggested in the preamble by EPA. An error of this magnitude warrants republication of the proposed rule. EPA has led-astray a substantial number of facilities by implying that they would not be subject to this reporting rule and have very likely not engaged in this review and comment process. Without republication of the proposed rule, facilities that rationally assumed they were excluded from the provisions of this rule WOULD be subject to the final rule, if adopted as proposed. This is unacceptable. The only acceptable means of proceeding to a final rule, without republishing, is to establish a beef cattle facilities reporting threshold of 54,436 MT CO2e per year. At that level, an estimated 11 beef cattle facilities would be required to report—as originally proposed by EPA. Errors in the calculations, assumptions, etc. are outlined below:
1. Upon receipt and review of the "Beef Threshold_0501 09.xls" received from ERG through EPA on May 4, 2009, it became apparent that a critical molecular weight conversion of N_2O-N to N_2O was not included. This conversion factor (44/28) is outlined in EPA's equations contained in the proposed rule; however, it was not applied in ERG's GHG calculations. This is a basic, yet critical, flaw in the emissions estimates and must be corrected.
2. Information provided to TCFA by ERG, the EPA contractor, indicates that it used a slightly different equation to estimate emissions from the equations EPA used in the proposed rule. The equation in the proposed rule uses "manure excretion rate" and separate percentages for "volatile solids" and "nitrogen content". However, the calculations provided by ERG include single values to represent a "volatile solids excretion rate" and a "nitrogen excretion rate." For the sake of

clarity and transparency in the calculations, TCFA strongly urges the EPA to be consistent and use equations in the proposed rule that are backed up by supporting and supplementary documents provided by EPA and its contractors. Otherwise, any rationale behind equations proposed is suspect.

3. The source of data utilized by EPA and ERG for the following factors was the USDANRCS Animal Waste Management Field Handbook, 1992, Table 4-8. Note the source data for many of the manure related data in this reference is 30+ years old. TCFA urges the EPA to use more accurate and up-to-date data. In the early half of this decade, an extensive scientific effort was undertaken by multidisciplinary team (engineers, animal scientists, nutritionists and others) including several land grant universities, USDA-NRCS, consultants, etc. to review and update the current state-of-the-science relative to animal manure production and characteristics. This effort culminated with the publication of a "Manure Production and Characteristics" standard by the American Society of Agricultural and Biological Engineers (ASABE), D384.2, March 2005 [See DCN:EPA-HQ-OAR-2008-0508-0395.1 for Attachment #5]. TCFA urges the EPA to use this more accurate, up-to-date data. The D384.2 ASABE standard includes Table 1. Section 3 – Estimated typical manure (urine and feces combined) characteristics as excreted by "Beef – Finishing cattle" [See DCN:EPA-HQ-OAR-2008-0508-0395.1 for calculations showing the manure exretion rate, volatile solids content and nitrogen content]. In addition, there is no need to differentiate between steers and heifers for volatile solids excretion rate or differing methane conversion factors for liquid/slurry. In the calculation worksheet provided by ERG, slightly different values were used for volatile solids and methane conversion factors for liquid/slurry. Current data does not support two different values for these input variables.

4. The EPA has assumed a value of 0.85% for the "fraction of VS entering liquid/slurry system with solids separation" and "fraction of N entering liquid/slurry system with solids separation." However, neither the proposed rule nor the additional information obtained from EPA or ERG provide the reference for this assumed value of 0.85%. If EPA adopts a final GHG mandatory reporting rule, we request that EPA provide the original source of all equations, values, assumptions, constants, variables, etc. used to determine the GHG emissions estimates.

5. ATTACHED is an Excel spreadsheet labeled "Manure Management – Beef Cattle Feedyard Estimates of Greenhouse Gases, May 2009" [See DCN:EPA-HQ-OAR-2008-0508-0395.1 for Attachment #3] that includes all the updated assumptions and input variables listed above. The reference/source of all input data/assumptions are noted in parentheses to the right of each number. [See DCN:EPA-HQ-OAR-2008-0508-0395.1 for table showing a comparison of farm size thresholds (one time capacity) among calculated estimates] Additional correction and updates to EPA's equation (corrected for N_2O conversion factor and using ASABE data—[See DCN:EPA-HQ-OAR-2008-0508-0395.1 for Attachment #4] shows that in order to meet its stated balance of "reporting" and "burden" on facilities the reporting threshold for manure management at open air beef cattle facilities would have to be increased to 54,436 MT CO_2e per year. TCFA encourages the EPA to make this adjustment in an effort to enable the EPA to be consistent with the expressed intent of only subjecting 11 beef cattle facilities with a one-time capacity of 88,923 head to the GHG mandatory reporting requirement. TCFA strongly recommends that EPA clearly state in the final rule that any beef cattle facility with a drylot and stormwater pond manure management system that maintains (on an annual daily average) an inventory of cattle that is 88,923 head or less IS NOT subject to the provisions of this GHG emissions mandatory reporting rule. This would eliminate the need for those facilities with 88,923 head or less to analyze monthly manure samples for volatile solids and nitrogen, calculate emissions at the end of a calendar year, and prevent them from expending valuable time and resources to re-verify an emissions threshold estimate that has already been calculated and published in the final rule.

Response: EPA has made revisions to the threshold analysis based on information provided in this comment, see the preamble for a general discussion of the threshold analysis and the revisions. Although EPA has made revisions, there is not a need to renotice the rule, as previously discussed in the response to EPA-HQ-OAR-2008-0508-0553.1 excerpt 8. In addition, although the number of facilities required to report has increased, EPA has determined that there is still a balance between the number of reporters and the amount of burden, as discussed in the response to EPA-HQ-OAR-2008-0508-0671.1 excerpt 3. For information on facilities that would not be subject to the final rule due to low head counts, see EPA-HQ-OAR-2008-0508-0336.1 excerpt 10.

The specific items listed by the commenter are addressed below:

1. The molecular weight conversion of N_2O-N to N_2O was added into the analysis.
2. The threshold analysis was previously using a slightly different equation to estimate emissions from the equations EPA used in the proposed rule because the proposed rule was suggesting the use of facility-specific measured volatile solids (VS) and nitrogen (N) data. EPA has removed the requirement for VS and N measurement data and the calculations in the final rule match the calculations in the threshold analysis.
3. EPA is using activity data that is consistent with the U.S. greenhouse gas inventory for manure management. In the final rule, EPA has updated the nitrogen excretion data used for cattle to include information on animal diets. See the response to EPA-HQ-OAR-2008-0508-0425.1, excerpt 11 for more information about the rationale EPA used to select the data sources for these factors. The data used by EPA support the values used for steers and heifers. For more information on the methodologies used in the rule, see the response to EPA-HQ-OAR-2008-0508-0365.1, excerpt 5.
4. EPA has made efforts to better document the sources of all data used in the calculations in the final rule. The percent of volatile solids and nitrogen removed by solids separation were obtained from EPA's *Development Document for the Final Revisions to the National Pollutant Discharge Elimination System (NPDES) Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations* (EPA-821-R-03-001).
5. EPA's revised threshold analysis is available in the docket for this rule. As stated above, although the number of facilities required to report has increased, EPA has determined that there is still a balance between the number of reporters and the amount of burden, as discussed in the response to EPA-HQ-OAR-2008-0508-0671.1 excerpt 3.

Commenter Name: Stewart T. Leeth
Commenter Affiliation: Smithfield Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0553.1
Comment Excerpt Number: 5

Comment: As discussed in the AMI comments, Smithfield believes EPA has woefully underestimated the number of swine farms that would be required to report under the proposed reporting threshold of 25,000 mtCO_2e. As noted in the preamble, "[it is estimated that at the proposed threshold, fewer than 50 manure management systems at beef, dairy and swine operations would be required to report." (74 Fed. Reg. at 16,562). For swine farms, EPA estimated that 8 swine farms would likely be subject to the rule (EPA, Table 2, Technical Support Document for Manure Management Systems, p. 9, 2009). Notably, as discussed further

below, EPA "corrected" its manure management emission calculations in a memorandum dated May 28, 2009 and posted last week, effectively dropping the number of head of swine estimated to exceed the emissions threshold by over 30%, but continued to maintain that only 8 swine farms would be subject to the rule ("Revisions to Manure Management Threshold Calculation" ("Revisions Memorandum")). NPPC, working closely with industry and university scientists and engineers, has been unable to replicate this figure using the data and formulas supplied by EPA in the draft rule. Smithfield alone has more than 8 swine farms that will need to report and believes there may be as many as 40 to 50 swine farms in the nation that will need to report. Smithfield believes that figure of 50 reporting manure management systems for all animals types is in fact closer to the number of manure management systems that would be required to report for the swine operations alone. EPA's underestimate stems from two issues. First, EPA has no data on and therefore no idea about, the number of swine farms that would contain enough animals to trigger the reporting thresholds. EPA estimates, originally based on model "Swine Farm 2," that 72,839 head of swine (plus anaerobic lagoon) would be required before a facility would exceed the reporting threshold. (Technical Support Document for Food Processing Facilities, p. 9, 2009). EPA later dropped this number to 49,677 in the Revisions Memorandum. EPA originally attempted to estimate the number of swine farms that would contain that 72,839 head. In making this estimate, EPA acknowledges that it has no direct data to "determine how many farms of such sizes exist." (74 Fed. Reg. at 16,562). EPA then asserts that it developed its estimate "using expert judgment." Id. However, closer review indicates that EPA did not actually use "expert judgment," but simply hazarded a guess. As noted in the TSD, the estimates on the number of farms that would exceed the emissions reporting threshold comes from an underlying January 20, 2009 memorandum "Threshold Farm Count Analysis for Manure Management" ("Farm Memorandum"). (Technical Support Document for Food Processing Facilities, p. 7, 2009). That memorandum states that USDA data only provide information about the number of swine operations over a certain size (i.e., the number of swine operations with > 5,000 head). Farm Memorandum at 2. To derive the estimated number of swine farms that would be expected to exceed the GHG reporting thresholds, and using the 10,000 ton reporting threshold as an example, the Farm Memorandum states: "ERG assumed that 10 percent of the swine operations with more than 5000 head also had more than 26,400 head." Id. There is no stated basis for this "assumption," and none probably exists. In the end, however, EPA's estimate of the number of swine farms that would be subject to the reporting threshold is not, as EPA states, based on its "expert judgment." Rather, it is simply a guess. Incredibly, after EPA revised the number of head that would trigger the threshold from 72,839 to 49,677 in the Revisions Memorandum – a drop in excess of 30% - EPA still concluded that only 8 swine farms would be subject to the reporting requirement. That EPA could drop its trigger threshold by over 30% and still conclude that only 8 swine farms would be subject to the rule is further evidence that EPA really has no idea how many swine farms have 49,677 head, just as it had no idea how many swine farms had 72,839 head. Smithfield, as noted elsewhere in these comments, also disagrees with EPA's assumption that a farm of 73,000 swine would be necessary to trigger the reporting threshold. We have carefully evaluated this issue and believe that a farm with 19,000 sows or 40,000 Farrow-toFinish with a lagoon would be sufficient to trigger the reporting threshold. Smithfield notes that EPA has just revised its threshold head number to 49,677, and, while it has not had time to analyze the basis for the new number, Smithfield continues to believe that the number of head of swine that would trigger the reporting threshold is lower than what EPA estimates. More importantly, it seems obvious that at least some farms would be subject to reporting using Smithfield's numbers, but not subject to reporting using EPA's, leading to an unacceptable level of regulatory uncertainty. In sum, Smithfield not only believes it would be required to report emissions from substantially more farms than EPA predicts under an emissions-based threshold,

it is also very concerned that many of the 300-400 smaller independent swine farm owners would also be required to report. Smithfield is further concerned that some farms, including farms owned by smaller independent farmers, would not be able reliably to determine whether they are subject to reporting due to the discrepancies between industry's and EPA's emissions numbers. Since neither EPA, nor we, really have any way of knowing how many farms might exist that would trigger any reporting threshold because there are no national data on the number of head of swine that actually exist on "large" farms, and since there is a legitimate dispute as to the number of animal head that would likely trigger reporting, it is clear that changes to the facilities subject to reporting are appropriate. EPA evaluated several alternative reporting thresholds such as systems of certain sizes based on population of animals served, design capacity, or volatile solids or manure and rejected all of them due to poor correlation between these characteristics and emissions. (Technical Support Document for Food Processing Facilities, pp. 9-10, 2009). It also evaluated higher reporting thresholds, such as 100,000 $mtCO_2e$, but rejected that approach because no facilities would be expected to be covered. However, none of these approaches can be expected to produce reasonable results as to scope of coverage given (1) unknowns about how many head of swine actually are on "large" swine farms over 5,000 head, and (2) the dispute over the number of head needed to cross a specified emissions threshold.

Response: As described in the preamble, EPA used the most accurate available methods and data to estimate the number of farms at each threshold. For more information on the methodologies used in the rule, see the response to EPA-HQ-OAR-2008-0508-0365.1, excerpt 5.In the final rule, EPA made revisions to the threshold analysis spreadsheet calculations based on information and data provided by commenters, as described in comment EPA-HQ-OAR-2008-0508-0671.1 excerpt 3.

The estimated number of swine farms reaching the threshold levels were based on farm size data obtained from the U.S. Department of Agriculture (USDA). The USDA size category for large swine farms is “greater than 5000 swine”; and there are no data publicly available to further break out this category. EPA used best professional judgment based on their knowledge of the animal agriculture industry to develop estimates of the number of operations at levels greater than 5,000 head of swine. The commenter has not provided specific data for EPA to incorporate into the analysis, so for the final rule EPA has continued to use best professional judgment to estimate farm counts.

The number of swine needed to be present at a facility in order to exceed the threshold varies based on a variety of factors including but not limited to the manure management system components present, the types of animals present at the operation, and the climate. EPA has made a number of assumptions to develop the threshold estimates, as described in the threshold analysis spreadsheet. EPA’s assumptions may vary from Smithfield’s assumptions, which would explain the differences in emissions estimates. However, Smithfield did not provide the assumptions or calculations used so EPA is unable to determine where differences may exist.

For the final rule, EPA has developed more detailed applicability tables and tools to assist livestock facilities with determining if they need to report their emissions, see the preamble and comment EPA-HQ-OAR-2008-0508-0336.1 excerpt 10 for more information. See the preamble for more information on thresholds selected for this rule.

Commenter Name: Paul Sherman

Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

Commenter Affiliation: North Carolina Farm Bureau Federation (NCFB)
Document Control Number: EPA-HQ-OAR-2008-0508-0429.1
Comment Excerpt Number: 4

Comment: The proposal asks for comment on the advantages or disadvantages of using screening tools such as look up tables or computerized calculator to help owners and facility operators determine whether they meet the reporting threshold. Facility operators are responsible for determining whether the facility meets the reporting threshold under the rule. Most if not all of the manure management facilities that will be covered under this rule are likely to be subject to Clean Air Act reporting requirements for the first time. Emissions calculations for manure management systems are varied and complicated. We believe that manure management facilities would benefit from such a guide. Before such a screening guide is published, facility size numbers should be determined on sound and transparent science and peer reviewed for accuracy. Such tools have been helpful in other situations, such as the 1605(b) Simplified Emissions Inventory Tool or the COMET -VR carbon measurement tool. Such guides should be one tool available to facilities to determine whether it meets the reporting threshold if it chooses to use it. Facilities should also be able to use other tools for measuring emissions to determine applicability of the reporting requirements as well. Facilities are not all alike.

Response: EPA agrees that such tools would facilitate compliance with the rule and ease the burden associated with reporting and is developing such a tool for this rule, see the response to EPA-HQ-OAR-2008-0508-0336.1 excerpt 10.

Commenter Name: See Table 3
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0425.1
Comment Excerpt Number: 3

Comment: EPA's "Technical Support Document for Manure Management Systems: Proposed Rule for Mandatory Reporting of Greenhouse Gases" released February 4, 2009, proposed model farm populations that would be required to meet the GHG threshold of 25,000 metric tons (MT) of CO_2 equivalents (CO_2e) per year to trigger the proposed reporting requirement (table 1). However, based on the "Threshold Analysis for Manure Management Practices" (Document ID EPA-HQ-OAR-2008-0508-0273) support document that was used to calculate these population thresholds, EPA's contractor failed to accurately calculate the population thresholds required to trigger reporting requirements using EPA's default values for manure characteristics from various model farms. Based on the manure characteristics and excretion rates assumed by EPA, accurate population thresholds required to trigger reporting requirements are shown in table 1. [See submittal for data table provided by commenter showing the Model Farm Populations Requried to Meet GHG Threshold of 25,000 MT CO_2e per year using EPA's assumptions for manure characteristics.] The errors in population threshold calculations made in the proposed rule resulted in under-estimation of the number of facilities that will be required to report emissions under the rule. In fact, substantially more livestock production facilities will be required to monitor manure characteristics and report emissions than originally projected in the proposed rule. National Cattlemen's Beef Association (NCBA) anticipates that the miscalculation of the threshold population required to trigger reporting requirements will lead to approximately 130 feedyards (almost 12 times the original estimate) falling within reporting requirements compared to the 11 facilities anticipated to report according Section IV.C of the

proposed rule Preamble. Although specific numbers are not available for other animal feeding operations due to the diversity of manure management systems, substantially more dairies and swine operations will also be required to report emissions, leading to greater administrative costs for EPA than originally projected and a greater regulatory compliance burden on the livestock industry. If similar analysis errors apply to other sectors, it is likely that the 25,000 MT CO_2e per year will bring many other smaller sources under the proposed reporting requirement. According to concerns in the Preamble about limiting the number of entities required to report, EPA apparently does not desire to require reporting from such smaller sources. Furthermore, errors of the magnitude demonstrated in table 1 warrant republication of the proposed rule. EPA has unintentionally led astray a substantial number of facilities by implying that they would not be subject to this reporting rule and have very likely not engaged in this review and comment process. Without republication of the proposed rule, facilities that rationally assumed they were excluded from the provisions of this rule would be subject to the final rule, if adopted as proposed. This is unacceptable. CLA requests that EPA republish the proposed rule with accurate population thresholds required to trigger reporting requirements.

Response: EPA has made revisions to the threshold analysis based on information provided by commenters. Although EPA has made revisions, there is not a need to renotice the rule, as previously discussed in the response to EPA-HQ-OAR-2008-0508-0553.1 excerpt 8. In addition, although the number of facilities required to report has increased, EPA has determined that there is still a balance between the number of reporters and the amount of burden. See the response to comment EPA-HQ-OAR-2008-0508-0671.1 excerpt 3 for more information.

Commenter Name: Christian Richter
Commenter Affiliation: US Poultry & Egg Association, National Turkey Federation & National Chicken Council
Document Control Number: EPA-HQ-OAR-2008-0508-0577
Comment Excerpt Number: 2

Comment: We support the Agency's attempt to develop size thresholds in Subpart JJ to determine how large a poultry or turkey farm must be to exceed the proposed GHG reporting level of 25,000 metric tons. However, it has come to our attention that EPA's methodology may require further refinements, including incorporating recent academic research on more accurate estimates of poultry and turkey GHG emissions associated with the decomposition of manure. For example, the latest research by Dr. Hongwei Xin of Iowa State University indicates that a layer operation utilizing a dry litter system would have to house over 15 million birds to exceed EPA's proposed reporting threshold. On the other hand, EPA has estimated that only 895,000 layers operating with a lagoon system will exceed the threshold. While we understand, as the Agency indicates in Subpart JJ, that there is a difference in the handling and storing of manure between wet and dry systems, the order of magnitude difference between these two values warrants additional review by EPA prior to publication of the final rule.

Response: EPA has developed sound emission calculation methodologies, see the response to EPA-HQ-OAR-2008-0508-0365.1, excerpt 5 for more information about the methodologies.

The research performed by Dr. Xin is valuable and it is important to collect measured emissions data to help improve emissions estimate methodologies. However, there are significant differences in the amount of emissions produced by different manure management system

components. A poultry system with dry litter, such as that evaluated by Dr. Xin, would produce much fewer emissions than a poultry system using an anaerobic lagoon. The differences in manure management system components account for the differences in the estimate of animals required to meet the thresholds.

Commenter Name: Kenneth Klippen
Commenter Affiliation: Sparboe Farms
Document Control Number: EPA-HQ-OAR-2008-0508-0327
Comment Excerpt Number: 4

Comment: Manure management systems that emit CH_4 and N_2O in amounts equivalent to 25,000 metric tons CO_2e or more per year will be required to report those emissions. Table JJ-1 Estimated Head of Livestock to Meet Thresholds (p. 16562) as it currently it written overestimates the amount of GHG from poultry facilities. Environmental scientists estimate 25,000 mt CO_2 would be emitted by 15 million laying chickens instead of the 895,000 in the table. We request EPA verify its figures to ensure it is not underestimating the levels by 17 fold for poultry as well as the other animals in the table. A new figure for Table JJ-1 of 15 million laying chickens for the 25,000 mt CO_2 would still provide the data EPA is seeking for GHG emissions without burdening the smaller operators with the process of collecting and reporting emissions. Additionally, as it is currently written, the threshold levels chart for the number of animal units for poultry captures 57 of the top 61 egg production facilities in the US producing 87.5% of the nation's total eggs. While other manure management agricultural entities have threshold levels for estimated head of livestock required to report, it is doubtful that any other industry has this degree of industry penetration for mandatory reporting requirements. We propose that the data for the Table JJ-1 Estimated Head of Livestock to Meet Thresholds be changed to reflect a 17 fold higher number of poultry or 15 million head.

Response: See the response to EPA-HQ-OAR-2008-0508-0327-0577 excerpt 2.

Based on the threshold analysis, EPA does not expect any poultry facilities to exceed the threshold, see the response to 0429.1 excerpt 3 for more information. Note that the reporting required by the rule is on a facility basis and not the corporate level.

Commenter Name: Robert Naerebout
Commenter Affiliation: Idaho Dairymen's Association, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0314.1
Comment Excerpt Number: 23

Comment: The 818 page preamble to the proposed rule contains a table, Table .J.J-1, which attempts to estimate the number of livestock required to meet the 25,000 metric ton threshold for reporting. The data upon which the table is based is not presented, but it appears that the EPA is using the table to argue that only 50 dairies, beef, and swine operations in the country will be subject to the rule. This argument is still based on the fallacy that the EPA could regulate all operations if it so chose, and it is an illusory promise that operations "below the threshold" on the table will not be subject to the reporting requirements.

Response: Estimates of the number of farms that will be subject to the reporting requirements were developed in the threshold analysis, see the preamble and the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3 for more information about the threshold analysis. There is no "illusory promise" regarding reporting. Facilities with emissions below the threshold are not required to report.

EPA has developed new tables and tools to help facilities determine if they are covered under the rule, see comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10

Commenter Name: Robert Naerebout
Commenter Affiliation: Idaho Dairymen's Association, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0314.1
Comment Excerpt Number: 4

Comment: EPA's assertion that the rulemaking will only apply to a small number of dairy farms or "fewer than 50 manure management systems" (594) is misleading and an unnecessary point to make. How are the smaller dairies--the ones who are supposed to be assured or soothed by this assertion--able to know for sure whether they will be regulated if the thresholds upon which this statement is based are unclear? And nothing in the proposed rulemaking limits the EPA from increasing the amount of regulated manure management systems in the future. Finally, assuming that this assertion is true, then what is the justification for creating an overarching, massively complex rule at all? If only 50 manure management systems in the country will be required to report their GHG emissions, it should be sufficient for the EPA to send a Section 114 Clean Air Act information request to those systems. If only 0.005% (50 farms out of 1 million) of U.S. farms is going to have to report, is this at all meaningful or worthwhile? What can be accomplished by this extra detailed reporting? IDA believes the rule will have a broader application to dairies throughout the United States the EPA asserts.

Response: EPA does not agree that there is no value to requiring farms to report under the reporting rule, see the preamble for the response to this comment and also response to comment EPA-HQ-OAR-2008-0508-724.1 excerpt 1. In response to comments, EPA has added more information to the final rule to help manure management facilities better determine if they might be subject to the requirements of the rule, and has also developed outreach materials and training. See EPA-HQ-OAR-2008-0508-336.1 excerpt 10 for more details. If EPA were to change the thresholds in the future, the change would be subject to notice and comment procedures.

Commenter Name: Robert Naerebout
Commenter Affiliation: Idaho Dairymen's Association, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0314.1
Comment Excerpt Number: 3

Comment: EPA's rulemaking creates a litigation trap for dairy farm owners and operators. The certification requiremcnts (860-865) in 40 C.F.R. § 98.4 will mandate that each dairy farm designate an individual to certify the accuracy of the GHG emissions report, under penalty of perjury. However, EPA knows and admits that all information requested is not available and that

the mathematical formulas upon which such calculations are made is basically guesswork. A better alternative would be to set a reporting threshold in terms of the number of cattle and require the dairies exceeding the threshold number to report the existence of their cattle. Then, EPA could calculate the emission factors and the dairy owners would be protected from severe civil and criminal penalties for any disputes regarding the scientific basis of the calculations, which are incredibly complex for anyone without a degree in mathematics or climate science. Dairy owners and operators with such degrees are few and far between.

Response: See the response to EPA-HQ-OAR-2008-0508-0365.1 excerpt 7.

Commenter Name: Paul Sherman
Commenter Affiliation: North Carolina Farm Bureau Federation (NCFB)
Document Control Number: EPA-HQ-OAR-2008-0508-0429.1
Comment Excerpt Number: 6

Comment: The proposal is seeking comment on the option of using a generation threshold instead of the proposed emissions threshold. Proactive facility operators that choose to combust methane as an energy source or environmental credit should not be penalized by having a reporting threshold that does not give credit for their actions.

Response: See the response to EPA-HQ-OAR-2008-0508-0365.1 excerpt 14.

Commenter Name: Christina Gruenhagen
Commenter Affiliation: Iowa Farm Bureau Federation (IFBF)
Document Control Number: EPA-HQ-OAR-2008-0508-0470.1
Comment Excerpt Number: 8

Comment: The proposed rule projects that manure management systems from beef, dairy, hogs and poultry may be covered by the reporting requirements of this rule. The proposal also estimates that a total of about 40 to 50 beef, dairy or swine operations might be subject to the rule. This analysis omits any discussion of the number of poultry operations that may be affected by this rule. Estimates from the state of Iowa's regulatory database indicate there could be as many as 26 facilities in our state subject to the reporting requirements. We suspect that the number of manure management facilities affected by this rule is greatly understated if poultry operations are considered and the screening thresholds are accurate. We request that the Regulatory Impact Analysis be amended to reflect the possible impact on poultry operations.

Response: EPA does not expect any poultry facilities to exceed the reporting threshold, see the response to comment EPA-HQ-OAR-2008-0508-0429.1 excerpt 3 for more information. See the response to comment EPA-HQ-OAR-2008-0508-0671.1 excerpt 3 for a description of the threshold analysis

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Commenter Name: Matthew Frank

Commenter Affiliation: Wisconsin Department of Natural Resources
Document Control Number: EPA-HQ-OAR-2008-0508-1062.1
Comment Excerpt Number: 35

Comment: EPA does not provide emission factors for manure management. Until these emission factors are available, the determination of whether a farm is in or out of the reporting requirement cannot be made.

Response: EPA has developed emission calculation methodologies which are described in the preamble and in the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5. In addition, EPA has provided default activity data (including emission factors) to use in the emission calculations in Tables JJ-1 through JJ-7 of the final rule.

Commenter Name: J. Jared Snyder
Commenter Affiliation: New York State Department of Environmental Conservation
Document Control Number: EPA-HQ-OAR-2008-0508-1184
Comment Excerpt Number: 15

Comment: The Department estimates that with respect to concentrated animal feeding operations (CAFOs} (Agriculture & Livestock Sectors), New York would not have any CAFOs that fall into the largest 40 to 50 CAFOs in the U.S. Since EPA's current proposed rule is not expected to affect CAFOs in New York State, the Department comments only that a screening tool such as a look up table or computerized calculator to help owners or operators determine if they meet the reporting threshold would be useful.

Response: EPA has revised its estimate of livestock operations subject to the reporting rule from approximately 40-50 to approximately 100-110. See EPA-HQ-OAR-2008-0508-671.1 excerpt 3 for more details. EPA is intending to develop several applicability tools that can assist facilities in determining whether they exceed the threshold and would be required to report. All facilities would be required to consult the tools provided in the rule to determine if they must report. Refer to the response to EPA-HQ-OAR-2008-0508-336.1 excerpt 10.

Commenter Name: Jennifer Reed-Harry
Commenter Affiliation: PennAg Industries Association
Document Control Number: EPA-HQ-OAR-2008-0508-0948.1
Comment Excerpt Number: 8

Comment: We do not support lowering the animal numbers/head listed in Section JJ of the proposed rule.

Response: EPA has made corrections to the threshold analysis calculations that in some cases lowered the threshold head numbers; see comment EPA-HQ-OAR-2008-0508-0671.1 excerpt 3 for more information about the threshold analysis and the revisions. However, the threshold value (25,000 metric tons of CO2e per year) remains unchanged.

Commenter Name: Calvin B. Parnell, Jr.
Commenter Affiliation: Texas A&M University et al.
Document Control Number: EPA-HQ-OAR-2008-0508-0667.1
Comment Excerpt Number: 7

Comment: The number of cattle on feed yards that would result in required mandatory reporting was listed as 89,000 head. This number is incorrect. Using the data in table 1 [SEE DCN:EPA-HQ-OAR-2008-0508-0667.1 TABLE 1] and the reported 14 million (106) head as the total number of head on feed yards in the U.S., the 25,000 tonnes corresponds to 37,600 head not 89,000 head. Calculations: (Reference Table 1) [SEE DCN:EPA-HQ-OAR-2008-0508-0667.1 PAGE 6 FOR CALCULATIONS]

Response: See the preamble and the responses to comments EPA-HQ-OAR-2008-0508-0365.1, excerpt 5 and EPA-HQ-OAR-2008-0508-0671.1, excerpt 3 for a description of the threshold analysis and methodologies used to estimate emissions. The emissions calculation performed by the commenter was a simplified analysis based on available total emissions and population data. EPA's analysis uses more detailed emission estimate methodologies and activity data and is therefore more accurate.

Commenter Name: See Table 1
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0435.1
Comment Excerpt Number: 6

Comment: EPA states in the preamble to the rule that a swine farm with 73,000 head of farrow-to-finish production will meet or exceed the threshold reporting quantity of 25,000 tons per year of CO_2 equivalent. NPPC, working closely with industry and university scientists and engineers, has been unable to replicate this figure using the data and formulas supplied by EPA in the draft rule. Because the number of facilities affected by the rule and the economic analysis are greatly affected by this calculation, EPA should verify the calculation and republish the rule with the complete methodology so that all potentially affected facilities may have an opportunity to review and comment on the rule.

Response: For information about the threshold analysis, revisions made to the analysis (which may explain the discrepancy between the commenter's results and EPA's), and the reevaluation of the economic analysis, see EPA-HQ-OAR-2008-0508-0671.1 excerpt 3. EPA is not required to republish the rule, refer to the response to comment EPA-HQ-OAR-2008-0508-0553.1 excerpt 8 for more information.

Commenter Name: Mark Gibbons
Commenter Affiliation: Dairy Producers of Utah
Document Control Number: EPA-HQ-OAR-2008-0508-1567
Comment Excerpt Number: 4

Comment: EPA's numbers for livestock emissions are not scientifically based. Since a mistake using these numbers could be punishable by law, they should be accurate and repeatable. EPA should provide the tables to be used in the calculations.

Response: EPA does not agree that the numbers for livestock emission are not scientifically based. EPA has developed sound emission calculation methodologies, see the preamble and the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5 for more information about the methodologies.

Commenter Name: Mark Gibbons
Commenter Affiliation: Dairy Producers of Utah
Document Control Number: EPA-HQ-OAR-2008-0508-1567
Comment Excerpt Number: 3

Comment: Emission Thresholds are not based on Good Science. EPA's "thresholds" of 1,000, 10,000, 25,000 and 100,000 metric tons of carbon dioxide equivalents (COze) per year for methane and nitrous oxide are arbitrary and unscientific. EPA appears to have made up the threshold emission numbers. Explain the relevance of the selected numbers.

Response: Responses to general comments on the threshold are covered in the preamble, and also Response to Comments Volume No.: 2, Selection of Reporting Thresholds, Greenhouses Gases, and De Minimis Provisions..

Commenter Name: Donald R. Schregardus
Commenter Affiliation: Department of the Navy, Department of Defense (DoD)
Document Control Number: EPA-HQ-OAR-2008-0508-0381.1
Comment Excerpt Number: 3

Comment: Subpart JJ for manure management does not clearly specify the reporting thresholds that are described in the preamble and Technical Support Documents. The preamble and Technical Support Document for this source category, comparable to the discussion on landfills above, suggest that EPA is limiting the source category to manure management systems from the largest farms in the U.S., those that generate CH_4 in amounts equivalent to 25,000 metric tons CO_2e or more per year. However, Subpart JJ is inconsistent with the preamble in that it would require a facility that is subject to the rule by § 98.2(a)(2) and has a manure management system to report GHG emissions regardless of the size of the source, for example small horse stables. We believe it is EPA's intent to cover only the largest manure management systems, but the proposed rule language is not clear. We recommend to EPA to modify the following paragraph in the rule language: § 98.361 Reporting threshold. You must report GHG emissions under this subpart if your facility contains a manure management system that emits CH_4 and N_2O in amounts equivalent to 25,000 metric tons CO_2e or more per year and the facility meets the requirements of either § 98.2 (a) (1) or (2).

Response: See the response to comment EPA-HQ-OAR-2008-0508-0409.1 excerpt 15.

Commenter Name: Rechelle Hollowaty
Commenter Affiliation: Tyson Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0379.1

Comment Excerpt Number: 13

Comment: Regarding EPA's request for comment on the advantages and disadvantages of using additional screening tools such as look up tables or computerized calculators to help owner / operators determine if they meet the reporting threshold Tyson encourages EPA to develop additional screening tools such as look up tables and computerized calculators, such as web based calculators. Tyson recommends that EPA provide such information in multiple media, such as written documents, webinars, and town hall meetings. It is imperative that this information be made available to producers well in advance of the proposed rule becoming final.

Response: EPA agrees with the commenter on the usefulness of outreach on the rule's requirements. See the response to comment EPA-HQ-OAR-2008-0508-0336.1 excerpt 10.

Commenter Name: Roni Neff
Commenter Affiliation: Johns Hopkins University Bloomberg School of Public Health
Document Control Number: EPA-HQ-OAR-2008-0508-0595
Comment Excerpt Number: 12

Comment: As it stands, the reporting system will capture only 40-50 of the very largest CAFOs. By expanding the limit to 10,000 mtCO_2e, EPA would be able to capture data on over 5 times the GHG emissions, according to the TSP document (p.9). A tiered reporting system might enable facilities in the 10,000 to 25,000 range to provide less detailed reports, but still enable capture of data about their emissions, enable including them in policy decisions relevant to the CAFO or agricultural industries, and enable a broader base of data by which to gain insight about emissions and strategies for reduction. Given the vertically integrated nature of much of agriculture, we note that many smaller producers have relatively little control over their operations. If developing a rule for reporting that would affect smaller facilities, we urge EPA to consider placing the primary obligation upon the corporate integrators rather than the individual farmers within their networks.

Response: EPA has revised its estimate of livestock operations subject to the reporting rule from approximately 40-50 to approximately 100-110. See EPA-HQ-OAR-2008-0508-671.1 excerpt 3 for more details. The final rule requires that manure management systems that emit CH4 and N2O in amounts equivalent to 25,000 metric tons CO2e or more per year must report under this rule. EPA recognizes that only very large farms will be required to report at this threshold level and small producers will not be affected; EPA has set the threshold at the proposed level in order to minimize the burden on small and medium sized livestock facilities. For the rationale on why EPA requires facility, not corporate reporting, see the Response to Comments on the Source Categories to Report, and also response to comment EPA-HQ-OAR-2008-0508-0724.1 excerpt 1.

Commenter Name: See Table 4
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0635
Comment Excerpt Number: 54

Comment: According to EPA's 2009 Inventory of U.S. Greenhouse Gas Emissions and Sinks, livestock emissions from the anaerobic decomposition of manure from managed lagoons, ponds, tanks, and pits account for approximately 56 million metric tons (MMt) of carbon dioxide equivalents (CO_2e) per year, or roughly 30 percent of total livestock-related emissions. We support the reporting rule's requirement that livestock operations report annual aggregate methane (CH_4) and nitrous oxide (N_2O) emissions for each of the specified manure management system components at their facility if they result in emissions of at least 25,000 $MtCO_2e$ per year. We believe it is an important step in gathering high-quality data on an increasingly consolidating livestock industry, [FOOTNOTE: According to the USDA, U.S. agricultural operations such as dairy farms are consolidating into fewer but larger farms. Between 1970 and 2006, the number of farms with dairy cows fell steadily and sharply, from 648,000 operations in 1970 to 75,000 in 2006, or 88 percent, while the average size of each dairy operation has grown so that the largest U.S. dairy farms now have over 15,000 cows. USDA; "Profits, Costs, and the Changing Structure of Dairy Farming", Economic Research Report No. (ERR-47) 41 pp, September 2007.] which not only has consequences for the climate through its contribution to U.S. GHG emissions [FOOTNOT: According to the EPA, livestock emissions of CH_4 and N_2O from enteric fermentation and manure management account for approximately 40 percent of agricultural emissions and 2.6 percent of total U.S. emissions. Source: EPA 2009 Greenhouse Gas Inventory. but also serious public health impacts when facilities are concentrated near residential areas.[FOOTNOTE: For example, the trend towards concentrating these types of large mega-dairies in places like the San Joaquin Valley has been shown to pose serious threats to the valley's already ailing air quality and public health. Gaseous emissions from livestock waste contribute to particulate and ozone pollution and dust particulates are emitted into the air from cows moving and disturbing dry soil. Source: Latino Issues Forum, The Impact of Dairies on Water and Air Quality in California, (http://www.kirschfoundation.com/care/documents/LIFdairiesfactsheet.pdf) (Ex 50). Additionally, mega-dairies are major sources of ammonia, which is a highly toxic, reactive, and corrosive gas that can cause serious health effects in people. Exposure to low levels of ammonia poses a greater threat to asthmatics and other sensitive individuals by severely irritating the respiratory tract, which can cause coughing and/or shortness of breath. Agency for Toxic Substances and Disease Registry. Toxicological Profile for ammonia at 92,available at: http://atsdr1.atsdr.cdc.gov/toxprofiles/tp126-c3.pdf. There is also evidence that repeated exposure to intermediate levels of ammonia can cause new respiratory problems to develop, including asthma. Agency for Toxic Substances and Disease Registry. Toxicological Profile for ammonia at 39, available at: http://atsdr1.atsdr.cdc.gov/toxprofiles/tp126-c3.pdf. Ammonia also plays a role in the formation of PM2.5 and recent research has found expanding EPA's current particulate control strategy beyond NOx and SO_x control to ammonia control may be highly cost-effective. Pinder et al, Ammonia Emissions Controls as a Cost-Effective Strategy for Reducing Atmospheric Particulate Matter in the Eastern United States, (2007), available at: http://pubs.acs.org/doi/pdf/10.1021/es060379a (Ex. 51).]

Response: EPA agrees with commenter on the value of collecting facility-level data from manure management systems. See response to comments EPA-HQ-OAR-2008-0508-0724.1, excerpt 1, and EPA-HQ-OAR-2008-0508-0365.1, excerpt 14.

Commenter Name: Mark R. Vickery
Commenter Affiliation: Texas Commission on Environmental Quality (TCEQ)
Document Control Number: EPA-HQ-OAR-2008-0508-0666.2

Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

Comment Excerpt Number: 7

Comment: The Executive Director of the TCEQ recommends that either the manure management category (Subpart JJ, page 16561) be removed from the regulated source categories or that the proposed reporting threshold increased to remove these sources. The current proposed reporting threshold would only capture 43 sources that represent a small portion (3%) of total estimated manure management CO_2e emissions (Table 4-81. Number and Share of Entities and Emissions Covered by Threshold, Regulatory Impact Analysis [RIA] for Mandatory Reporting of Greenhouse Gas Emissions Proposed Rule, March 2009.) The first year reporting burden for this source category is estimated to be $14/per ton, 350 percent higher than the EPA's estimated average of $0.04 for all sources. The required reporting burden is not representative for this source category and the resulting costs are disproportionately high for the value added; therefore, this source category should be removed from reporting requirements.

Response: Several changes have been made to the regulatory impact analysis and cost estimates for the rule in response to comments. See the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3 for more information.

Commenter Name: Ryan K. Miltner
Commenter Affiliation: Miltner Law Firm, LLC
Document Control Number: EPA-HQ-OAR-2008-0508-0508.1
Comment Excerpt Number: 7

Comment: Additional clarification is needed regarding whom must report: Any Final Rule must affirmatively state which dairy farms must report. The proposed rule is woefully unclear on this point. For example, Table JJ-1 suggests that a dairy farm with 5,000 head would meet this threshold. But the discussion regarding the selection of the reporting threshold states that some dairy farms on a liquid slurry system would require 17,000 head. To ensure that facilities are clear on their obligations under any Final Rule, EPA must establish a numeric threshold for dairies at which no calculation of emissions would be required. Those dairies above the clear threshold would be required to determine their emissions and report if they exceed the reportable quantity. The Final Rule should state whether this threshold, defined by the number of animals on a facility, is determined by the number of milking cows, number of heifers, number of dry cows, and number of calves, or combination of the above. In its current form, the Proposed Rule is unclear. The use of a computerized calculator, as suggested in the Proposed Rule, to determine whether a facility would meet the reporting threshold is encouraged. Facilities that certify that they did not meet or exceed the reporting threshold after utilizing this calculator should be provided a clear safe harbor from reporting.

Response: In response to comments, EPA has added more information to the final rule to help manure management facilities better determine if they might be subject to the requirements of the rule. EPA has estimated the average annual animal population below which facilities would clearly be excluded from reporting under the rule. These are conservative estimates and we expect many facilities with average annual animal populations above the values provided in the table could also have emissions below the reporting threshold based on the facility-specific characteristics. We are also providing tools to help facilities that could potentially be required to report based on the head count in the table determine their applicability. See the response to

comment -HQ-OAR-2008-0508-336.1 excerpt 10, and also the Response to Comments Volume No.: 12, Subpart A: Applicability and Reporting Schedule.

Commenter Name: Chris Korleski
Commenter Affiliation: State of Ohio Environmental Protection Agency
Document Control Number: EPA-HQ-OAR-2008-0508-0598.1
Comment Excerpt Number: 6

Comment: Manure management facilities that emit more than 25,000 metric tons of CO_2e is a source category subject to the proposed GHG mandatory reporting rule. For the purposes of this rule a manure management facility consists of uncovered anaerobic lagoons, liquid/slurry systems, pits, digesters, and dry lots, onsite manure composting, other poultry manure systems, and cattle and swine deep bedding systems. According to the 2008 U.S. GHG Inventory, CH_4 emissions accounted for 8% of total anthropogenic CH_4 emissions and 3% of 1\120 emissions in the U.S. Ohio EPA agrees that this source category should be included in the GHG mandatory reporting rule; however U.S EPA's has seriously underestimated the number of sources covered under the 25,000 metric ton of CO_2e threshold. U.S EPA estimates that fewer than 50 manure management systems nation-wide would be required to report. Ohio alone has an estimated 17 facilities above the 25,000 metric ton of CO_2e threshold, one third of U.S. EPA's estimated facilities. Although Ohio has a diverse and significant agriculture industry, we do not believe that Ohio would have one third of all sources in the country.

Response: For more information about the threshold analysis, see the preamble and the response to -HQ-OAR-2008-0508-0671.1 excerpt 3. Although there may be 17 facilities in Ohio that exceed the animal head thresholds in Table JJ-1 in the proposal, these facilities may not have manure management systems that are consistent with the highest emitting facilities. For the final rule, EPA has developed more detailed tools and tables to help facilities determine if they are required to report, see the response to EPA-HQ-OAR-2008-0508-0336.1 excerpt 10.

Commenter Name: Julie Ellingson
Commenter Affiliation: North Dakota Stockmen's Association (NDSA)
Document Control Number: EPA-HQ-OAR-2008-0508-0592
Comment Excerpt Number: 6

Comment: The NDSA strongly recommends that EPA clearly state in the final rule that any beef cattle facility with a drylot and stormwater pond manure management system that maintains (on an annual daily average) an inventory that is 88,923 head or less is not subject to the provisions of this rule. This would eliminate the need for those facilities to analyze monthly manure samples for volatile solids and nitrogen and calculate emissions at the end of a calendar year. It would also save them valuable time and resources, because they could avoid reverifying an emissions threshold estimate that has already been calculated and published in the final rule.

Response: In response to comments, EPA has added more information to the final rule to help manure management facilities better determine if they might be subject to the requirements of the rule, see the preamble and the response to EPA-HQ-OAR-2008-0508-0336.1 excerpt 10 for more details. Also, the requirement to sample manure has been removed in the final rule. See the preamble and response to EPA-HQ-OAR-2008-0508-0425.1 excerpt 11.

Commenter Name: Mark Maslyn
Commenter Affiliation: American Farm Bureau Federation (AFBF)
Document Control Number: EPA-HQ-OAR-2008-0508-0693.1
Comment Excerpt Number: 3

Comment: The interpretation of this definition is important, because the reporting requirements are imposed at the facility level. A number of businesses may have several different facilities in different locations. This may also be true of agricultural or livestock operations. Some parts of these agricultural operations may not be "contiguous or adjacent" to one another but may be separated by some distances. As with other types of businesses, these are separate facilities, and each facility should be evaluated separately for purposes of determining whether it is subject to the requirements of this rule. There is some concern in the livestock community that evaluation of whether a manure management system will be subject to the rule will be made on the basis of ownership rather than at the facility level as defined in the proposed rule. The concern is that livestock operations under common ownership but spread over different areas will be treated as a single facility for reporting purposes. Such an interpretation fails to recognize that livestock and poultry operations can have a number of facilities. We believe that the definition of "facility" in the proposed rule is clear. A facility includes only those areas adjacent or contiguous, or only separated by a road or right of way. We expect that the rule will be applied with respect to manure management systems in accordance with the definition contained in the rule.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0553.1 excerpt 7.

Commenter Name: Julie Ellingson
Commenter Affiliation: North Dakota Stockmen's Association (NDSA)
Document Control Number: EPA-HQ-OAR-2008-0508-0592
Comment Excerpt Number: 2

Comment: In this section, the Environmental Protection Agency (EPA) states, "The proposed rule would apply to certain downstream facilities that emit GHGs (primarily large facilities emitting 25,000 tons per year of CO_2 equivalent GHG emissions or more)..." The NDSA contends that EPA's determination that the mandatory reporting threshold be set at 25,000 MT CO_2e per year was based on an inadequate analysis of the sector-by-sector emissions estimates, and this analysis masks the significant number of beef facilities that would be required to report under the rule. If faulty analysis applies to sectors outside the beef industry, the 25,000 tons-per-year threshold would bring in many smaller sources that, based on expressed concerns in the preamble about limiting the number of entities required to report, EPA apparently does not intend to bring under this rule. It seems unreasonable to require smaller facilities to report their emissions.

Response: See the preamble and the response to comment EPA-HQ-OAR-2008-0508-0508.1, excerpt 7. For information on the revised threshold analysis, see the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3.

Commenter Name: Christina Gruenhagen

Commenter Affiliation: Iowa Farm Bureau Federation (IFBF)
Document Control Number: EPA-HQ-OAR-2008-0508-0470.1
Comment Excerpt Number: 2

Comment: The proposed rule defines "facility" as "any physical property, plant, building, structure, source, or stationary equipment located in 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..." The interpretation of this definition is important, because the reporting requirements are imposed at the facility level. We encourage the EPA not to broaden the reporting requirement to the ownership level or common control level without having a facility satisfy the contiguous or adjacent properties requirement. All of the elements of the definition should be met before the reporting requirements are triggered. A number of businesses may have several different facilities dispersed in different locations. This may also be true of agricultural or livestock operations. Some parts of these agricultural operations may not be "contiguous or adjacent" to one another but may be separated by some distance. As with other types of businesses, these are separate facilities, and each facility should be evaluated separately for purposes of determining whether it is subject to the requirements of this rule. A facility includes only those areas adjacent or contiguous, or only separated by a road or right of way. We expect that the rule will be applied with respect to manure management systems in accordance with the definition contained in the rule. Businesses commonly enter into contracts for business purposes including assurance of quality and quantity of supply. In Iowa, individual farmers regularly enter into contracts for purposes including to market their animals, to assure adequate feed supply and land application areas or to raise animals for other farmers or food companies. Contracts may be entered into by separately owned facilities without knowledge of their neighbors' contractual relationships. We believe that the "common control" provisions should not be triggered if two farmers owning separate facilities enter into a contract with the same person to raise animals, to obtain adequate feed supply, for animal health services or to market their animals regardless of the amount of quality control contained in the contract. While manure land application areas are excluded from reporting under this rule, we ask that the rule clarify that adjacent land application areas not be considered when determining common ownership or control of a facility. Farmers do not currently have a method to track neighbors' fertilizer sources. Non-livestock farmers often receive or contract for manure to fertilize their crops. Iowa also has a thriving manure sales trade for fertilizer application where farmers may purchase litter for land application. We request EPA clarify the rule to mean only that common ownership or control of the "manure management system" triggers reporting. Contractual business relationships with the animal owners, the local elevator, the meat packer or processor, or landowners for land application areas should not trigger GHG reporting.

Response: See the response to comment -HQ-OAR-2008-0508-0553.1, excerpt 7.

Commenter Name: Paul Bredwell / Christian Richter
Commenter Affiliation: US Poultry & Egg Association, National Turkey Federation & National Chicken Council
Document Control Number: EPA-HQ-OAR-2008-0508-0507.1
Comment Excerpt Number: 2

Comment: We also support the Agency's attempt to develop size thresholds in Subpart JJ to determine how large a poultry or turkey farm must be to exceed the proposed GHG reporting

level of 25,000 metric tons. However, it has come to our attention that EPA's methodology may require further refinements, including incorporating recent academic research on more accurate estimates of poultry and turkey GHG emissions associated with the decomposition of manure. For example, the latest research by Dr. Hongwei Xin of Iowa State University indicates that a layer operation utilizing a dry litter system would have to house over 15 million birds to exceed EPA's proposed reporting threshold. On the other hand, EPA has estimated that only 895,000 layers operating with a lagoon system will exceed the threshold. While we understand, as the Agency indicates in Subpart JJ, that there is a difference in the handling and storing of manure between wet and dry systems, the order of magnitude difference between these two values warrants additional review by EPA prior to publication of the final rule. Furthermore, we agree with and urge the Agency to ensure that CO_2 from bird respiration as a natural biological process (i.e., breathing) is fully excluded as a component in calculating appropriate size thresholds for GHG reporting. The proposed reporting rule does not intend to cover respiration, consonant with the decisions of the Intergovernmental Panel on Climate change. While few, if any, poultry and turkey farms will be required to report under the proposed 25,000 ton cutoff for the federal GHG registry, EPA should review its methodology to ensure that its size estimates accurately reflect the contributions of manure management activities and respiration, and are scientifically defensible. We look forward to working with the Agency on this matter as necessary.

Response: See the response to comment HQ-OAR-2008-0508-0577 excerpt 2.

Commenter Name: Ryan K. Miltner
Commenter Affiliation: Miltner Law Firm, LLC
Document Control Number: EPA-HQ-OAR-2008-0508-0508.1
Comment Excerpt Number: 1

Comment: DPNM opposes the inclusion of manure management systems in required reporting: Comments filed on behalf of the National Cattlemen's Beef Association, among other comments, have explained to EPA the relatively small benefits of reporting by agricultural operations relative to the expense of doing so. We support the comments of the NCBA in this regard and also with respect to the calculation of threshold reporting levels. The comments of NCBA also raise serious questions about the calculation of the thresholds at which operations would be subject to reporting. NCBA explains that a critical error in determining the reporting threshold increases the number of beef cattle operations that would have to report eleven-fold. Similar, if not greater increases would be expected in the number of dairy facilities that would need to report, if this error carried through to the dairy estimates. Before any Final Rule is published, EPA must verify the accuracy of its estimates with respect to manure management facilities, including dairy facilities. While maintaining our opposition to the mandatory reporting by any dairy facility, DPNM submits the following additional comments on the Proposed Rule.

Response: EPA does not agree that there is no value to requiring farms to report under the reporting rule, see the preamble and also the response to comment EPA-HQ-OAR-2008-0508-0724.1 excerpt 1.

For a description of the threshold analysis, the revisions made to the threshold analysis based on commenter input, and the methodologies used, see the preamble and the response to comment EPA-HQ-OAR-2008-0508-0671.1 excerpt 3.

Commenter Name: Michael L. H. Marsh
Commenter Affiliation: Western United Dairymen
Document Control Number: EPA-HQ-OAR-2008-0508-0702.1
Comment Excerpt Number: 1

Comment: Western United Dairymen is a trade association of California dairy farm families, representing over one-half of California dairy farms and approximately 60% of the total California milk production. We appreciate the opportunity to comment on the proposed Mandatory Reporting of Greenhouse Gasses (GHG) Rule. Several of our member families are likely to be affected. Western United Dairymen submits that livestock operations, regardless of their size, should be exempt from any GHG reporting requirement. This is consistent with the decision made by the California Air Resources Board (CARB). California entities subject to California's mandatory GHG emissions reporting program had to submit their greenhouse gas inventory reports to the California Air Resources Board (ARB) by June 1, 2009. Entities subject to the regulation include power plant operators, cogeneration facilities, cement plants, refineries, hydrogen plants, retail providers and marketers of electricity, and general stationary combustion facilities emitting 25,000 metric tons or more of carbon dioxide equivalents in a calendar year. This is the same reporting threshold as is proposed by USEPA. However, our system specifically excludes reporting by livestock operations due to several salient factors. The reasons cited include the wide variation of manure emissions sources, differing manure management practices, uncertainty of measurement methodologies, and the fact that livestock manure GHG emissions represent a small fraction of the total GHG picture, both statewide and nationally.
EPA has established a reporting threshold of 25,000 metric tons of CO_2e per year and estimates that less than 50 livestock operations of all species will be affected. Several factors related specifically to livestock must be considered as EPA moves forward with this rule.
(1) Since EPA anticipates only a few operations will meet the threshold of 25,000 metric tons of CO_2e per year, it would seem to provide little public benefit to require mandatory reporting.
(2) The "model farm" method suggested as a means to make this estimate has been discredited by the National Academy of Science's report on air emissions.
(3) The requirement is a distinct competitive disadvantage to our larger farms in that the reporting mechanism is so detailed and complex that special assistance must be hired to comply. The EPA estimate of annual reporting costs is too low.
(4) While we recognize that there is a degree of concern about animal operations based simply on their size by some within EPA, fairness must apply to avoid discriminatory requirements.
(5) There are so many assumptions involved in estimating dairy GHG emissions that it is unrealistic to require large dairy farms to report considering all the incumbent uncertainties. It is especially inequitable considering the severe civil and criminal penalties possible if inadvertent mistakes are made. We find little consistency between the severity of the penalties and the potential for mistakes in estimating and reporting that we expect to occur.
(6) And finally, considering the limited role dairy farms play in the national inventory of GHG emissions, the potential penalties that may be assessed on individual farm families bear little relationship to any potential societal benefit from reporting. On the other hand, our larger operations are those best able to institute innovative GHG reduction projects. Western United Dairymen suggests that it makes considerably more sense, and that it will be substantially less expensive an undertaking in the long run, to provide incentives to reduce GHG emissions to these operations now, than to expend limited private and public monies, especially in this time of economic stress throughout the nation, on simply reporting emissions. The reporting requirement

has the unfortunate potential to divert resources away from innovative reductions to unproductive paperwork.

Response: EPA does not agree that the manure management source category should be excluded from this rule; see the preamble for the response to this comment. The commenter's numbered points are addressed below:

1) As noted above, EPA disagrees that manure management should be excluded from the rule for the reasons listed in the preamble. These reasons include the collection of valuable facility level data; the importance of these data is discussed in the response to EPA-HQ-OAR-2008-0508-0724.1, excerpt 1.
2) National Academy of Science's report on air emissions discredits the model farm approach as a method to estimate emissions for individual operations because of the variability present at each facility. However, EPA used model farms in the rule to estimate the coverage of the rule at various thresholds, and not to estimate emissions from individual facilities. For the purpose of the threshold analysis, the use of model farms was appropriate to estimate emissions from facilities that represent common manure management systems in the U.S.; this is the best approach for estimating emissions across diverse sets of facilities. The model farm approach is not the method selected for calculating of emissions by facilities reporting under the rule.
3) EPA evaluated the burden associated with reporting and determined that it would not be overly burdensome for facilities to report. The commenter notes that EPA underestimated the burden; however the commenter did not provide any additional data or information for EPA to revise the estimate. See the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3.
4) The rule does not discriminate against large operations; the intent of the rule is to include facilities with the most significant emissions. Emissions depend on a variety of variables, including but not limited to farm size. EPA's goal was to balance the burden of reporting with the value of the data collected by the rule. EPA made efforts to exclude small farmers to reduce the burden on small businesses.
5) For information about compliance and enforcement, see the Response to Comments on Compliance and Enforcement, the preamble discussion of same (Section VI), and also the response to EPA-HQ-OAR-2008-0508-0365.1 excerpt 6.
6) EPA does not agree that this rule will decrease the incentive to reduce GHG emissions by installing GHG collection systems, see the response to EPA-HQ-OAR-2008-0508-0365.1 excerpt 14.

Commenter Name: Richard A. Leopold
Commenter Affiliation: State of Iowa Department of Natural Resources
Document Control Number: EPA-HQ-OAR-2008-0508-0336.1
Comment Excerpt Number: 12

Comment: The Department estimates that the facilities listed in Table 2 below have animal numbers that are close to or exceed the applicability screening criteria in Table JJ-1. [see DCN: EPA-HQ-OAR-2008-0508-0336.1 for list of 39 facilities that might meet the screening criteria based on number of head of dairy cows, dairy heifers, layers, or pullets.] The Department does not estimate that Iowa has any beef or swine facilities that would be subject to the rule based on EPA's screening criteria of 89,000 head of beef and 73,000 head of swine.

Response: EPA has revised its estimate of livestock operations subject to the reporting rule from approximately 40-50 to approximately 100-110. See EPA-HQ-OAR-2008-0508-671.1 excerpt 3 for more details. See the preamble for a description of the threshold analysis. Based on available USDA data, Iowa is not expected to have any beef farms over the threshold levels; however, USDA estimates show that 45 percent of swine in Iowa are on farms with more than 5,000 head. Depending on the number of animals present on these farms and the manure management systems in place on these farms, some may be over the threshold levels. Each facility must consult the information provided in the rule to determine if they are required to report under the rule.

EPA is intending to develop several applicability tools that can assist facilities in determining whether they exceed the threshold and would be required to report. All facilities would be required to consult the tools provided in the rule to determine if they must report. Refer to the response to EPA-HQ-OAR-2008-0508-336.1 excerpt 10.

Commenter Name: Laurie Fischer
Commenter Affiliation: Dairy Business Association of Wisconsin, Inc. (dba)
Document Control Number: EPA-HQ-OAR-2008-0508-1602
Comment Excerpt Number: 1

Comment: If finalized as currently drafted, the agriculture industry would be unable to demonstrate compliance with the GHG reporting rule and as a result would be unfairly vulnerable to enforcement action. Calculating or estimating GHG emissions from farms is a complex and uncertain proposition, as there are no measurable stacks in an agricultural production model and there are numerous variables that can affect the degree to which pollutants may be emitted from a farm facility. These variables include but are not limited to: the design and construction of the specific manure management system, nutrient balancing and feed strategy of a particular facility, weather and atmospheric conditions specific to a geographic region, and seasonal changes. Specifically because of these variables and uncertainty, in 2002 the National Academy of Sciences recommended EPA develop a study to better understand air emissions from farms. Since June 2007, EPA has been conducting a national emission monitoring study with the purpose of developing emission-estimating methodologies specifically for farms. That study is scheduled to conclude in June 2009 and EPA is expected to publish emission-estimating methodologies within 18 months of the completion of the study. Assuming EPA's emission study concludes on schedule, methodologies developed as a result of the study may not be available until January 2011 – a full year after potentially affected farms will be expected to comply with the proposed GHG reporting rule. Without effective emission-estimating methodologies in place at the time this proposed rule is finalized, farms will be left to guess whether or not their facility is subject to the reporting requirement. In its April 10, 2009 Federal Register notice of the proposed rule, EPA acknowledged the difficulty in estimating emissions from different types of farms in different geographic and climate regions that employ different types of manure management systems. EPA's estimate of dairy farms that could be subject to the proposed rule ranged from 5,000 cows at a facility that utilizes an uncovered anaerobic lagoon and/or heifers on a dry lot without solids separation to potentially 13,000 cows a facility that utilizes "some liquid slurry systems." 74 Fed. Reg. 16562. Such a vast range (difference of 8,000 animals) of facility sizes that may be subject to the proposed GHG reporting rule, coupled with the hundreds of variations of manure management systems in place renders EPA's guidance on potentially affected farms entirely unhelpful for a producer that could face

potential enforcement action if it fails to comply. With EPA's recent increased focus on compliance for animal feeding operations, it is imperative that the agricultural industry be given the proper tools to determine whether producers could be subject to this proposed rule if finalized as drafted. See EPA Enforcement Alert, dated March 2009. Moreover, if the purpose of this rule is truly to "collect comprehensive and accurate data on GHG emissions that can be used to inform future policy decisions," it is imperative that the data collected be as accurate as possible for each specific industry. See 74 Fed. Reg. 16471, Until the national emission study is completed and EPA issues emission-estimating methodologies, there are no accurate or reliable tools to estimate or calculate air emissions from farms. As such, there is no way for the agriculture industry to demonstrate compliance with the proposed GHG reporting rule and as a result, the entire industry will be unfairly vulnerable to enforcement action.

Response: The methodologies proposed as the basis of the emission calculations are long-standing, published methods used throughout the world; see the preamble and the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5 for more information about the methodologies.

EPA recognizes that there is an ongoing study of air emissions from animal feeding operations, see the response to comment EPA-HQ-OAR-2008-0508-0854.1, excerpt 6.

For information on compliance and enforcement see response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 6.

Commenter Name: Robert Naerebout
Commenter Affiliation: Idaho Dairymen's Association, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0314.1
Comment Excerpt Number: 2

Comment: EPA's established "thresholds" of 1,000, 10,000, 25,000 and 100,000 metric tons of carbon dioxide equivalents (CO,e) per year for methane and nitrous oxide are also arbitrary and lacking in transparency. The method for establishing these thresholds is not explained and no peer reviewed scientific justification is cited (591-92), in direct violation of the Information Quality Act, 44 U.S.c. § 3516. Without an adequate understanding of how these thresholds were developed, and how various environmental and geographical factors (such as temperature) impact the calculation of CO2e, the operators of dairies are unable to know whether they are or are not regulated. EPA's proposed rulemaking admits the inaccuracy of Table JJ-I which presents "the estimated head of livestock" to meet thresholds for emissions (592, emphasis added), and the EPA states that Table .JJ-l is only to be used as a "screening" guide in determining the approximate facility size that meets the applicability requirements." (594). However, the dairies themselves will not have the benefit of estimating whether they meet the threshold or not; mistakes are punishable by severe civil and criminal penalties. EPA should set an arbitrary annual cut-off number for imposing GHG reporting requirements, or set a vague "estimated" number the regulated community cannot understand. Instead, EPA needs to develop thresholds through the use of peer reviewed scientific criteria which are understood by the regulated community.

Response: The rationale for the threshold selection is provided in the proposal preamble to the rule (FRN 74 16467). The threshold analysis for manure management is described in the

response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3. See also Response to comments Volume No.: 2, Selection of Reporting Thresholds, Greenhouses Gases, and De Minimis Provisions. The methodologies and data sources used to analyze thresholds for manure management and to be used by reporters to calculate emissions are from peer reviewed sources and are described in the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5.

In response to comments, EPA has added more information to the final rule to help manure management facilities better determine if they might be subject to the requirements of the rule, see the response EPA-HQ-OAR-2008-0508-0336.1, excerpt 10 for more details.

Commenter Name: Brad Bateman
Commenter Affiliation: Western States Dairy Producers Trade Association
Document Control Number: EPA-HQ-OAR-2008-0508-0365.1
Comment Excerpt Number: 4

Comment: The EPA's "thresholds" of 1,000, 10,000, 25,000 and 100,000 metric tons of carbon dioxide equivalents (CO_2e) per year for methane and nitrous oxide are arbitrary and unscientific. The analytical method for establishing these thresholds is not explained. There is no indication that any peer reviewed scientific justification is available to justify these or any other emission threshold calculations. (page 591-92). EPA appears to have made up the threshold emission numbers.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0314.1, excerpt 2.

Commenter Name: Brad Bateman
Commenter Affiliation: Western States Dairy Producers Trade Association
Document Control Number: EPA-HQ-OAR-2008-0508-0365.1
Comment Excerpt Number: 9

Comment: Assuming that EPA's assertion that no more than 50 manure management systems are impacted by the rule, then what is the justification for creating the complex rule at all? If there are only 50 manure management systems in the country that will be required to report their GHG emissions, it should be sufficient for the EPA to send a Section 114 Clean Air Act information request to those owners and operators. This procedure will obtain the needed information and excuse the thousands of other dairy farms from the uncertainty created by the proposed rule.

Response: EPA has revised its estimate of livestock operations subject to the reporting rule from approximately 40-50 to approximately 100-110. See EPA-HQ-OAR-2008-0508-671.1 excerpt 3 for more details. Manure management facilities should not be excluded from this rule; see the preamble, and also the response to comment EPA-HQ-OAR-2008-0508-0724.1 excerpt 1 for more information. EPA does not have the facility level data required to determine which farms would exceed the threshold and be required to report in order to send Section 114 Clean Air Act information requests. Under this reporting rule, the facility has the responsibility to determine if they exceed the threshold and are required to report, see the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 7 for more information.

In response to comments, EPA has added more information to the final rule to help manure management facilities better determine if they might be subject to the requirements of the rule, see the and the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10 for more details

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Commenter Name: Robert Naerebout
Commenter Affiliation: Idaho Dairymen's Association, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0314.1
Comment Excerpt Number: 14

Comment: The information sought does not appear useful because the Preamble (590) notes that the 2008 U.S. Inventory calculates GHG emissions "from manure management systems" at 41.4 million metric tons C02e and NO emissions at 14.3 metric ton C02e. As best as IDA can tell, the majority of the proposed rule is based on the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. There are three levels of reporting (i.e. Tier I, 2, and 3) that are acceptable based on the contribution level of the source to the overall country anthropogenic GHG emissions. Tier I is essentially a survey which is what EPA already does now with their GHG inventory. Tier 2 reporting is required when the source is large enough to be considered a "key category", which is a more detailed reporting of GHGs. This is what it looks like EPA has done in this proposed rule. If only 8% of methane and 3% of nitrous oxide in the U.S. is generated from the livestock sector, why is this considered a key category within Tier 2 reporting? The uncertainty associated with Tier I reporting is +/-30%, while going to Tier 2 reporting only drops this to +/-20%. Is it really worth the extra time, effort, and money to go to Tier 2 reporting which only increases the certainty of your predictions by 10% when only 8% of methane and 3'X) of nitrous oxide generation is from the livestock industry? If EPA has this data, there seems no need to impose reporting on a select subset of dairies which have manure management systems.

Response: EPA's selected methodology for reporting greenhouse gas emissions associated with manure management systems is based on EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks and the Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories, see the preamble and the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5 for more information on the methodologies.

Based on the IPCC key category methodology, manure management has been determined to be a "key category" in the U.S. The U.S. Greenhouse Gas Inventory for manure management uses a Tier 2 methodology to estimate emissions. The data needed to estimate emissions using a Tier 2 methodology are more detailed than the data required to estimate emissions using a Tier 1 methodology; therefore requiring the reporting of Tier 1 data would not help to improve the U.S. inventory.

Facility level data obtained through the reporting rule will be quite valuable; see the response to EPA-HQ-OAR-2008-0508-0724.1, excerpt 1 for more information.

Commenter Name: Justin Oldfield
Commenter Affiliation: California Cattlemen's Association (CCA)
Document Control Number: EPA-HQ-OAR-2008-0508-0383
Comment Excerpt Number: 1

Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

Comment: The proposed rule requires livestock operations that emit more than 25,000 tons per year of CO_2 equivalent from manure management systems file reports with EPA on an annual basis. CCA is strongly opposed to this requirement. According to the most recent EPA GHG inventory, agriculture as a whole accounts for less than 6% of our nation's GHG inventory. Emissions from beef operations represent an even smaller percentage and direct emissions from manure management measure a fraction of the total agricultural GHG inventory. As such, emissions from agricultural operations, including livestock production, should not be required to report GHG emissions under the rule.

Response: EPA does not believe that the manure management source category should be excluded from this rule; see the preamble and also the response to EPA-HQ-OAR-2008-0508-0724.1, excerpt 1.

Commenter Name: Justin T. Schneider
Commenter Affiliation: Indiana Farm Bureau, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0583.1
Comment Excerpt Number: 3

Comment: In the rule proposal, EPA seeks comment on whether a generation threshold should be used instead of an emissions threshold. This distinction is likely most important for livestock operations that utilize digesters. If a generation threshold is utilized, it would appear that operations which generate more than 25,000 tons CO2e through livestock production but which emit less than 25,000 tons CO2e because a digester is used to capture methane would still be required to report. There is no justification to treat livestock operations which utilize digesters differently than other businesses that emit less than 25,000 tons CO2e. If at any point those operations would emit greater than the reporting threshold, they can begin reporting to EPA. However, they should not be required to do so if the GHG emissions are below the reporting threshold.

Response: See the response to EPA-HQ-OAR-2008-0508-0762.1 excerpt 1.

Commenter Name: See Table 3
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0425.1
Comment Excerpt Number: 12

Comment: When determining default values for manure characteristics and emissions estimates, CLA requests that EPA use (or allow the use of) the "Manure Production and Characteristics" Standard from the American Society of Agricultural and Biological Engineers (ASAE Standard D384.2) to determine manure excretion rates and characteristics rather than the 1992 USDA-NRCS Animal Waste Management Field Handbook that was used to determine values for the proposed rule. The latest version of the ASABE Standard was extensively reviewed and updated in the early part of this decade by a multi-disciplinary team of animal scientists, engineers, nutritionists, and others from across the US to incorporate the current state-of-the-science information on manure production and characteristics. This standard, therefore, better represents

manure excreted by animals fed modern rations than the Animal Waste Management Field Handbook, which often sites references that are more than 30 years old. Based on the more up-to-date information from the ASABE Standard D384.2, the threshold populations of model farms required to exceed the 25,000 MT CO2e per year threshold were calculated. In most cases, the threshold population to trigger reporting requirements is drastically reduced (especially for beef cattle and swine), further exacerbating the under?estimation of the number of facilities that will be required to report emissions under the proposed rule. [See submittal for data table provided by commenter showing the Model Farm Populations Required to Meet GHG Threshold of 25,000 MT CO2e per year using manure and animal characteristics from ASABE Standard D384.2.]

Response: In the final rule, EPA is using default volatile solids (VS) and nitrogen (N) excretion values that are consistent with the U.S. GHG inventory for manure management and enteric fermentation. EPA updated the threshold analysis using these updated default values for VS and N. See the response to EPA-HQ-OAR-2008-0508-0425.1 excerpt 11 for more information.

For beef and dairy cows, heifers, and steers, the VS and N excretion rates are calculated based on the relationship between animal performance characteristics such as diet, lactation, and weight gain and energy utilization. The method used is that outlined by the IPCC Tier II methodology. For other animal groups, reference values are used. See the preamble for more discussion on this topic.

EPA has revised its estimate of livestock operations subject to the reporting rule from approximately 40-50 to approximately 100-110. See EPA-HQ-OAR-2008-0508-671.1 excerpt 3 for more details.

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3. GHGS TO REPORT

Commenter Name: Calvin B. Parnell, Jr.
Commenter Affiliation: Texas A&M University et al.
Document Control Number: EPA-HQ-OAR-2008-0508-0667.1
Comment Excerpt Number: 3

Comment: EPA specified in the proposed GHG emissions reporting rule that the mandatory reporting in 2010 should only include CH_4 and N_2O from manure management. CH_4 from enteric fermentation was not included in the mandatory reporting proposal. This action can be interpreted as EPA deciding that enteric fermentation will not be regulated. The justification for excluding reporting emissions of CH_4 from enteric fermentation of beef cattle emissions is not clear and should be addressed. The most likely control for this source is reducing the number of cattle on feed which may be politically unacceptable. According to the EPA emissions inventory estimates, 17% of the total agricultural emission of CH_4 is attributed to beef cattle enteric fermentation. This is in contrast to less than 0.5% of the total U.S emissions of CH_4 from manure management. If the goal is to significantly reduce GHG emissions to slow the global warming process, there is very little benefit to requiring all beef cattle feeding operations to report their emissions of CH_4 from manure management Likewise, the magnitude of the N_2O emissions in units of CO_2e from manure management for beef cattle feed yards are very small relative to the total U.S. emissions of N_2O (2.2%) and relative to the total emissions from all agricultural sources (3%). (These emissions take into account the global warming potential of 310.) The

determination of emission factors for N_2O for fugitive sources is very difficult. The protocol of measuring concentrations downwind, subtracting upwind (background) and calculating fluxes will not work for this species. Background N_2O concentrations are reported to be 319 ppm. Based upon our engineering calculations, the downwind concentrations of N_2O will be approximately 20 to 30ppb (0.02 to 0.03ppm). The measurement uncertainty associated with the resulting emission fluxes (factors) is too large. Calculations: (Reference EPA. 2009. Emissions Inventories) GHG emissions of CH_4 with a global warming potential of 21 using 2005 as the reference year: 1. Total emissions (CO_2e) from all sources of CH_4 in the U.S. in 2005= 562 million metric tons 2. Total agricultural emissions (CO_2e) from all sources of CH_4 in 2005= 186 million metric tons 3. Total enteric fermentation emissions (CO_2e) from all sources of CH_4 from all beef cattle on feed yards in the U.S. in 2005=98 million metric tons 4. Total beef cattle manure management CH_4 emissions (CO_2e) from all beef cattle on feed yards in the U.S. in 2005=2.4 million metric tons GHG emissions of N_2O with a global warming potential of 310 using 2005 as the reference year: 1. Total emissions (CO_2e) from all sources in the U.S. in 2005=316 million metric tons 2. Total agricultural emissions of N_2O (CO_2e) from all agricultural sources in 2005= 223 million metric tons 3. Total manure management beef cattle emissions (CO_2e) from all sources of N_2O from all beef cattle on feed yards in the U.S. in 2005=6.5 million metric tons [SEE TABLE 1 IN DCN:EPA-HQ-OAR-2008-0508-0667.1: Mass fractions of GHG emissions in units of CO_2e from beef cattle operations.]

Response: For the rationale for not requiring enteric fermentation emissions to be reported, see the response to comment EPA-HQ-OAR-2008-0508-0592-0525.1, excerpt 25 in the response to comment document on Source Categories to Report.

Commenter Name: Julie Ellingson
Commenter Affiliation: North Dakota Stockmen's Association (NDSA)
Document Control Number: EPA-HQ-OAR-2008-0508-0592
Comment Excerpt Number: 1

Comment: The NDSA is opposed to the implementation of any rule that would require agricultural producers to report GHG emissions. Specifically, beef cattle producers would be required to report CH_4 and N_2O emissions from manure management activities under this proposed rule. This would primarily include GHG emissions from drylot pens and stormwater ponds. We think this is unnecessary, especially since the contribution of these activities to the total U.S. GHG emissions is negligible – only 0.127 percent of the total U.S. GHG emissions for Year 2007, according to the 2009 U.S. Greenhouse Gas Inventory Report. Even better, the contribution of GHG emissions from beef cattle manure management activities has decreased from 1990 to 2007. Following are a few specific comments regarding the preamble language of the proposed rule:

Response: EPA does not agree that the manure management source category should be excluded from this rule; see the preamble and also response to comment EPA-HQ-OAR-2008-0508-0724.1, excerpt 1.

Commenter Name: See Table 2
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0395.1

Comment Excerpt Number: 21

Comment: TCFA agrees that if a final rule for mandatory reporting of GHG emissions is finalized and reports from manure management systems are required, EPA has appropriately identified CH_4 and N_2O as the constituents to be reported from a beef cattle manure management system (predominantly emissions from drylot and stormwater ponds). We agree with EPA's statements in the proposed rule, "Manure management also produces CO_2; however, this CO_2 is not counted in GHG totals as it is not considered an anthropogenic emission. Likewise, CO_2 resulting from the combustion of digester CH_4 is not counted as an anthropogenic emission under international accounting guidance."

Response: EPA agrees with the commenter that CO2 from manure management is not an anthropogenic emission.

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4. SELECTION OF PROPOSED GHG EMISSIONS CALCULATION AND MONITORING METHODS

Commenter Name: See Table 3
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0425.1
Comment Excerpt Number: 11

Comment: In Section V.JJ.3 of the Proposed Monitoring Methods, EPA requested comment on the option of using facility-specific livestock population and animal mass values as well as default values for volatile solids emissions rates instead of measured values. EPA also requested comment on whether a different sampling and testing frequency, such as quarterly, would be more appropriate than the monthly frequency proposed. The greatest compliance burden for livestock producers under the proposed rule is the requirement for monthly sampling and testing of manure to determine excretion rates for volatile solids and nitrogen. As currently written, the proposed rule would require all confined animal feeding operations (CAFOs) to collect monthly samples of "freshly excreted manure" (including both feces and urine). Collection of "freshly excreted" feces from some operations will introduce worker safety hazards, while collection of freshly excreted urine for nitrogen analysis is technically challenging and would introduce even more worker safety hazards. Furthermore, collection and analysis of sufficient samples to reduce measurement uncertainty of manure characteristics from a particular facility to within a reasonable range would require large numbers of samples and great expense that should only be borne by those facilities wishing to prove less-than-average emissions. CLA believes that it is imperative that a facility be allowed to use either (1) measured, site?specific population and animal mass data or (2) default, lookup values and requests that EPA allow animal feeding operations to elect to use either option. The option to use default values will substantially reduce the expense and hazards of regulatory compliance on CAFO facilities while not substantially affecting the quality of GHG emissions estimates reported.

Response: EPA received multiple comments noting that the sampling requirements would be too burdensome for the industry, and revised the final rule to allow producers to use animal specific default values for nitrogen and volatile solids excretion in the equations. EPA acknowledges the concerns commenters raised about the burden associated with the proposed sampling

requirements, in response, EPA has removed the manure sampling requirements from the final rule. The variation in sampling techniques from facility to facility when characterizing manure "as excreted" from the various animal populations on the facility (as would have been required by the proposal) would negate the benefit derived from this requirement. EPA considered designing a more complex and rigorous program to ensure consistency in the implementation of a manure sampling program and to ensure that manure samples represented "as excreted" manure (prior to any storage or treatment). However, after reviewing comments, we determined that the expected burden of such a program, in terms of time, effort, and expense, outweighed the merits at this time.

Instead of obtaining volatile solids (VS) and nitrogen (N) content from manure sampling, facilities must use default VS and N excretion values as provided by EPA in look up tables. The default VS and N excretion values are consistent with the 1990-2008 U.S. GHG inventory for manure management and enteric fermentation. For beef and dairy cows, heifers, and steers, VS and N excretion rates were calculated using the IPCC Tier II methodology, based on the relationship between animal performance characteristics such as diet, lactation, and weight gain and energy utilization. In response to comments, EPA used the most up-to-date information on U.S. animal diets to calculate these excretion rates. For other animal groups, reference values from ASAE and USDA are used. The use of these animal-specific default values for VS and N will greatly reduce the burden to comply with the reporting rule, while only minimally impacting the estimates of greenhouse gas emissions.

EPA considered various sources of VS and N excretion data and EPA selected default VS and N excretion values that are consistent with the U.S. GHG inventory for manure management and enteric fermentation. EPA considered using nutrition-based modeling utilizing farm-specific data on animal diet and animal performance, such as those published by the American Society of Agricultural and Biological Engineers (ASABE). Although EPA acknowledges that these approaches would produce results with less uncertainty, EPA determined the burden associated with such a program would be significant. EPA considered but did not use default factors derived from ASABE. The U.S. GHG inventory values were selected because they take into account regional differences in diet, etc for cattle, as noted above. For other animal groups, the US GHG inventory values allow for accounting of differences in animal weight.

Commenter Name: C. T. Ferguson
Commenter Affiliation: None
Document Control Number: EPA-HQ-OAR-2008-0508-0168
Comment Excerpt Number: 4

Comment: Dairy Management Incorporated has been working collectively on a major initiative to measure greenhouse gas emissions involved in the production of milk. Adequate monitoring and regulation of methane production in this industry is essential in order to reduce green house gases.

Response: EPA agrees with the commenter on the value of monitoring GHG production from livestock operations.

Commenter Name: Stewart T. Leeth

Commenter Affiliation: Smithfield Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0553.1
Comment Excerpt Number: 20

Comment: EPA is soliciting comments on whether additional screening tools such as a lookup table or a computerized calculator to help owners and operators determine if they meet the reporting threshold would be useful. We support the use of a computerized calculator that would include specific climate data for the various regions where CAFOs are located. The computerized screening and reporting tool could also build in the nutrition-based model approach to excretion prediction of ASABE D384.2

Response: See the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10.

Commenter Name: Rechelle Hollowaty
Commenter Affiliation: Tyson Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0379.1
Comment Excerpt Number: 19

Comment: The advantage to using EPA's FarmWare and CCAR's Livestock Project Reporting Protocol programs is that it allows a producer to conduct a cursory review to see if the project is feasible. Tyson encourages the use of these programs, as it will be less expensive than hiring a third party engineer that may use other programs or calculations to determine feasibility, which would be additional cost to the producer.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10.

Commenter Name: Rechelle Hollowaty
Commenter Affiliation: Tyson Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0379.1
Comment Excerpt Number: 18

Comment: Regarding the option of using facility specific livestock population and mass, and default values for nitrogen excretion rate to estimate N, instead of measured values: EPA should give the producer a choice to use "default values" or allowed to conduct sampling to determine Nitrogen content. The animal agriculture sector is constantly evaluating feed formulations. Allowing a producer to measure site specific Nitrogen content would provide encouragement to a producer to not only look at feed cost strictly as cost per pound of gain, but would encourage the producer to look at feed cost from a more holistic approach. For instance, if a producer determined that his Greenhouse Gas emissions was slightly over 25,000 CO_2e per year, the producer may want to consider changing the feeding strategy to reduce the amount of Nitrogen inputs, thus allowing the producer to be below the reporting quantity level. This in and of itself would encourage sustainability.

Response: EPA received multiple comments noting that the sampling requirements would be too burdensome for the industry, and revised the final rule to allow producers to use animal specific default values for nitrogen and volatile solids excretion in the equations. For more information see the preamble and also the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt

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Commenter Name: Rechelle Holloway
Commenter Affiliation: Tyson Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0379.1
Comment Excerpt Number: 17

Comment: To estimate methane leakage from digesters, EPA proposes a default value for collection efficiency be applied to the measured quantity of methane flow to a destruction device. Tyson agrees that default values should be used; however EPA should ensure these values are developed by a team of Professional Engineers in the United States (check to see if for sure there is a team of PEs; does it matter).

Response: EPA agrees that default values should be used to estimate the collection efficiency of anaerobic digesters. EPA is using the best available data on collection efficiencies, from EPA's *Climate Leaders Greenhouse Gas Inventory Protocol Offset Project Methodology for Managing Manure with Biogas Recovery Systems (2008)*, which were derived from data on cover effects as presented in Sommer et al., 2000, Bicudo et al., 2004, Nicolai et al., 2004, and Emissions Solutions, et al., 2000.

Commenter Name: Rechelle Holloway
Commenter Affiliation: Tyson Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0379.1
Comment Excerpt Number: 16

Comment: Regarding EPA's request for comment on monthly sampling of digester gas methane content as an alternative to continuous composition analyzer: Gas sampling is a very expensive process. Tyson recommends that EPA give a producer a choice as to how to determine methane content. An option would be to allow a producer to utilize a calorimeter to determine energy content, which can be correlated to methane content. Either through look up tables, calorimeter or sampling would be appropriate options. Use of look up tables would be appropriate since the heating value of the gas varies from day-to-day and therefore one would be using an average value to estimate emissions.

Response: EPA has retained the requirement for continuous gas monitoring for anaerobic digestion systems in the final rule. This monitoring method allows direct measurement of the methane produced in the digester, and captures fluctuations in the biogas produced. Calorimeters measure the heat developed during the digester process and would introduce uncertainty into the measurement of methane from the digester. In addition, although the capital costs for continuous gas monitoring are high, the operation and maintenance costs are lower than those associated with periodic gas monitoring. Therefore, the annualized costs for continuous gas monitoring are actually lower than the annualized costs for periodic gas monitoring.

Commenter Name: Rechelle Holloway
Commenter Affiliation: Tyson Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0379.1

Comment Excerpt Number: 15

Comment: Quarterly sampling would be appropriate over the proposed monthly sampling schedule regarding EPA's request for comment on whether the two largest contributors to variation in volatile solids content are animal size / type and pump down (land application) frequency. It is Tyson's recommendation that if size and type of animal does not fluctuate on an annual basis (e.g., swine breeding farm), then quarterly sampling should be sufficient. This will also capture seasonal variation in pump down. However, if the size or type of animal fluctuates (e.g., swine finishing farm), then quarterly or more frequent sampling would be appropriate.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11.

Commenter Name: Stewart T. Leeth
Commenter Affiliation: Smithfield Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0553.1
Comment Excerpt Number: 14

Comment: The sources of the MER values in Table JJ-1 are not specified. (Id.). Over the past 10 to 20 years, the swine industry has made significant advances in the formulation of rations tailored specifically to the needs of swine. Data on the conversion of feed to pounds of gain is routinely collected by the industry and this metric has been steadily increasing for a number of years. When the feed conversion efficiency increases, manure production decreases. In addition, manure production data collected at biogas projects within the industry has consistently shown that nearly all of the "textbook" values for manure production, solids and nutrient content, such as those in Table JJ-1, are outdated and significantly over-estimate swine manure production. Therefore, use of the default values provided by EPA is not recommended either. Our suggestion is to change Equation JJ-2 to require an estimation of the annual kilograms of volatile solids entering the treatment system. The most recent effort by the research community to determine manure excretion characteristics for swine was by the American Society of Agricultural and Biological Engineers (ASABE) in their nutrition-based model approach to excretion prediction (ASABE D384.2). ASABE developed models for prediction of manure excretion based on differing nutritional schemes. The methodology used is to predict nitrogen excretion is based on the difference between nutrient intake and nutrient retention. Dry matter (total solids) excretion is estimated by assuming the dry matter digestibility of typical diets used in each production phase. Volatile solids are consistently found to 80% percent of the dry matter. Thus the TVS and nitrogen can be determined from ASABE D384.2 and is recommended as the reference for the manure excretion values in place of the manure excretion rate values used in Table JJ-1.

Response: See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11, and the preamble.

Commenter Name: See Table 2
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0395.1
Comment Excerpt Number: 27

Comment: We recommend that EPA define "freshly excreted" manure to be manure that is a composite sample and representative of manure and urine excreted that is not more than three days old. This manure would be characteristically similar to the manure collected and utilized in the study by Hashimoto in 1981.

Response: EPA has removed the manure sampling requirements from the final rule, and therefore, there is no need to define the term "freshly excreted." See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11, and the preamble

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Commenter Name: Stewart T. Leeth
Commenter Affiliation: Smithfield Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0553.1
Comment Excerpt Number: 13

Comment: In Section 98.363(a), Equation JJ-2 requires the use of a manure excretion rate (MER) and an annual average percent total volatile solids (%TVS). (74 Fed. Reg. at 16,707). The MER can be either default values from table JJ-1 or farm specific data in kilograms of manure per day per 1000 kg of animal mass. As-excreted manure data (MER) is normally collected at a university laboratory with specific holding pens designed to capture all urine and feces from the animals in a controlled environment in order to measure the manure volume and allow determination of the characteristics. The MER is not something that is typically measured on commercial swine farms nor is it something that is reasonably practicable to measure. Flow into the manure treatment systems on swine farms is not measured. For nutrient management purposes, the flow out of the manure management systems is normally measured, but it is greatly influenced by rainfall and evaporation in the local area. The volume of flow into the treatment system is influenced by recycled liquid in many cases. Most swine farms with uncovered anaerobic lagoons use either flush systems where lagoon liquid is recycled back to the barns for flushing or pull plug/pit recharge systems where lagoon liquid is recycled back to the barns for pre-filling the pits. In either case, the as-excreted manure is diluted by the recycled liquid. The recycle flow also contains TVS and nitrogen and thus changes the characteristics. For these reasons, producers likely will not have data available on manure production rates and will therefore have to use the default values provided by EPA in table JJ-1. (74 Fed. Reg. at 16,709).

Response: See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11, and the preamble

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Commenter Name: See Table 2
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0395.1
Comment Excerpt Number: 28

Comment: The maximum methane potential values (B0) was obtained from a study conducted by Hashimoto in 1981. A copy of the research article was provided by EPA on May 4, 2009. Based on more recent research knowledge obtained on manure and associated air quality measurements, we would appreciate an EPA response to the concerns/questions with this research study conducted 28 years ago: 1. Are the feed rations used by Hashimoto in 1981 representative of current rations used in beef cattle production? 2. The fermenters were modified

with baffles “glued” to the side of the containers. What type of glue was used and what effect would it have on measurement of gaseous emissions using Tedlar bags? 3. The fermenter/slurry manure process utilized by Hashimoto (i.e., initial solids content of 14 %, further diluted to 10%) does not represent the storage practice of manure in modern beef cattle production (i.e., manure solids content in drylots of 60-80%). This methodology appears to greatly overestimate any real-world conditions for maximum methane potential. Please explain. 4. The study refers to the addition of “inoculum.” What was the inoculum? 5. Is the Packard Model 428 gas chromatograph still in use today? If not, has a comparative study to modern gas measurement techniques been conducted to validate the gas concentrations that would have been measured in 1981? 6. The study by Hashimoto utilized a target slaughter weight of “weighing over 400 kg.” Cattle today are fed to target slaughter weights of 520 to 590 kg. As such, the data collected in 1981 is not representative of current production practices.

Response: Bo represents the maximum quantity of methane that can be produced by a type of manure per mass of VS, under ideal conditions. It is also known as the biological methane potential (BMP). Bo may be determined by performing anaerobic fermentation of the material, in a laboratory, over long periods of time, usually over 90 days (Steed and Hashimoto, 1994). The methane produced per quantity of VS is the Bo value of the material. The ultimate methane yield is independent of temperature (Safley and Westerman, 1990). The commenter asserts that the methodology appears to overestimate real world conditions for maximum methane potential. EPA disagrees, since the Bo value represents a maximum ideal situation. In the calculations to estimate CH_4 emissions in EPA’s rule, the maximum methane production is adjusted by the methane conversion factor (MCF) to take into account the effect of the specific manure management practices and climate on methane production.

EPA evaluated the feed rations used in the Hashimoto study, including the amount of corn silage and the overall feed composition (% calcium, % phosphorus, and % dry matter). The study evaluated rations with silage content of 7, 40, and 91.5 percent, % calcium ranging from 0.59 to 0.613, % phosphorus ranging from 0.327 to 0.345, and % dry matter of 31.8 to 78.4. EPA reviewed more recent dietary data including the NRC nutrient requirements and the ASABE D384.2 standards and believes this study represents the types of rations fed to beef cattle today.

The fermenters used in the study were augmented with baffles, one near the liquid surface and one near the bottom, to aid with mixing. EPA does not believe the use of these baffles affected the gaseous emissions measured. The solids content of manure used in the study is reflective of freshly excreted manure. The inoculum represents the addition of volatile solids to the fermenter. The study measured methane and carbon dioxide concentrations using a Packard Model 428 gas chromatograph with dual thermal-conductivity detectors, stainless steel column packed with 60/80 mesh Chromosorb 102, and helium as the carrier gas. Neither packed chromatography or stainless steel columns are used today for environmental measurements; however, modern gas chromatography is conceptually the same as the Packard Model 428 for the measurement of methane and carbon dioxide concentrations, even though precision, instrument shelf life, and user friendliness have improved.

Commenter Name: John Seltz
Commenter Affiliation: Minnesota Pollution Control Agency (MPCA)
Document Control Number: EPA-HQ-OAR-2008-0508-0465.1
Comment Excerpt Number: 6

Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

Comment: Under the proposed rule, feedlots that emit more than 25,000 CO_2-equivalent tons per year of greenhouses gases from manure management must report. The methodology that is recommended depends on generic emission factors and other generic information that do not account for regional differences. The MPCA recommends that regional-specific emission factors be developed that better account for regional differences in animal diet, weather, and management practices.

Response: EPA agrees that emissions can vary based on climate, type of production, and other geographical factors; however, the methodologies to estimate emissions reflect these variations. See the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5 for more information.

Commenter Name: G. Larry Newton
Commenter Affiliation: University of Georgia
Document Control Number: EPA-HQ-OAR-2008-0508-0461.1
Comment Excerpt Number: 4

Comment: Basing CH_4 emissions of lagoons on data obtained from digesters is not warranted, as lagoon conditions vary significantly, not only from digesters but also across lagoons. If a lagoon is deep enough to stratify, the bottom water and sludge layer will usually not be significantly above background soil temperature. In Georgia, one of us has measured bottom strata temperatures of deeper lagoons (18+ feet) that were at deep soil background temperature (65 F), even in late summer. Since methanogenesis rates are temperature dependant, it is doubtful that such lagoons even approach digesters in methane production (these cold-bottom lagoons also tend to have higher than average N content, presumably because the organic acids produced – from the conversion of volatile solids to dissolved organics - bind ammonia or inhibit other microorganisms; total N concentration may be an inverse to CH_4 production, when above some threshold level, but this needs study to be confirmed). Equations and models used to predict CH_4 production of digesters have not been shown to be reliable for estimating CH_4 emissions from lagoons.

Response: EPA disagrees that the proposed methodology is basing the estimate of methane from lagoon on digesters. The methodology uses the value Bo, which represents the maximum quantity of methane that can be produced by a type of manure per mass of VS, under ideal conditions. However, that value is then adjusted by a methane conversion factor (MCF) to represent the degree to which a specific manure management system (e.g., anaerobic lagoon) can achieve Bo. The MCFs for anaerobic lagoons are based on both the temperature and retention time typical for lagoon systems. EPA agrees that the rate of methanogenesis is dependent on temperature, and that systems with lower temperatures tend to produce less methane. Solids retention within a lagoon can offset the lower rate of methane production because the volatile solids present in the lagoon have more time to convert even at lower temperatures. The methodology selected for the final rule incorporates both of these concepts.

Commenter Name: Justin Oldfield
Commenter Affiliation: California Cattlemen's Association (CCA)
Document Control Number: EPA-HQ-OAR-2008-0508-0383
Comment Excerpt Number: 4

Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

Comment: The EPA proposed rule uses models and representative figures to calculate and estimate GHG emissions from livestock operations. CCA disagrees with this approach and advocates direct emission measurements from livestock operations. The use of models can be speculative and produce inaccurate results especially if using data from one industry to represent another. For example, models used to estimate emissions from dairy cattle should not be used estimate emissions from beef cattle. Different diets, breeds and even production practices cause emissions to fluctuate greatly. In this case, the IPCC method proposed for use was built to measure emissions from dairy cattle, not beef cattle, and will likely exaggerate emissions from beef cattle. Only direct measurements from livestock operations using environmental chambers that accurately represent conditions on a feedlot should be used.

Response: EPA disagrees that direct measurements be required for manure management facilities covered under this rule, see the response to comment EPA-HQ-OAR-2008-0508-0724.1, excerpt 1.

EPA's selected methodology represents multiple animal types and manure management systems; see the response to comment EPA-HQ-OAR-2008-0508-0365.1 excerpt 5 for more information. EPA disagrees that the IPCC method only represents emissions from dairy cattle; several factors in the final rule, including volatile solids and nitrogen excretion rates, are specific to different cattle types. In addition, the selected methodology for the reporting rule uses measured values for those manure management systems (e.g., anaerobic digesters) that collect and combust biogas.

Commenter Name: G. Larry Newton
Commenter Affiliation: University of Georgia
Document Control Number: EPA-HQ-OAR-2008-0508-0461.1
Comment Excerpt Number: 3

Comment: In addition, diet has significant impact on manure composition. Few, if any, beef or dairy CAFOs feed the same diet to all animals at the same time, as nutrients are balanced for the particular stage of production of distinct groups of animals (some dairies feed as many as five different diets on the same day to groups of animals in different stages of lactation; beef feedlot diets vary in composition as animals approach market weight and a given feedlot usually holds animals in various stages of finish; swine nursery diets may change four or more time during a single month; etc.) If manure samples are not representative of all, or a majority, of the animals present, or of the entire month; they are of no greater validity than calculated values.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11.

Commenter Name: G. Larry Newton
Commenter Affiliation: University of Georgia
Document Control Number: EPA-HQ-OAR-2008-0508-0461.1
Comment Excerpt Number: 2

Comment: The requirement for manure sampling [Preamble. JJ. 3. CH_4 emitted at manure management system types other than digesters. (2); Preamble. JJ. 3. N_2O Emissions. (2)] must be

clarified. The dictionary definition of manure is “livestock excreta with or without bedding” and excreta is defined as “excreted matter as urine, feces, or sweat”. Yet there is reference to “livestock manure and urine” at other locations (Preamble section JJ. 1., and § 98.6 definition of Nitrogen excreted). This seems to imply that the samples contain only feces and are not really manure samples. It will be difficult and expensive to obtain representative samples of manure, since CAFOs do not have facilities for capturing feces and urine from individual or small groups of animals. Terminology relating to animal excreta should be changed to reflect established definitions, the use of “manure and urine” is redundant, as manure already includes urine (must assume this should actually mean “feces and urine”?), and it confuses the meaning when “manure” used alone (must assume that this actually means “manure without bedding”?).

Response: EPA clarifies that the term manure is defined as manure and urine. In regard to comments on the sampling program, see the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11.

Commenter Name: Robert Naerebout
Commenter Affiliation: Idaho Dairymen's Association, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0314.1
Comment Excerpt Number: 20

Comment: Owners and operators of dairies subject to these regulations are unlikely to understand the requirements for measuring GHG emissions, as the required mathematical formulations are several pages long and extremely complex. Thus, in order to comply with the regulations, owners of dairies will be forced to hire GHG analysts and purchase, install, and maintain novel and untested technology. While the EPA states that it will introduce tools to assist in data collection and reporting, the fact remains that the owners of dairies are subject to severe civil and criminal penalties if mistakes are made. And mistakes will be made because of the incomprehensible set of reporting and monitoring requirements.

Response: In the final rule, EPA has included tables and tools to assist facilities in determining if they are required to report, see the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10. The total costs presented represent in the final RIA reflect both the level of effort needed to comply with the reporting rule, and also the costs for both covered and uncovered facilities to determine if they need to comply with the rule. See the response to comment EPA-HQ-OAR-2008-0508-0671.1 excerpt 3 for more information.

The reporting rule covers the largest operations, which typically have staff that already manage reporting for NPDES permit requirements. The level and type of data needed to complete the air emissions calculations, in particular the number and type of animals managed on site and the type of manure management systems used, are similar to those data already compiled. Additional data will need to be compiled on the percent of manure managed by component; however, EPA does not believe specialized help will need to be hired.

For information on enforcement and compliance, see the response to comment EPA-HQ-OAR-2008-0508-0365.1 excerpt 6.

Commenter Name: Justin Oldfield

Commenter Affiliation: California Cattlemen's Association
Document Control Number: EPA-HQ-OAR-2008-0508-0228b
Comment Excerpt Number: 5

Comment: CCA suggests that EPA and its consultants go back to the drawing board to revise the methods used to calculate emissions for beef feed lot manure systems and animal threshold levels and work with industry leaders and researchers to better utilize specific gas sources that actually reflect the targeted industry.

Response: For a discussion of EPA's selected calculation methodology, see the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5. For a discussion of EPA's threshold calculations, see the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3

Commenter Name: Justin Oldfield
Commenter Affiliation: California Cattlemen's Association
Document Control Number: EPA-HQ-OAR-2008-0508-0228b
Comment Excerpt Number: 4

Comment: We concur that use of flux chambers is not the most appropriate way to accurately quantify emissions from manure. However, the use of environmental chambers would best reflect actual emissions originating from dairy or feed lot cattle. CCA is currently working in a proactive manner with the University of California, Davis, to conduct studies using environmental chambers to better establish emission thresholds. Even though the data is currently being prepared for submission and publication, preliminary results demonstrate that total emissions from manure management systems from beef feed lots are relatively low, and even our largest feed lot in California would not exceed the 25,000 metric tons of CO_2 threshold.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0383, excerpt 4, and the response to comment EPA-HQ-OAR-2008-0508-0724, excerpt 1 on direct measurement

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Commenter Name: Justin Oldfield
Commenter Affiliation: California Cattlemen's Association
Document Control Number: EPA-HQ-OAR-2008-0508-0228b
Comment Excerpt Number: 2

Comment: CCA has major concerns relative to EPA's proposed use of IPCC methodologies to calculate emissions from manure management systems. Primarily, emissions originating from dry-lot corrals or stored manure packs. The IPCC methodology is based on a model, and the models are useful, the assumptions built into the model must accurately reflect what the model is attempting to predict. That is, the model used for measuring emissions from dairy cattle cannot be used to measure emissions from beef cattle. Research demonstrates that emissions from dairy cattle, both greenhouse gas and VOCs, are significantly different. Notably the difference is in feed, types of breed and age. A one-size-fits-all approach and model should not be used.

Response: EPA disagrees that the selected methodology represents a one-size-fits-all approach. See the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5.

Commenter Name: Rechelle Holloway
Commenter Affiliation: Tyson Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0379.1
Comment Excerpt Number: 14

Comment: The amount of volatile solids of a manure storage structure can be dependent upon several things such as type and size of animal, manure handling system, feed ingredients, feeding system, pump out frequency, etc. Therefore, Tyson recommends that EPA allow a producer the flexibility to either use default values or to take samples to determine the amount of volatile solids.

Response: See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11.

Commenter Name: Dr. John A. Lory
Commenter Affiliation: University of Missouri et al.
Document Control Number: EPA-HQ-OAR-2008-0508-0672.1
Comment Excerpt Number: 5

Comment: The IPPC (2006) methodology for estimating methane generation relies heavily on concepts derived from the methane digester scientific literature. The concept of Bo (maximum methane generation potential) and the estimates of Bo in the proposed rule all come from research papers focused on biological activity in methane digesters (e.g. Hashimoto et al., 1981). There is no reference to the extensive literature on the design of anaerobic storage lagoons and an apparent failure to understand some of the concepts used to design anaerobic lagoons.

An influential paper outlining the key objectives of lagoon facilities was published by Barth (1985). That paper defined success in lagoon design if the lagoon adequately addressed odors and sludge buildup. The seminal work on lagoons was not focused on the degree of TVS consumption as a design standard. However, this paper does highlight the importance of temperature in determining the rate of VS degradation and outlined a “rationale” design standard that adjusted the lagoon treatment volume for VS based on the accumulation of temperature units. Consequently, anaerobic lagoons are typically sized in part based on having sufficient volume to treat volatile solids entering the lagoon.

A number of technical standards have been established (e.g. NRCS, 1992; ASAE, 1999; MWPS, 1985) that provide guidance on the treatment volume requirements for degrading volatile solids entering the lagoon. These estimates are adjusted by average annual temperature with larger treatment volumes required for more northerly located lagoons. In theory, the larger treatment volume in cooler locations compensates for the reduced rate of degradation at cooler temperatures. The assumption behind the design standards of anaerobic lagoons is that they have similar capacity to degrade volatile solids throughout the country recognizing that treatment volume in a lagoon located in Minnesota is over double the volume of the treatment volume of a lagoon for a similar number of animals in Texas. This is also reflected in predicted sludge accumulation rates which are predicted to be the same nationally (Barth, 1985; NRCS, 1992; ASAE 1999).

It is not apparent that the ability of an anaerobic lagoon to degrade volatile solids will be similar to an anaerobic digester. Similarly, it is not apparent that un?covered lagoons will generate the same ratio of methane to carbon dioxide as covered lagoons and methane digesters. Lagoons contain a complex biological community including aerobic bacteria, aerobic phototrophs, nitrate reducing bacteria, anaerobic phototrophs, acid forming bacteria, sulfate reducing bacteria and methanogenic bacteria (Hamilton et al., 2006). Some of these microorganisms will not be found in anaerobic digesters because the cover eliminates sunlight penetrating the surface of the lagoon and contact of the surface of the lagoon with ambient air. In addition, lagoons are subject to annual temperature swings which in northerly climates can include times when temperatures will inhibit methane producing bacteria and at times all bacteria in the lagoon (Barth, 1985). The residence time of sludge in a lagoon can be many years whereas in many anaerobic digester systems the residence time is in terms of days.

The broader microbial community may affect the maximum degradation potential of the lagoon and the proportion of methane to other gases in biogas released from the lagoon. Longer residence times may also lead to higher degradation rates. In contrast, cooler temperatures typical of ambient temperature lagoons may reduce the potential breakdown capability of the lagoon. Land application of manure in spring when the lagoon has a surplus of volatile solids may reduce methane generation by removing material before it has a chance to be degraded in the lagoon.

Estimation of VS breakdown efficiency is difficult for uncovered lagoons. Most of the data based on work in uncovered lagoons suggests a properly operating lagoon can breakdown solids to a higher degree than is predicted by the anaerobic digester model. Most of the historic lagoon literature on VS breakdown efficiency has focused on sludge accumulation (e.g. Barth (1985); Fulhage(1980); Smith (1980)). We summarized estimated TVS degradation for anaerobic lagoons for a range of studies.

[See DCN:EPA-HQ-OAR-2008-0508-0672.1 for table showing Estimates of TVS degradation in anaerobic lagoons.]

These universally estimate that the breakdown of volatile solids in an uncovered anaerobic lagoon exceeds that of anaerobic digesters. It is also important to note that there are numerous reports that the sludge accumulation rates in anaerobic lagoons are significantly less than predicted by the NRCS (1982) and ASAE (1999) standards (e.g. Hamilton, 2004; Tyson et al., 2002; Hamilton, 2002; Bicudo et al., 1999; see also Chastain, 2006). These studies are consistent with higher VS degradation rates in anaerobic lagoons. Data collected on sludge accumulation in operational lagoons may overestimate VS degradation to some degree because they typically do not account for VS removed by land application of effluent from the liquid layer of the lagoon. Based on this analysis, the EPA proposed rule significantly underestimates the degradation of TVS in anaerobic lagoons. Our literature review indicates that TVS degradation can approach 80% in swine lagoons. If we assume 65% of the biogas produced by the lagoon is methane, we estimate swine operations with more than approximately 20,000 finishing pigs would need to report under the 25,000 metric ton CO_2 equivalent threshold. This compares to 73,000 for swine farrow-to-finish in the proposed rule.

1. Calculation details:
a. 56 kg TS excreted per finished animal (ASAE, 2005).
b. 2.5 animals raised per year per pig space (turns per year).

c. 0.80 ratio of TVS to TS in excreted manure (ASAE, 2005).
d. 0.8 ratio of mass biogas produced to TVS entering manure storage.
e. 0.65 ratio of mass methane released to biogas produced.
f. 21 global warming potential (GWP) of methane.

2. CO_2 equivalent released per animal space per year = 56 kg TS excreted X 2.5 turns per year X 0.80 TVS:TS ratio X 0.8 TVS degradation X 0.65 methane:biogas ratio X 21 GWP X 1 metric ton/ 1000 kg = 1.22 metric tons CO_2 equivalents per animal space per year

3. Threshold = 25,000 metric tons CO_2 equivalents per year / 1.22 metric tons CO_2 equivalents per animal space per year = 20,440 animal spaces

Our literature review indicates for dairy cows that TVS degradation is likely to exceed 40% in uncovered dairy lagoons. If we assume 65% of the biogas produced by the lagoon is methane, we estimate dairies with more than 1,500 cows would need to report under the 25,000 metric ton CO_2 equivalent threshold. In the proposed rule USEPA estimated 5,000 dairy cows.

1. Calculation details:
a. 8.9 kg TS excreted per dairy cow per day (ASAE, 2005).
b. 0.84 ratio of TVS to TS in excreted manure (ASAE, 2005).
c. 0.45 ratio of mass biogas produced to TVS entering manure storage.
d. 0.65 ratio of mass methane released to biogas produced.
e. 21 GWP of methane.

2. CO_2 equivalent released per animal space per year = 8.9 kg TS excreted per day X 365 days X 0.84 TVS:TS ratio X 0.45 TVS degradation X 0.65 methane:biogas ratio X 21 GWP X 1 metric ton/ 1000 kg = 16.8 metric tons CO_2 equivalents per animal space per year

3. Threshold = 25,000 metric tons CO_2 equivalents per year / 16.8 metric tons CO_2 equivalents per animal space per year = 1,492 animal spaces

These two estimates represent a 70% reduction in the reporting threshold compared to the USEPA estimate in the proposed rule. The primary reason for the difference between our estimate and the estimate in the proposed rule is the methodology in the proposed rule likely underestimates the ability of uncovered anaerobic lagoons to degrade volatile solids.

Response: EPA is retaining the methodology used in the proposed rule to estimate MCF and TVS. This methodology is based on EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, as well as the Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories. As described in the response to comment EPA-HQ-OAR-2008-0508-0461.1, excerpt 4, EPA disagrees that the proposed methodology is basing the estimate of methane from lagoons on digesters. The methodology uses the value Bo, which represents the maximum quantity of methane that can be produced by a type of manure per mass of VS, under ideal conditions. However, that value is then adjusted by a methane conversion factor (MCF) to represent the degree to which a specific manure management system (e.g., anaerobic lagoon) can achieve Bo. EPA agrees that anaerobic lagoons have different design and operating characteristics than anaerobic digesters. EPA based the Methane Conversation Factors (MCF) used in the final rule on factors that are used in the U.S. greenhouse gas inventory for manure management and the IPCC 2006 Guidelines. The MCF methodology takes into account the

effects of temperature, solids retention time, and management and design practices for typical lagoons. This includes adjusting for loss of volatile solids from the system (e.g., removal for application), which adjusts the amount the TVS available to be degraded.

The commenter presents estimates of the TVS degradation in anaerobic lagoons, based on several studies. In at least one case (Fulhage 1980), the TVS degradation presented actually represents the percent of TVS reduced either through degradation or removal of solids from the lagoon. Removal of the solids from the lagoon (e.g., removal for land application) would eliminate the ability of those solids to further contribute to methane production. Therefore these estimates of the percent of TVS degraded are overestimated if they also account for solids removal from the lagoon.

In addition, the commenter then compares these values to Bo. Bo does not represent percent of TVS degradation – it instead represents the maximum *quantity of methane* that can be produced per unit of TVS *added to the lagoon.* Therefore, this comparison is not valid. The commenter then goes on to estimate the amount of methane expected to be produced by using the percent of TVS degradation to equate to the amount of methane that would be generated by the lagoon. In other words, the commenter erroneously assumes that the ratio of TVS degraded equates exactly to the mass of biogas produced (i.e., that one kilogram of VS degraded equals one kilogram of biogas produced). This error greatly overestimates the amount of methane generated by the lagoon.

Commenter Name: Michael L. H. Marsh
Commenter Affiliation: Western United Dairymen
Document Control Number: EPA-HQ-OAR-2008-0508-0702.1
Comment Excerpt Number: 4

Comment: EPA asks for comment on using facility-specific livestock population and mass, coupled with default values for volatile solids, instead of measured values. We suggest that the producer be allowed to use either method, and if choosing to measure, that sampling be done on a seasonal basis, no more than quarterly. EPA should make every effort to reduce the reporting burden as much as possible. EPA asks the same question regarding N_2O and we suggest here as well that producers be given the option of either method.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11.

Commenter Name: Rick R. Stowell
Commenter Affiliation: University of Nebraska
Document Control Number: EPA-HQ-OAR-2008-0508-0727.1
Comment Excerpt Number: 3

Comment: Estimation of volatile solids excreted per animal per day needs revision. The primary approach should be based on feed intake and conversion efficiency as defined in American Society of Agricultural Engineers Standard D384.2 Manure Production and Characteristics, or using tabular values provided in the same publication. Consider whether calculation of GHG generation or emissions is more appropriate, especially for this source category, where estimates will be made primarily based upon manure composition without other information relevant for

determining emissions. If manure sampling is required, clarifications are needed concerning the interpretation of excreted manure, collection of a representative sample, and protocol to follow to maintain sample quality. There is great difference between sampling urine and feces 'as excreted' compared to 'as collected' from both a practical and scientific basis. In either case, guidance is needed to ensure that representative samples are obtained and resulting information is useful.

Response: EPA has removed the manure sampling requirements from the final rule. See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11, and the preamble

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Commenter Name: J. P. Cativiela
Commenter Affiliation: Dairy Cares
Document Control Number: EPA-HQ-OAR-2008-0508-1014.1
Comment Excerpt Number: 2

Comment: Preferred option: Regional inventories combined with incentives. Because of the inherent uncertainties related to measuring GHG emissions from highly variable sources (variations can occur seasonally, diurnally, geographically and by differences in manure management), Dairy Cares believes that regional livestock GHG inventories based on a more general survey of the operating and climate conditions – much as EPA has utilized to date – provide more useful data for policy decisions. In fact, the ongoing National Air Emissions Study (NAEMS), a groundbreaking multi-year study of various livestock facilities across the nation and under the oversight of EPA, promises to soon deliver data and methodologies needed for improved regional GHG estimates. The policy objective of reducing GHG emissions from livestock operations is best served by creating financial incentives for capturing methane biogas from manure management containment structures and utilizing the gas as a source of renewable energy. An incentive system that scales rewards for doing so based on the volume of biogas destroyed will have three important benefits: * It will send the appropriate signal to the market that the larger the amount of biogas converted to renewable energy, the larger the financial reward, and * It will combine reporting requirements, costs and burdens with the financial incentives for renewable energy, rather than requiring operations to report even if they have no immediate plans or prospects to pursue a biogas-to-energy project. Thorough validation of emissions produced and subsequently reduced only makes sense once a biogas-to-energy project is actually in place. Thus, claimed emissions reductions are subjected to an appropriate validation process. * This approach does not limit biogas production/energy generation to a class of operations above or below a certain threshold, but instead allows any operation to pursue projects that make financial sense.

Response: EPA considered the approach of regional inventories. Since there is still significant variability of operating and climate conditions within a region, such inventories could be labor intensive and place significantly more burden on the industry, since they would require data collection from all operations, not just those exceeding the reporting threshold. The U.S. GHG inventory utilizes currently available regional data on operating and climate conditions wherever possible. The collection of facility level GHG emission data required by this rule, including the type of manure management systems in operation and the number and types of animals serviced by those systems, will help to inform future climate change policy decisions while minimizing the overall industry burden. For more information about the importance of facility level data, see the response to comment EPA-HQ-OAR-2008-0508-0724.1, excerpt 1.

In regard to ongoing NAEMS air emission studies, see the response to comment EPA-HQ-OAR-2008-0508-0854.1, excerpt 6. In response to incentives for digesters, see the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 14.

Commenter Name: Mark Gibbons
Commenter Affiliation: Dairy Producers of Utah
Document Control Number: EPA-HQ-OAR-2008-0508-1567
Comment Excerpt Number: 2

Comment: The new proposed reporting regulations are overly complicated and time consuming. Finding and complying with these report would require most operations to hire outside technical help. Something they can little afford. If we must be compelled to comply with reporting rules, supporting documentation, formulas and forms need to be much simpler and readily available so small operators can fill them out quickly without the added cost of more employees. Make it simple or the resulting information will not be correct.

Response: EPA has simplified the methods for reporting including developing tools to help determine if a facility is subject to the rule. See the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10.

Commenter Name: Robert D. Byrne
Commenter Affiliation: National Milk Producers Federation (NMPF)
Document Control Number: EPA-HQ-OAR-2008-0508-0854.1
Comment Excerpt Number: 2

Comment: There does not yet exist reasonably priced, accurate emissions monitoring techniques that are practical to use regularly on the farm. The available methods are prohibitively expensive for any operation to carry out on their own on their farms. As such, the only practical way for a producer to comply with this reporting requirement would be to use standard estimates of emission factors, apply them to their farms' manure, and report those results. There is no new information in such a report that is not already generated in the EPA inventory, and these efforts will not improve or enhance the inventory relative to the current state of the art in any way.

Response: EPA disagrees that there is no new information to be obtained by this rule. See the response to comment EPA-HQ-OAR-2008-0508-0724.1, excerpt 1 for more information about the importance of facility level data.

EPA does, however, recognize the burden that the proposed manure monitoring program would impose and has removed this requirement from the rule. See the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11.

In addition, EPA is developing a calculator tool for manure management that will support the use of site-specific data, see the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10.

Commenter Name: Keith Overcash

Commenter Affiliation: North Carolina Division of Air Quality (NCDAQ)
Document Control Number: EPA-HQ-OAR-2008-0508-0588
Comment Excerpt Number: 28

Comment: We agree that the use of a look-up table or other tools that would help owners or operators to determine if they meet the reporting threshold should be used.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10.

Commenter Name: Steven M. Pirner
Commenter Affiliation: South Dakota Department of Environment and Natural Resources (SD DENR)
Document Control Number: EPA-HQ-OAR-2008-0508-0576
Comment Excerpt Number: 18

Comment: In reviewing EPA's proposal, especially, the preamble language and Table JJ-1, it appears the EPA's assumptions about how livestock operations are managed and the manure management systems they have constructed and are operating are different from what is occurring at most operations in South Dakota. This will make it very difficult for South Dakota manure management system owners or operators to determine if their system is regulated by this rule. SD DENR does not believe any of the permitted operations in South Dakota have the ability to make that determination with the limited information provided in the proposed rule. In the proposal EPA indicates they may work on screening tools to help producers determine if their operation might be regulated. Should manure management systems remain part of the rule, these technical assistance and educational materials will be essential if they can be kept simple yet work for different types of livestock operations with complex manure management systems. The lack of agreed upon emission factors and EPA educational materials and guidance only increased the confusion about EPA's recent decision to require certain large concentrated animal feeding operations to report under EPCRA. SD DENR was unaware of the EPCRA reporting requirement until we received questions about it from a producer group. Should manure management systems be part of this final rule, SD DENR would hope EPA's experience dealing with the resulting confusion from state agencies, producer groups and producers due to the lack of educational information available for the EPCRA reporting requirements would ensure EPA makes adequate educational materials and outreach available for this rule.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10.

Commenter Name: See Table 1
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0435.1
Comment Excerpt Number: 12

Comment: EPA is soliciting comments on whether additional screening tools such as a lookup table or a computerized calculator to help owners and operators determine if they meet the reporting threshold would be useful. We support the use of a computerized calculator that would include specific climate data for the various regions where CAFOs are located. The

computerized screening and reporting tool could also build in the nutrition-based model approach to excretion prediction of ASABE D384.2

Response: See the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10.

Commenter Name: See Table 2
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0395.1
Comment Excerpt Number: 26

Comment: EPA is seeking comment on the option of using facility-specific livestock population and mass, and default values for volatile solids rate to estimate total volatile solids, instead of measured values. EPA is also seeking comment on whether a different sampling and testing frequency, such as quarterly, would be more appropriate than monthly. First, we believe it is imperative that a facility be allowed to use site specific population and average animal mass data. The base input variables for the CH_4 and N_2O emissions estimating methodologies are animal population and mass. Site specific values for these two inputs is important. Second, given the recent significant undertaking of the scientific community to update volatile solids data in ASABE D384.2, we would contend that is appropriate for default values to be used for volatile solids. Third, we would support EPA allowing producers the option of (1) using default look-up values or (2) using facility, site-specific data.

Response: EPA agrees that facilities be allowed to use site-specific animal population and animal mass data. EPA has also provided default typical animal mass values if site-specific data are not available. EPA also agrees that it is appropriate to use default values for volatile solids and nitrogen. For more discussion of EPA's revisions to the monitoring program and use of default values, see the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11.

Commenter Name: Christina Gruenhagen
Commenter Affiliation: Iowa Farm Bureau Federation (IFBF)
Document Control Number: EPA-HQ-OAR-2008-0508-0470.1
Comment Excerpt Number: 5

Comment: We believe that the chosen method is also burdensome for the purposes of estimating nationwide emissions from the livestock sector. We recommend the EPA only require reporting of information that is already collected by farmers because this is only a reporting program and the information collected will not be used for regulatory controls over a specific facility. Even with the collection of additional monitoring data, the reported values are only an estimate. Farmers do not currently collect manure samples monthly or quarterly, but collect it annually prior to land application to determine appropriate crop fertilization rates. At the time of land application or removal process from the management system, many farmers will estimate the volume of manure since the last clean out. This process occurs irregularly approximately every 6-16 months depending on manure storage capacity, regulatory requirements, weather factors, animal health and timing of the need for fertilizer. State regulations require volume measurements to be taken at the same time as nitrogen concentration because they have a direct relationship. More dilute material will have a lower concentration and a more concentrated product has a higher concentration. Requiring monthly manure samples will not ensure accurate

monitoring of emissions because of this interrelationship. Predicting produced volume in a specific time period will only be a rough estimate unless it corresponds to a clean-out. Farmers generally are aware of the weight of their animals; however, not every animal in a barn weighs the same during the production cycle or at the time of marketing the animal. Market weights will also vary depending on the economy and market price. Of all the requested monitoring data, farmers would have the ability to report with regular accuracy the number of animals housed by species and the type of manure management system. The remaining data, even if it is facility specific data, are only estimates with varying margins of error. To simplify the regulatory burden of this rule, we recommend that the EPA provide the option of allowing farms to simply report population numbers by species and the manure management system type. All other monitoring data inputs can be default values. The EPA can take these numbers to calculate the estimated emissions for the industry as a whole using default values for the remainder. With the small portion of GHG emissions attributed to the agricultural sector and an even smaller portion attributed to anthropogenic emissions within the agricultural sector, EPA should limit reporting to information already collected annually by farmers, if the agency believes such reporting is even necessary to achieve an emission estimate.

Response: EPA generally agrees with the concerns raised regarding the burden associated with manure sampling, and has removed this requirement from the final rule; see the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11 for more information.

For animal mass, EPA believes some facilities will have records on weight gains through the animal's lifecycle; however, EPA has also provided default typical animal mass values if site-specific data are not available. EPA agrees that facilities use site-specific animal population and type of manure management system(s).

In response to concerns of the burden for reporting, EPA has developed tools to simplify the process. See the response to comment EPA-HQ-OAR-2008-0508-0336.1 excerpt 10 for more information.

Commenter Name: Rick R. Stowell
Commenter Affiliation: University of Nebraska
Document Control Number: EPA-HQ-OAR-2008-0508-0727.1
Comment Excerpt Number: 5

Comment: Re-evaluate the approach for monitoring and reporting GHG emissions from this sector. There appears to be a relatively high amount of uncertainty in the sampling and modeling involved in the suggested approach to actually derive emissions. It seems that collecting more basic information (animal numbers and manure storage type) information is justified at this time. Actual GHG emissions would then be modeled based on the evolving understanding of GHG emissions from these facilities.

Response: EPA has removed the sampling requirements from the final rule; see the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11 for more information. The modeling methodologies EPA is using are described in the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5.

Commenter Name: William Fred Durham
Commenter Affiliation: West Virginia Department of Environmental Protection (DEP)
Document Control Number: EPA-HQ-OAR-2008-0508-0629.1
Comment Excerpt Number: 5

Comment: In the preamble at Section V.JJ (Manure Management) and in Subpart JJ of the proposed rule, in equations JJ-2 and JJ-7, EPA uses the terms "Total number of head to meet threshold " and "population," respectively. But it is unclear what is meant by those terms. While the February 4, 2009 technical support document for manure management does reference equation 10.1 and its associated explanation in Chapter 10 of Volume 4 of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, DAQ believes the rule would be clearer if EPA included the IPCC equation and explanation in both the preamble and rule.

Response: EPA agrees and has added the IPCC equation to the final rule to provide more clarity on the estimate of average annual animal population.

Commenter Name: Christina Gruenhagen
Commenter Affiliation: Iowa Farm Bureau Federation (IFBF)
Document Control Number: EPA-HQ-OAR-2008-0508-0470.1
Comment Excerpt Number: 4

Comment: The EPA requested comment on the monitoring methods for methane and nitrous oxide emissions from manure management systems. We support the EPA's rejection of both the modeling method and the direct measurement method as being expensive, burdensome and in many ways inaccurate. Farmers do not currently collect the data required for these two methods. We would support giving farmers the option of whether to report their facility specific data or to use default values for the requested monitoring data for this reporting rule to allow for differing farm management practices.

Response: EPA has removed the requirement for manure sampling from the final rule, see the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11.

Commenter Name: Jeff Windett
Commenter Affiliation: Missouri Cattlemen's Association (MCA)
Document Control Number: EPA-HQ-OAR-2008-0508-0762.1
Comment Excerpt Number: 3

Comment: Under Section 98.364, EPA has propose a requirement to "perform a one-time analysis on your operation to determine the percent of total manure by weight that is managed in each on-site manure management system". For many open air beef cattle facilities, this requirement cannot be met. The hydrology of a feedyard is complex can only be evaluated in laboratory or small scale field studies. MCA recommends the EPA delete this site-specific requirement and permit a facility to use research data or other published information to determine the percent of manure handled in each on-site manure management system.

Response: EPA has retained the requirement for a facility to develop an estimate of the fraction of manure from each animal type that is handled in each manure management system

component. However, EPA disagrees that this analysis would automatically required the use of laboratory or small scale field studies. The reporting rule covers the largest operations, which typically have staff that already manage reporting for NPDES permit requirements. The level and type of data needed to complete an analysis of the amount of manure managed in runoff ponds would correspond to data required to complete a nutrient management plan for the facility's NPDES permit and therefore may already be compiled.

Commenter Name: Dr. Al Sutton
Commenter Affiliation: Purdue University
Document Control Number: EPA-HQ-OAR-2008-0508-0652.1
Comment Excerpt Number: 3

Comment: A supposition that TVS degradation to produce methane emissions be based upon performance of anaerobic digesters is erroneous because a typical uncovered anaerobic lagoon does not have the same conditions as an anaerobic digester. Typical lagoons have the zones: (1) an anaerobic zone in the deep part of the lagoon near the sludge layer, (2) a facultative zone within the upper portions of the lagoon depths and (3) an aerobic zone at the top layer of the lagoon. Thus, the volatiles produced during TVS degradation in a lagoon (and even in deep pit slurry or a solid manure pack systems) are very different with little methane produced. In most cases, volatiles are VFA, volatile amines or other simple volatile compounds that are emitted, not methane. In order for methane bacterial producers to exist and produce methane there must not be any oxygen present in the system (they are obligate anaerobic bacteria). Therefore, to assume that a majority of TVS is degraded to methane is not realistic and detrimental to the animal agriculture industry. If EPA is going to use models to predict methane emissions, then scientifically derived studies must be conducted using science-based methodology to measure actual methane emissions from different manure storage and treatment facilities to develop and verify models. In addition, the factors influencing microbial activities such as temperature, pH, storage structure design and loading rate in the storage facility, treatment parameters, management, etc. must be considered and included in the model, because they dramatically influence the relative breakdown of TVS.

Response: EPA agrees that to assume that a majority of TVS is degraded to methane is not realistic. The MCF methodology takes into account the effects of temperature and management and design practices on the system, which adjusts the amount the TVS estimated to be degraded accordingly. See the response to comment EPA-HQ-OAR-2008-0508-0461.1, excerpt 4.

Commenter Name: Ryan K. Miltner
Commenter Affiliation: Miltner Law Firm, LLC
Document Control Number: EPA-HQ-OAR-2008-0508-0508.1
Comment Excerpt Number: 3

Comment: The methodologies for reporting from manure management systems should be re-evaluated upon completion of the National Air Emissions Monitoring Study (NAEMS): The National Air Emission Monitoring Study (NAEMS), established in 2006 by a voluntary Air Compliance Agreement between the EPA and the pork, dairy, egg and broiler industries, will address the lack of scientific data. Livestock producers have provided the financial support for the NAEMS so that emissions data can be collected at select sites to: 1) accurately assess

emissions from livestock operations and compile a database for estimation of emission rates, and 2) promote a national consensus for emissions-estimation methods/procedures from livestock operations. The NAEMS is the seminal study on air emissions from livestock feeding operations. The study, funded by farmers at a cost of $14.8 million, represents the highest and best science available for measuring air emissions and EPA should defer to NAEMS for estimation of GHG emissions. The NEAMS is scheduled to complete data collection this year, and results are scheduled to be analyzed and released in 2010. [Refer to data submittal for referenced provided by commenter in DCN:EPA-HQ-OAR-2008-0508-0508.1] One of the stated purposes of the NAEMS study is to determine scientifically sound emissions factors for different elements of differently designed dairies in different regions of the country. It follows that the emissions rates observed during the NAEMS should be utilized in the formulas for reporting by dairy manure management facilities. The NAEMS data should be incorporated to the greatest extent possible both for its scientific merit and to reduce the need for individual dairy farms to sample and measure the total volatile solids on the facility each month. DPNM urges EPA to use the NAEMS results as a basis for estimating air and GHG emissions especially since the NAEMS study was engineered from the outset to provide useful site-specific estimates. In particular, the study is monitoring dairy facilities in five states, each with differing climates and dairy types. The results from the NAEMS study should be specific enough to be used across multiple dairy facilities and, after undergoing scientific peer review, of the results of the NAEMS study should be utilized in lieu of the proposed formulas and methodologies.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0854.1, excerpt 6.

Commenter Name: Dr. John A. Lory
Commenter Affiliation: University of Missouri et al.
Document Control Number: EPA-HQ-OAR-2008-0508-0672.1
Comment Excerpt Number: 2

Comment: Including GHG emission monitoring requirements for manure storage facilities may result in less accurate estimates of emissions from these facilities in the future. Our review of the scientific literature indicates there is still substantial uncertainty in the efficiency of these facilities in turning volatile solids into greenhouse gases. A multi?year national study, as a result of a consent agreement with EPA, is currently collecting data on emissions from manure storage facilities. It is premature to lock into regulation a set of equations and associated parameters for estimating GHG emissions from manure storage facilities.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0854.1, excerpt 6. Regarding EPA's selected method, See the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5.

Commenter Name: Dr. Al Sutton
Commenter Affiliation: Purdue University
Document Control Number: EPA-HQ-OAR-2008-0508-0652.1
Comment Excerpt Number: 1

Comment: The EPA rule requires monthly sampling of "fresh manure" from an unknown number of animals for chemical analysis including at least TVS and total nitrogen. It is assumed

that the rule is defining fresh manure as freshly excreted feces and urine which would be combined together in correct proportions to make fresh manure. If not, and if only fresh feces are to be collected, then this terminology should be changed in the rule to avoid confusion. However, as described in the rule, it is very unlikely a producer will obtain a representative and accurate estimate of TVS or nitrogen for a livestock or poultry operation. This would require numerous samples from a significantly large number of animals due to normal biological variation among animals, different diets being fed to animals on one operation and the error in grab sampling at different times. For instance it is very common for a dairy producer to feed at least two lactation diets for cows at different stages in their lactation periods, a dry cow diet, and a heifer growth diet all at the same time to dairy animals which will be contributing manure to a common storage facility. For swine, it is very common that 6 to 10 different diets will be fed to growing pigs, in addition to a gestation diet, nursery diets and lactation diets all at the same time on a swine farrow to finish operation. Beef cattle feedlots often feed from 3 to 5 different diets during the growth and finish phases of beef production. And broiler and turkey operations will often feed 4 to 5 different diets during growth phases all within a short time frame. Each of these diets will excrete different TVS and N concentrations, therefore, just grab sampling fresh feces on a given day will not add very consistent and realistic data results. As a consequence, requiring all the labor and expense to collect samples and have these samples analyzed to fit into a model that is not accurate to estimate methane emissions is not logical.

Response: EPA has removed the manure sampling requirements from the final rule. See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11, and the preamble.

Commenter Name: Justin T. Schneider
Commenter Affiliation: Indiana Farm Bureau, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0583.1
Comment Excerpt Number: 2

Comment: It is important that the final rule not place an elaborate and unduly burdensome monitoring and reporting requirement on livestock and poultry producers. In that regard, the rule proposal lists various monitoring methods that were considered by EPA. It is important that the method used not require investments in expensive equipment or time-consuming analysis, research or monitoring. Steps should be taken to provide resources that facility owners and operators can utilize to determine whether they meet reporting thresholds. In addition, various tools should be available to monitor and report emissions levels. Facilities are constructed and managed differently, resulting in variability in GHG levels between two similar but not identical operations. We commend EPA for recognizing this variability in considering how emissions should be monitored.

Response: EPA agrees that emissions can vary based on climate, type of production, and other geographical factors; the methodologies used in the rule reflect these variations, as described in the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 10. To facilitate reporting under the rule, EPA is developing applicability tables and a calculator tool. See the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10 for more discussion.

Commenter Name: See Table 2
Commenter Affiliation:

Document Control Number: EPA-HQ-OAR-2008-0508-0395.1
Comment Excerpt Number: 29

Comment: EPA is requesting comment on considering developing a tool to assist reporters in calculating emissions from this source category, such as EPA's FarmWare and CCAR's Livestock Project Reporting Protocol. TCFA is not opposed to the development of a tool that would be available to producers for making these estimates of emissions; however, we are opposed to the examples provided in the proposed rule for the following reasons. 1. FarmWare is not applicable to beef cattle facilities. FarmWare is an analytical tool designed to provide a preliminary assessment on the benefits of integrating anaerobic digestion into an existing or planned dairy or swine manure management system. In addition, according to EPA's website (5/29/09), FarmWare is being revised and temporarily is unavailable. Open air beef cattle facilities are very different from dairy or swine operations, including the fact that they do not use anaerobic digestion systems for manure management. Any tool that is developed must be appropriate for and differentiated among animal species. 2. The California Climate Action Registry -- Livestock Management Project Reporting Protocol is focused on capturing and combusting methane from manure management systems. Since there is very little proven technology available to beef cattle facilities to capture and combust methane from dry manure, the CCAR—Livestock Management Project Reporting Protocol is not applicable to beef cattle facilities.

Response: EPA agrees that the existing tools to estimate emissions would not be sufficient for the purposes of this rulemaking. To facilitate reporting under the rule, EPA is developing applicability tables and a calculator tool. See the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10 for more discussion.

Commenter Name: J. P. Cativiela
Commenter Affiliation: Dairy Cares
Document Control Number: EPA-HQ-OAR-2008-0508-1014.1
Comment Excerpt Number: 10

Comment: The methodology set forth in the proposed rule appears to be the same as the methodology used by Intergovernmental Panel on Climate Change (IPCC). Methodologies to calculate GHG emissions can change over time based on information gleaned from new studies. For example, ongoing research may indicate that the maximum CH_4 production potential (Bo) values are too conservative1. Currently, the proposed rule explicitly defines the calculation methodologies and default values. Instead, we recommend that the EPA include the methodologies and default values in a separate document that is referenced in the EPA rule. We believe that this approach will ensure that the most recent calculations and default values (i.e., good science) are used. Additionally, this approach will avoid the need to amend the rule every time the calculations or default values need to be updated. Alternatively, we recommend that the IPCC methodology be referenced in the proposed rule. That way, when the IPCC methodology is updated, the calculation methodology in the proposed rule will also be updated by reference. [See reference provided by commenter.]

Response: EPA disagrees that the methodologies and default values to be used to estimate GHG emissions should be included in a separate document that is referenced by the rule. Although EPA understands the commenter's desire to allow ongoing updates to the values used, a

consistent basis needs to be applied to the reporting requirements. Even if EPA were to prepare such guidance, ongoing updates could be confusing to facilities in determining the need to report. In addition, although EPA generally utilizes the IPCC methodology, the default values specified in the reporting rule are specific to the U.S. See the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 10.

Commenter Name: Ryan K. Miltner
Commenter Affiliation: Miltner Law Firm, LLC
Document Control Number: EPA-HQ-OAR-2008-0508-0508.1
Comment Excerpt Number: 6

Comment:
The reporting year should be delayed to accommodate the integration of NAEMS data: Given that data analysis from the EPA NAEMS will likely not be completed until after January 1, 2010, monitoring for manure management facilities should not begin until such data is fully collected, analyzed, and reviewed. The data gathered by the NAEMS will be of superior quality and specificity to that currently available. In addition, reporting using NAEMS data factors would likely lower the costs of reporting for affected manure management facilities. Reporting under the proposed mechanism and then later reporting using the NAEMS data factors could result in inconsistent emissions reports that will not be comparable. If the goal of the mandatory reporting rule is to compile an accurate ongoing survey of GHG emissions, then waiting until the full development of the NAEMS data offers the real probability of more accurate and consistent data compilation.

Response: EPA recognizes that there is an ongoing study of air emissions from animal feeding operations, see the response to comment EPA-HQ-OAR-2008-0508-0854.1, excerpt 6.

Commenter **Name:** Burl Ackerman
Commenter Affiliation: J. R. Simplot Company
Document Control Number: EPA-HQ-OAR-2008-0508-1641
Comment Excerpt Number: 11

Comment: The methodology for estimating emissions from manure management is largely based on 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Currently, there is a great deal of research occurring in this source category to determine greenhouse gas emissions from manure management practices. Undoubtly as more research occurs better and more accurate methodologies will be developed. By prescribing the method in the rule, these future improved methodologies will not be allowed for calculating emissions. We recommend allowing alternative methods as the science develops in this source category.

Response: EPA recognizes that there is ongoing research of air emissions from animal feeding operations, see the response to EPA-HQ-OAR-2008-0508-0854.1 excerpt 6.

EPA has developed sound emission calculation methodologies; see the response to EPA-HQ-OAR-2008-0508-0365.1, excerpt 5 for a response to comments about the methodologies.

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

Commenter Name: J. P. Cativiela
Commenter Affiliation: Dairy Cares
Document Control Number: EPA-HQ-OAR-2008-0508-1014.1
Comment Excerpt Number: 13

Comment: The proposed rule accounts for the destruction of CH_4 due to combustion in a flare or engine. However, the calculation methodology does not appear to account for other beneficial uses of the biogas, such as injection in a natural gas pipeline (i.e., it appears that a facility cannot reduce its CO_2eq emissions by routing gas from an anaerobic lagoon to a pipeline). The rule language should be broadened to include the removal of CH_4 from the dairy through pipelines or other means for off-site uses.

Response: EPA agrees that the removal of CH4 from manure management facilities though pipelines or other means for off-site use should be incorporated into the calculations in the rule. In response to this comment, EPA has revised Equation JJ-5 in the final rule to include a methane destruction efficiency equal to 1 if methane is transported for use off-site.

Commenter Name: J. P. Cativiela
Commenter Affiliation: Dairy Cares
Document Control Number: EPA-HQ-OAR-2008-0508-1014.1
Comment Excerpt Number: 12

Comment: The methodology included in the proposed rule does not include all animal types present on a farm (e.g., calves). However, the technical support document released by the EPA includes emissions from calves. We recommend that default value tables (i.e., Table JJ-1) be modified to include information from all animals from which the EPA will ultimately require emissions to be reported.

Response: EPA agrees that default values should be provided in the rule for all animals types expected to be at farms that meet the required threshold level of the rule. In response to this comment, EPA has added default values for calves into the final rule.

Commenter Name: See Table 1
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0435.1
Comment Excerpt Number: 7

Comment: In Section 98.363(a), equation JJ-2 requires the use of a manure excretion rate (MER) and an annual average percent total volatile solids (percentTVS). The MER can be either default values from table JJ-1 or farm-specific data in kilograms of manure per day per 1000 kg of animal mass. As-excreted manure data (MER) is normally collected at a university laboratory

with specific holding pens designed to capture all urine and feces from the animals in a controlled environment to measure the manure volume and allow determination of the characteristics. The MER is not something that is typically measured on commercial swine farms nor is it something that is reasonably practicable to measure. Flow into the manure treatment systems on swine farms is not measured. For nutrient management purposes, the flow out of the manure management systems is normally measured, but it is greatly influenced by rainfall and evaporation in the local area. The volume of flow into the treatment system is influenced by recycled liquid in many cases. Most swine farms with uncovered anaerobic lagoons use either flush systems where lagoon liquid is recycled back to the barns for flushing or pull plug/pit recharge systems where lagoon liquid is recycled back to the barns for pre-filling the pits. In either case, the as-excreted manure is diluted by the recycled liquid. The recycle flow also contains TVS and nitrogen and thus changes the characteristics. For these reasons, producers likely will not have data available on manure production rates and will therefore have to use the default values provided by EPA in table JJ- 1. The sources of the MER values in Table JJ-1 are not specified. Over the past 10 to 20 years, the swine industry has made significant advances in the formulation of feed rations tailored specifically to the needs of swine. Data on the conversion of feed to pounds of gain is routinely collected by the industry, and this metric has been steadily increasing for a number of years. When the feed conversion efficiency increases, manure production decreases. In addition, manure production data collected at biogas projects within the industry has consistently shown that nearly all of the "textbook" values for manure production, solids and nutrient content, such as those in table JJ- 1, are outdated and significantly over estimate swine manure production. Therefore, use of the default values provided by EPA is not recommended. Our suggestion is to change equation JJ-2 to require an estimation of the annual kilograms of volatile solids entering the treatment system. The most recent effort by the research community to determine manure excretion characteristics for swine was by the American Society of Agricultural and Biological Engineers (ASABE) in its nutrition-based model approach to excretion prediction (ASABE D384.1)2). ASABE developed models for prediction of manure excretion based on differing nutritional schemes. The methodology used predicts nitrogen excretion based on the difference between nutrient intake and nutrient retention. Dry matter (total solids) excretion is estimated by assuming the dry matter digestibility of typical diets used in each production phase. Volatile solids are consistently found to 80 percent of the dry matter. Thus the TVS and nitrogen can be determined from ASABE D384.2 and is recommended as the reference for the manure excretion values in place of the manure excretion rate values used in Table JJ- 1.

Response: EPA has removed the manure sampling requirements from the final rule. See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11, and the preamble.

Commenter Name: Dr. John A. Lory
Commenter Affiliation: University of Missouri et al.
Document Control Number: EPA-HQ-OAR-2008-0508-0672.1
Comment Excerpt Number: 8

Comment: Table JJ-2 in the proposed rule has many problems. 1. The temperatures listed in the table are "average annual temperature" for a location. The table in the proposed rule and in the supporting documentation does not make this apparent. However it is very clear in the listed

reference for this table that the values in the table are based on average annual temperature. 2. The estimates of MCF in Table JJ-2 are incorrect for lagoons. Please note that the use of temperature in the development of MCF's for anaerobic lagoons is also erroneous. Properly sized lagoons have a treatment volume that varies with average annual temperature. According to the design standard used for these lagoons, the annual capacity of these lagoons to degrade volatile solids should be similar in different parts of the country although the size of the lagoon will be larger in northerly climates to insure similar treatment capacity. 3. We did not spend time researching the MCF values for slurry storages. We anticipate there are problems in these values as the referenced method for these MCF values is the same as the approach we conclude is as flawed for anaerobic lagoons. By definition, slurry tanks have no defined treatment volume for volatile solids. Given this fact it seems highly unlikely that some of the treatment percentages quoted in Table JJ-2 for slurry tanks can be attained. The development of this component of the rule must be thoroughly reviewed, corrected, and better referenced. The understanding of gaseous losses from anaerobic lagoons is still evolving quickly. Only five years ago it was suggested that the majority of the nitrogen loss from such a lagoon was in the form of N_2 gas when previously it had been assumed that nitrogen losses were nearly exclusively as ammonia (Harper et al., 2004). There is currently an on?going national study, associated with a consent agreement with EPA, to measure gaseous emissions from animal barns and manure storages. It is likely that emerging science and a better summary of existing science will lead to different equations for predicting GHG emissions from manure storage facilities and to different parameter estimates. It is premature to lock in the proposed equations and parameter estimates in the proposed rule for estimating GHG emissions from manure storage structures. The use of the constant 365.25 days instead of 365 days for a year in most equations in section JJ demonstrates a lack of appreciation of the degree of precision of these calculations. Yes this is a small point, but it implies a lack of appreciation for the precision of the equation.

Response: The commenter is correct in noting that the temperatures listed in the proposed rule's Table JJ-2 are average annual temperatures. Table JJ-2 in the proposed rule was obtained from the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*, Volume 4, Chapter 10. In response to this comment, EPA revised the table in the final rule to clarify that the temperatures listed in the table are average annual temperatures.

EPA disagrees that the estimates of MCF are incorrect and that the use of temperature in the development of MCF is erroneous. Biological processes, such as methane generation from manure management, are temperature dependant. As noted by the commenter, "the annual capacity of these lagoons to degrade volatile solids should be similar in different parts of the country although the size of the lagoon will be larger in northerly climates to insure similar treatment capacity". This statement reflects that fact that treatment processes in colder climates occur at as slower rate than treatment processes in warmer climates and therefore colder climate require more lagoon volume. In addition, there are numerous references in the literature that methane emissions from lagoons are related to windspeed, temperature, and volatile solid loading into the system. The MCF represents the annual amount of methane that will be produced from a manure management system. The amount of methane produced in a colder climate in one period of time will be less than the amount of methane produced in warmer climate in the same period of time. Therefore, the inclusion of temperature in the calculation of MCF is appropriate.

For a discussion of EPA's selected calculation methodology, see the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5. See response to comment EPA-HQ-OAR-2008-0508-

0854.1, excerpt 6 for a discussion of ongoing studies of air emissions from animal feeding operations.

EPA agrees with the commenter that the use of 365.25 days per year is not suitable for the equations in the proposed rule. In response to this comment, we have revised the equations in the final rule to used 365 days per year.

Commenter Name: Dr. John A. Lory
Commenter Affiliation: University of Missouri et al.
Document Control Number: EPA-HQ-OAR-2008-0508-0672.1
Comment Excerpt Number: 7

Comment: Revise how estimated TVS are converted to an estimate of carbon loss potential from the manure storage. The proposed calculation of methane release from manure storage facilities relies heavily on approaches developed for anaerobic digesters. This has led USEPA to propose a calculation approach that includes inaccurate assessment of methane release from some manure storage facilities and to propose an equation that is difficult to interpret and to implement. We propose that an alternative equation be used to estimate methane generated by manure storage facilities. This alternative equation provides a clearer description of the key assumptions in such a calculation and will promote research that will improve the quality of the parameters in the equation and the estimates of methane loss from these facilities.

Our suggested equation is:
CH_4 emissions (metric tons/yr) = TVS entering the storage (kg/year/animal space) X Fraction of TVS destroyed in the storage X Fraction of the resulting biogas released as methane X 1 metric ton/1000 kg X average annual occupied animal spaces X Fraction of excreted manure entering storage

To implement this equation, book values for the "fraction of TVS destroyed in the storage" would need to be developed for a wide range of manure storage facilities based on an expanded literature review similar to what we completed for lagoons for Table III?1. Farm?specific values of this fraction could be developed based on comparing the TVS to fixed solids ratio of manure entering the storage and lagoon sludge in lagoons or the agitated manure from a slurry storage facility (see Fulhage (1980) for an example of this calculation for lagoons). These measurements can be difficult and have a lot of error if done poorly so such measurements should not be required of any operations reporting under the rule. They are also not appropriate for storages that have bedding, soil, or other foreign material entering the facility or for operations with solid separators.

Response: EPA disagrees with the suggested revision to the methane calculation. As discussed in the response to comment EPA-HQ-OAR-2008-0508-0672.1, excerpt 5, the commenter has erred in their use of data on TVS *reduced* versus TVS *degraded*. In addition, the commenter also errs in calculating methane generation by using the percent of TVS degradation to equate to the amount of methane that would be generated by the lagoon. In other words, the commenter erroneously assumes that the ratio of TVS degraded equates exactly to the mass of biogas produced (i.e., that one kilogram of VS degraded equals one kilogram of biogas produced). This error greatly overestimates the amount of methane generated by the lagoon. Therefore, the suggested approach is flawed.

In the final rule, we will continue to use the proven and accepted methodologies to estimate methane emissions that were included in the proposed rule. These methodologies are based on EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, as well as the Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories, as described in the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5.

Commenter Name: Dr. John A. Lory
Commenter Affiliation: University of Missouri et al.
Document Control Number: EPA-HQ-OAR-2008-0508-0672.1
Comment Excerpt Number: 6

Comment: Revise how total volatile solids (TVS) are estimated. Section 98.360 (a) details the proposed calculation of total volatile solids (TVS) excreted by animals and being collected in a manure storage. The proposed approach requires estimating or measuring the volume of manure excreted by the animals and then measuring the percent TVS in manure entering the manure storage. Multiplying the measured fraction of the manure as TVS by the quantity of manure entering the manure storage provides an estimate of the TVS entering the manure storage. Unfortunately this apparently straight forward calculation provides significant challenges for implementation on animal feeding operations. Most animal feeding operations do not have a way to measure excreted manure volume (urine plus feces) and percent TVS of excreted manure on their farm. Typically when animals defecate, the manure is either deposited in bedding under the animal or carried by gravity or flushing to a manure storage facility. Historically, manure sampling and testing has focused on obtaining a representative sample of manure mixed with bedding and wastewater from the manure storage facility. This type of manure testing would not be appropriate for the proposed method because it provides an estimate of TVS leaving the storage, not entering the storage. The proposed calculation of TVS requires an estimate of the volume of manure excreted by the animal and the percent TVS in the freshly excreted manure entering the manure storage facility. These measurements would require specialized procedures and facilities to collect freshly excreted manure. For many operations this would mean isolating representative animals in a specially designed pen that would isolate excreted urine and feces for measuring volume. This material would then need to be mixed well, subsampled and analyzed for percent TVS. The proposed rule requires collection of such samples monthly. The rule does propose that book values could be used for manure volume. However manure volume is quite variable from operation to operation and even animal to animal based on water consumption of the animal and other factors that have no impact on the TVS excreted by the animal. For example, Brumm et al. (2000) showed that wet?dry feeders reduced manure volume by ~30% compared to pigs fed dry feed and watered through nipple waterers. Plus, the rule does not allow the use of book values for estimating percent TVS in excreted manure. Consequently the operation will still be required to create a specialized system that allows for the collection of freshly excreted urine and feces. There is a superior way to estimate TVS excreted by the animal that does not require collection of freshly excreted manure. The quantity of dry matter excreted by an animal is easily predicted by the quantity of feed consumed by an animal. There already are published equations for estimating dry matter excretion for chickens, pigs, cows and horses in the American Society of Agricultural Engineers (ASAE) standard D384.2, Manure Production and Characteristics (ASAE, 2005). Feed?based approaches to estimating dry matter excretion typically are based on dry matter intake of the animal and the dry matter digestibility of the ration. This same reference (ASAE, 2005) also provides book values for the quantity of dry

matter excreted by a wide range of animal types. The estimate of dry matter excreted by a confined animal is likely to be less variable then the estimate of manure volume. If book values are to be used, the rule should suggest or allow book value estimates of dry matter excretion. To convert dry matter excreted by the animal to TVS excreted by the animal requires an estimate of the fraction of dry matter as TVS. Again, this ratio has been estimated in the scientific literature for different animal species and diets for decades and can be derived from published technical standards including ASAE (2005). We recommend the following text: "Total volatile solids (total volatile solids excreted per animal per day (kg/day); TVS) should be estimated by either 1) direct measurement of excreted manure (urine plus feces); 2) verifiable feed intake and conversion efficiency as defined in American Society of Agricultural Engineers Standard D384.2 Manure Production and Characteristics; or 3) using tabular values based on the same publication."

Response: EPA agrees with revisions to the estimated volatile solids produced at the facility. See the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11.

Commenter Name: William Fred Durham
Commenter Affiliation: West Virginia Department of Environmental Protection (DEP)
Document Control Number: EPA-HQ-OAR-2008-0508-0629.1
Comment Excerpt Number: 6

Comment: IPCC equation 10.1 may be over-predictive if applied to broilers. Information DAQ obtained from poultry experts at the West Virginia Department of Agriculture (WVDA) indicates that the life of a flock is 38 – 42 days. WVDA notes, though, a typical 6 – 10 day downtime between flocks for facility maintenance. In its example, the IPCC suggests flock life for broilers is 60 days and suggests further there may be approximately six flocks annually. While that estimate approximates an annual value using the WVDA total time for each flock – that is flock life plus maintenance – if the IPCC example is used by regulators unfamiliar with the poultry industry, it is possible some facilities might be included that should not be.

Response: EPA has established the estimation of the average annual population for a growing population, such as broilers, using the average number of days each animal type is kept at the facility and the number of animals produced annually, and an equation similar or equal to Equation JJ-4 in the final rule, which has been adapted from Equation 10.1 in 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Although the IPCC example used a flock life of 60 days and a total of six flocks, facilities using Equation JJ-4 for the reporting rule should use site-specific data on the number of days animals are on site (taking into account downtime between flocks for any necessary maintenance) and the total number of animals produced. For example, if the life of a flock is 40 days, followed by 10 days downtime, and a total of 146,000 broilers were produced, the average annual population would be 160,000 birds (40 days on site * 1,460,000 birds produced / 365 days).

Note that based on the threshold analysis methodology and data described in the preamble, EPA does not expect any poultry facilities to exceed the threshold and be required to report under the rule, as described in the response to comment EPA-HQ-OAR-2008-0508-0429.1, excerpt 3.

Commenter Name: Dr. John A. Lory

Commenter Affiliation: University of Missouri et al.
Document Control Number: EPA-HQ-OAR-2008-0508-0672.1
Comment Excerpt Number: 4

Comment: The proposed rule relied primarily on methodology developed by the Intergovernmental Panel on Climate Change for estimating GHG emissions from manure storage facilities (IPCC, 2006). Our examination of the methods used to estimate the parameters used in the IPCC model of GHG emissions from manure storage facilities found significant errors in both the way core parameters were estimated and in the estimates reported for the parameters. Of particular concern was the estimation of methane conversion factors (MCFs). The flaws in the methodology and the resulting estimates of GHG emissions based on this methodology affect the proposed EPA GHG monitoring rule in two ways. First, the erroneously estimated coefficients have been integrated into the tabular information to be used by farmers to estimate GHG emissions from this sector of agriculture. Second, the erroneous factors were used for estimating GHG emissions from this sector when developing the current rule.

Errors in estimating methane conversion factors (MCFs): The proposed rule relied primarily on the publication 2006 IPCC Guidelines for Greenhouse Gas Inventory (IPCC, 2006) for the method used to calculate GHG emissions from manure storage facilities. The proposed EPA rule used the same approach as the IPCC method to estimate the methane generation from total volatile solids (TVS) entering the manure storage facility. In this approach the estimate of TVS entering the manure storage facility is first multiplied by a factor (Bo) that estimates the maximum methane that can be generated from the TVS. That quantity is then multiplied by a second factor (MCF) that estimates the proportion of the maximum methane that can be generated under the specific conditions of the manure storage. The technical support document for section JJ of the proposed rule (Technical Support Document for Manure Management Systems: Proposed Rule for Mandatory Reporting of Greenhouse Gases (EPA, 2009)) referenced the IPCC 2006 document for both the equation and the estimates of the parameters Bo and MCF reported in Table JJ?1 and JJ?2, respectively, of the proposed rule. Estimates of MCF used in the rule came directly from table 10.17 in volume 4 of IPCC (2006). The cited reference for MCF in the 2006 IPCC publication is “judgment of IPCC Expert Group in combination with Mangino et al., 2001.” Unfortunately the methods used to estimate MCF in Mangino et al., 2001 are fundamentally flawed in two ways: First, the methodology presented does not estimate what it claims to estimate; and second, the methodology used provided an obviously erroneous estimate of MCF. The problem arises in how Mangino et al., 2001 estimated MCF. Their approach was to: a. Estimate the TVS excreted by the animals; b. Estimate the amount of the TVS consumed by digestion in the manure storage; c. Estimate MCF as the ratio of TVS consumed and TVS entering the storage.

This estimate of MCF is fatally flawed because it estimates the conversion of TVS into methane as a percentage of TVS in excreted manure, not as a percentage of the maximum degradable TVS in the storage. Remember that Bo is used to estimate the maximum amount of methane that can be derived from TVS entering the storage. MCF should be determining the proportion of this TVS that is actually degraded in the manure storage. Instead the method used in Mangino et al. (2001) and referenced by IPCC (2006) estimates MCF by erroneously using TVS entering the storage as a starting point instead of the maximum degradable TVS entering the storage system. If the current proposed MCF value were used as it was developed in this paper, there is no role for Bo in the equation. The current estimate of MCF is providing an estimate of the ability of the specific manure storage type to degrade TVS. As it turns out this estimate is also clearly an

erroneous estimate of what it actually measured (as opposed to what Mangino et al (2001) claimed it measured). The example determination of MCF in Mangino et al. (2001) is for a breeding swine anaerobic lagoon in Iowa. In the example calculation, they claimed that 70% of the TVS entering the lagoon were degraded. Note that Bo for swine lagoons is listed as 0.48 m3 methane generation per kg TVS added to the lagoon which is consistent with 50% of the TVS being converted into methane (assumes that 65% of the biogas generated is methane; Bo = 0.49 kg TVS consumed/kg TVS added X 0.65 kg methane/kg TVS consumed X 1/0.662 m3 methane/kg methane = 0.48 m3/kg TVS entering the manure storage). By definition, Bo represents the maximum break down of TVS here estimated to be 50%. Instead, the methodology of Mangino et al. (2001) estimates that the breakdown of TVS entering the manure storage approaches 70%, an impossible result for that value of Bo. We note that Mangino et al. (2001) is not a peer?reviewed paper but is instead published as a proceeding for an EPA sponsored conference. To be blunt, the paper is riddled with careless errors and clear errors in logic and does not represent a scientifically relevant assessment of methane release from liquid manure storages. We conclude that the methodology proposed by Mangino et al. (2001) and adopted by IPCC (2006) and by extension, the proposed GHG monitoring rule is flawed. It fails to provide an estimate of MCF consistent with the definition of MCF. In addition, the estimate it provides of TVS breakdown is in conflict with the tabular values provided in other parts of the rule implying either those values are incorrect and/or the approach used to estimate TVS breakdown in Mangino et al., (2001) is incorrect. Table JJ?3 in the proposed rule provides extensive estimates of MCF for a wide range of average annual temperatures and manure storage types. Mangino et al. (2001) is cited as the source of the methodology for anaerobic lagoons and liquid slurry manure storages with residence times of greater than one month. These values, referenced as based on the methodology of Mangino et al., (2001) must be assumed to be erroneous.

Response: EPA disagrees that the methodology to estimate methane is flawed and disagrees that methane conversion factors (MCFs) are incorrect. See also the response to comment EPA-HQ-OAR-2008-0508-0672.1, excerpt 5.

EPA based the MCFs used in the final rule on factors that are used in the U.S. greenhouse gas inventory for manure management and the IPCC 2006 Guidelines, which cite Mangino et al (2001) for the MCF calculation methodology for liquid manure management systems. Climate-based IPCC default MCFs (IPCC 2006) are used for all dry systems. A U.S.-specific methodology was used to develop MCFs for all lagoon and liquid systems. All of these factors have been peer reviewed as part of the development of the IPCC 2006 Guidelines and in their use in the U.S. GHG Inventory annually.

For anaerobic lagoons and other liquid systems, a climate-based approach based on the van't Hoff-Arrhenius equation was developed to estimate MCFs that reflects the seasonal changes in temperatures, and also accounts for long-term retention time. This approach is consistent with the guidelines from IPCC (IPCC 2006). The van't Hoff-Arrhenius equation, with a base temperature of 30°C, is shown in the following equation (Safley and Westerman 1990):

$$f = \exp\left[\frac{E(T_2 - T_1)}{RT_1T_2}\right]$$

Where,

T_1 = 303.15K

T_2 = Ambient temperature (K) for climate zone (in this case, a weighted value for each state)
E = Activation energy constant (15,175 cal/mol)
R = Ideal gas constant (1.987 cal/K mol)

The factor *f* represents the proportion of VS that are biologically available for conversion to CH_4 based on the temperature of the system.

Annual MCFs for liquid systems are calculated as follows:

- Monthly temperatures are used to calculate a monthly van't Hoff-Arrhenius "f" factor, using the equation presented above. A minimum temperature of 5°C is used for uncovered anaerobic lagoons and 7.5°C is used for liquid/slurry and deep pit systems.
- Monthly production of VS added to the system is calculated based on the number of animals present and the VS excretion rate.
- The amount of VS available for conversion to CH_4 is assumed to be equal to the amount of VS produced during the month. For anaerobic lagoons, the amount of VS available also includes VS that may remain in the system from previous months.
- For lagoon systems, the calculation of VS available in the system includes a management and design practices (MDP) factor. This factor, equal to 0.8, was developed based on model comparisons to empirical CH_4 measurement data from anaerobic lagoon systems in the United States (ERG 2001). The MDP factor represents a variety of factors that may affect methane production in lagoon systems, including the fact that not all TVS in the system is available to be degraded due to losses.
- The amount of VS consumed during the month is equal to the amount available for conversion multiplied by the "f" factor, which accounts for temperature effects.
- For anaerobic lagoons, the amount of VS carried over from one month to the next is equal to the amount available for conversion minus the amount consumed. Lagoons are also assumed to have a solids clean-out once per year, occurring after the month of September.
- The estimated amount of CH_4 generated during the month is equal to the monthly VS consumed multiplied by the maximum CH_4 potential of the waste (B_o).

The MCF is the percent of maximum methane generation that is achieved in a particular system, taking into account temperature and management and design practices. The annual MCF is therefore calculated by dividing the predicted methane generation accounting for retention time and temperature effects (which dictate the amount of volatile solids ultimately consumed in the system) by the maximum theoretical methane generation:

$$MCF_{annual} = \frac{CH_4 \text{ generated}_{annual}}{VS \text{ produced}_{annual} \times B_0}$$

Where,

MCF_{annual} = Annual methane conversion factor
$VS \text{ produced}_{annual}$ = Volatile solids excreted annually and managed in the system
B_o = Maximum CH_4 producing potential of the waste

Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

The commenter also asserts that the example MCF calculation presented in the Mangino paper claims that 70 percent of TVS entering the lagoon is degraded, which is impossible when compared to the Bo value of 0.48 m3/kg TVS. The commenter also asserts that the Bo value equates to 50% conversion of TVS into methane. This is incorrect. The example calculates a MCF of 0.70. The MCF represents the amount of methane production actually achieved in a given system compared to the theoretical maximum; Bo does not represent percent of TVS degradation – it instead represents the maximum *quantity of methane* that can be produced per unit of TVS *added to the lagoon*. Please see the response to comment EPA-HQ-OAR-2008-0508-0672.1, excerpt 5 for more explanation.

Commenter Name: Robert Naerebout
Commenter Affiliation: Idaho Dairymen's Association, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0314.1
Comment Excerpt Number: 18

Comment: Clarification is needed in this equation for what constitutes a reporting year. Is this always going to be 365 days or can you do the calculation based on the amount of time that you actually have manure in the lagoon or liquid/slurry system? Not all lagoons have liquid/slurry in them all year, as they are pumped out once or twice a year, as needed.

Response: The reporting year accounts for the entire calendar year. The MCFs account for typical removal of manure from liquid management systems for activities such as land application. Therefore, facilities should use 365 days for the methane calculation if they are actively raising livestock and managing manure. If the facility completely empties a lagoon or liquid/slurry systems and no additional manure is generated (such as a facility shutting down), the facility may use the number of days manure was actually managed on site in the system.

Commenter Name: Robert Naerebout
Commenter Affiliation: Idaho Dairymen's Association, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0314.1
Comment Excerpt Number: 17

Comment: The maximum methane producing capacity of manure (130) appears to be calculated only from laboratory studies, and these values vary by animal type and diet. EPA has selected a value of 0.24 m3 CIL,Ikg VS for dairy cows. How did EPA choose this value? Other values exist in scientific literature. Having one value cannot reflect the variation in animal diets and is inaccurate. The methane conversion factors, which essentially drive the whole methane generation calculation, have been taken out of the IPCC document and reference Mangino et al. (2001) as the source of these coefficients. IDA was able to find that paper and believes these coefficients were calculated based on data from two studies. This is an insufficient database to support EPA's calculations. One study was on an anaerobic swinc lagoon in Iowa and the other was from a low temperature lagoon digester on a dairy in North Carolina. Essentially, all of these numbers were derived from systems designed to maximize methane production and are not representative of dairies. They do try to account for temperature by having different values at different average temperatures, but these systems do not represent all liquid/slurry and lagoon systems, irrespective of species. In the Mangino paper it appears as though the predicted methane production from the swine lagoon was much greater than the dairy lagoon digester, yet all

species are using the same numbers. This could be adjusted based on differences in volatile solids content of the liquid material, but does this adjustment reflect the true differences in methane generation') Overall this is a very limited data set to base the methane conversion factors (MCFs) which drive the whole equation for methane generation from manure management systems.

Response: EPA based the Bo values used in the final rule on factors that are used in the U.S. greenhouse gas inventory for manure management and the IPCC 2006 Guidelines. The Bo is the maximum of amount of methane that may be produced by manure and varies by animal type.

In the calculations to estimates emissions in EPA's rule, the maximum methane production is adjusted by the methane conversion factor (MCF) to take into account differences in climate and manure management. The volatile solids excretion rate is the parameter that would take into account any difference in diet between animals. Both Bo and VS are specific to the animal species, and the MCF is specific to the type of manure management system.

The MCF methodology for liquid system is based on a relationship between the biological degradation of volatile solids taking into account the effect of temperature and retention time on the system. The two studies noted by the commenter were used to validate the method, not develop it. See the response to comment EPA-HQ-OAR-2008-0508-0672.1, excerpt 4.

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6. MONITORING AND QA/QC REQUIREMENTS

Commenter Name: See Table 1
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0435.1
Comment Excerpt Number: 11

Comment: In Section 98.363 (b), Equation JJ-3 refers to daily biogas monitoring and 98.364 (d) seems to imply that continuous monitoring by gas chromatography is required for methane concentration on anaerobic digester systems. This requirement is unnecessarily burdensome and costly for livestock producers with anaerobic digester systems. Gas chromatography equipment for methane analysis costs approximately $15,000, requires frequent calibrations and is generally beyond the operational capabilities of livestock producers. Furthermore, professionals with the training and experience to operate this equipment and conduct these measurements on a daily basis are generally not present in the remote areas where the majority of farms that will be subject to this rule are located. What's more, as a practical matter, daily analysis is not required because biogas quality does not vary substantially from day to day or month to month. The Chicago Climate Exchange (CCX) only requires annual testing by an approved laboratory, and the California Climate Action Registry (CCAR) only requires quarterly analysis by portable hand held equipment. EPA should adopt a similar approach. We suggest that, given the stability of the biogas, annual testing by an approved laboratory is sufficient.

Response: EPA has retained the requirement for continuous gas monitoring for anaerobic digestion systems in the final rule; see the response to EPA-HQ-OAR-2008-0508-0379.1, excerpt 16 for more explanation.

Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

Commenter Name: See Table 1
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0435.1
Comment Excerpt Number: 8

Comment: In Section 98.364 (b) and (c), EPA requires CAFO operators that may exceed the reporting threshold to collect representative samples of fresh excreted manure. The samples must be collected monthly and analyzed for total volatile solids and nitrogen. Because of the dilution from recycled liquid into the barn and the change in characteristics from addition of TVS and nitrogen from recycled liquid and losses during accumulation periods in the pits, it is not useful to require producers to collect the samples. The data would not be accurate or reflective of "freshly excreted manure." Use of ASABE D3 84.2 would allow estimation of TVS and nitrogen, thus eliminating the very burdensome task for producers to collect monthly as-excreted manure samples from all of their farms.

Response: EPA has removed the manure sampling requirements from the final rule. See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11, and the preamble.

Commenter Name: Robert D. Byrne
Commenter Affiliation: National Milk Producers Federation (NMPF)
Document Control Number: EPA-HQ-OAR-2008-0508-0854.1
Comment Excerpt Number: 5

Comment: Daily analysis is not required because biogas quality does not vary substantially from day to day or month to month. The Chicago Climate Exchange (CCX) only requires annual testing by an approved laboratory and the California Climate Action Registry (CCAR) only requires quarterly analysis by portable hand held equipment. EPA, given the stability of the biogas, should adopt the approach that annual testing by an approved laboratory is sufficient.

Response: EPA has retained the requirement for continuous gas monitoring for anaerobic digestion systems in the final rule, see the response to EPA-HQ-OAR-2008-0508-0379.1 excerpt 16 for more explanation.

Commenter Name: J. P. Cativiela
Commenter Affiliation: Dairy Cares
Document Control Number: EPA-HQ-OAR-2008-0508-1014.1
Comment Excerpt Number: 4

Comment: Requirements for site monitoring, Quality Assurance Program Plans (QAPPs), environmental sampling and testing and similar requirements are excessive and provide no benefit. As such, those livestock operations that are required to report should be required only to submit information that can be gathered and verified by the business operator and his or her employees, without requiring payments to outside consultants, or other third parties.

Response: The facility should be able to gather and verify the required data and should not need to hire consultants or other third parties. EPA acknowledges the difficulty and burden associated with manure sampling and testing identified by the commenters and has removed this requirement from the rule, see the response to EPA-HQ-OAR-2008-0508-0425.1, excerpt 11 for more discussion.

The final rule does not contain a QAPP requirement, but instead requires a "monitoring plan," which is less burdensome to develop. See the General Recordkeeping section of the preamble for more information.

Commenter Name: Bill Perez
Commenter Affiliation: LANDTEC North America, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-1485
Comment Excerpt Number: 3

Comment: In several industries including; landfill gas (LFG), manure management, anaerobic digesters, waste-water treatment plants and others, portable infrared analyzers are the instruments of choice for quantifying methane in the field. Fixed infrared analyzers with automatic calibration systems have been proven reliable and cost effective on Clean Development Mechanism (CDM) projects throughout the world. These infrared monitoring systems are passing independent third party validations on CDM projects and generating certified emission reduction credits. We ask the EPA to include calibrated infrared technology as an acceptable method for quantifying methane when reporting Greenhouse gas emissions.

Response: See the response to EPA-HQ-OAR-2008-0508-0724.1 excerpt 11 for information on why direct measurement was not selected for emissions from system components other than digesters, and see EPA-HQ-OAR-2008-0508-0379.1 excerpt 16 for more explanation on monitoring requirements for digesters.

Commenter Name: Ryan K. Miltner
Commenter Affiliation: Miltner Law Firm, LLC
Document Control Number: EPA-HQ-OAR-2008-0508-0508.1
Comment Excerpt Number: 4

Comment: DPNM believes that the monthly testing of manure for volatile solids on a monthly basis is excessive.7 Rather, manure composition is consistent enough throughout the year that quarterly monitoring for a single year should provide a sufficient baseline measurement for a facility. We anticipate that such a baseline, coupled with data from the NAEMS study should provide sufficiently precise measurements to allow reporting for the purposes outlined in the proposed rule. But if the combination of quarterly solids testing and NAEMS data is not enough to meet the goals of the agency, then EPA and the industry should agree on adequate research, funded by EPA to derive the data needed to ensure accurate reporting.

Response: EPA has removed the manure sampling requirements from the final rule. See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11, and the preamble. In addition, EPA recognizes that there is an ongoing study of air emissions from animal feeding operations, see the response to EPA-HQ-OAR-2008-0508-0854.1, excerpt 6

Commenter Name: Dr. Al Sutton
Commenter Affiliation: Purdue University
Document Control Number: EPA-HQ-OAR-2008-0508-0652.1
Comment Excerpt Number: 2

Comment: Another concern is how and when the samples are collected and how the samples are preserved and sent to laboratories for analysis. Improper procedures will result in erroneous data and methane emission estimations. As soon as feces and urine are excreted, volatile compounds (typically volatile fatty acids and potentially volatile amines and ammonia) are emitted and bacterial degradation proceeds immediately. There can be desiccation of samples as well resulting in an erroneous percentage of TVS and total nitrogen results. Several samples need to collected, thoroughly mixed, subsampled and stored frozen to obtain an accurate measure of TVS. If total N is required and the sample includes urine, then the mixture will need to be acidified to reduce pH so that ammonia emissions can be stopped.

Response: EPA has removed the manure sampling requirements from the final rule. See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11, and the preamble..

Commenter Name: See Table 2
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0395.1
Comment Excerpt Number: 31

Comment: In reference to laboratory analyses of manure, the proposed rule states, "The laboratory performing the analyses should be certified for analysis of waste for National Pollutant Discharge Elimination System compliance reporting." To our knowledge, EPA does not maintain a list of laboratories that are certified for NPDES compliance reporting. TCFA requests that EPA clarify what is meant by this statement in the proposed rule.

Response: EPA has removed the manure sampling requirements from the final rule. See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11, and the preamble.

Commenter Name: See Table 2
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0395.1
Comment Excerpt Number: 30

Comment: EPA has proposed a requirement to "Perform a one-time analysis on your operation to determine the percent of total manure by weight that is managed in each on-site manure management system." For open air beef cattle facilities, this is requirement cannot be met. The hydrology of a feedyard is very complex and can only be evaluated in laboratory or small-scale field studies, such as research locations with discrete drainage that can be quantified using flumes or other measuring devices. TCFA recommends that EPA delete this site-specific

requirement and permit a facility to use research data or other published information to determine the percent of manure handled in each on-site manure management system.

Response: See the response to EPA-HQ-OAR-2008-0508-0762.1, excerpt 3.

Commenter Name: See Table 3
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0425.1
Comment Excerpt Number: 17

Comment: In Section 98.364(a) of the proposed rule, EPA proposes that manure samples must be sent to a laboratory for analysis, and, "The laboratory performing the analyses should be certified for analysis of waste for National Pollutant Discharge Elimination System compliance reporting." To our knowledge, EPA does not maintain a list of laboratories that are certified for NPDES compliance reporting. CLA requests that EPA clarify what is meant by this statement in the proposed rule.

Response: EPA has removed the manure sampling requirements from the final rule. See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11, and the preamble.

Commenter Name: See Table 3
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0425.1
Comment Excerpt Number: 16

Comment: In Section 98.364(a) of the proposed rule, EPA has proposed a requirement to "Perform a one-time analysis on your operation to determine the percent of total manure by weight that is managed in each on-site manure management system." For many animal feeding operations such as beef cattle facilities and many open-lot dairies, this is requirement cannot be met. The hydrology of these facilities is very complex and can only be evaluated in laboratory or small-scale field studies, such as research locations with discrete drainage that can be quantified using flumes or other measuring devices. CIA recommends that EPA delete this site-specific requirement and permit a facility to use research data or other published information to determine the percent of manure handled in each on-site manure management system.

Response: See the response to EPA-HQ-OAR-2008-0508-0762.1, excerpt 3.

Commenter Name: Stewart T. Leeth
Commenter Affiliation: Smithfield Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0553.1
Comment Excerpt Number: 15

Comment: In Section 98.364 (b) and (c), EPA requires CAFO operators that may exceed the reporting threshold to collect representative samples of fresh excreted manure. (74 Fed. Reg. at 16,708). The samples must be collected monthly and analyzed for total volatile solids and nitrogen. Because of the dilution from recycled liquid into the barn and the change in

characteristics from addition of TVS and nitrogen from recycled liquid and losses during accumulation periods in the pits, it is not useful to require producers to collect the samples. The data would not be accurate or reflective of "freshly excreted manure." Use of ASABE D384.2 would allow estimation of TVS and nitrogen thus eliminating the need for producers to collect monthly as-excreted manure samples.

Response: EPA has removed the manure sampling requirements from the final rule. See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11, and the preamble.

Commenter Name: See Table 3
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0425.1
Comment Excerpt Number: 14

Comment: When sufficient consistency in emissions of volatile solids and nitrogen content has been demonstrated, CLA requests that EPA no longer require regular sampling from a given facility. CLA also requests that EPA define “freshly excreted” manure to be manure that is a composite sample and representative of manure and urine excreted that is not more than three days old. This manure would be characteristically similar to the manure collected and utilized in the study by Hashimoto in 1981 that was used to determine maximum methane potential values (B0) in the proposed rule and would be less hazardous and technically challenging to collect.

Response: EPA has removed the manure sampling requirements from the final rule. See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11, and the preamble.

Commenter Name: See Table 3
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0425.1
Comment Excerpt Number: 13

Comment: When an animal feeding operation elects to use facility-specific, measured values for manure characterization, monthly sampling should not be required. Most animal feeding operations do not change feed rations on a monthly basis but instead use a hand-full of relatively consistent rations that are rotated as animals reach different stages of production. Therefore, emissions of total volatile solids and nitrogen are not expected to change on a monthly basis. When sampling is necessary, CIA requests that EPA reduce the required manure sampling frequency from monthly to only when necessitated by a change in the feed rations used by a given facility.

Response: EPA has removed the manure sampling requirements from the final rule. See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11, and the preamble.

Commenter Name: C. T. Ferguson
Commenter Affiliation: None
Document Control Number: EPA-HQ-OAR-2008-0508-0168
Comment Excerpt Number: 2

Comment: To allow owners/operators to completely self regulate gas emissions is a conflict of interest in this area, and gas emissions should be monitored by a separate agency that may spot check emissions to ensure that livestock growers are reporting emissions accurately.

Response: EPA has retained its approach to verification in the final rule. For detailed information on this approach, see the preamble.

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7. DATA REPORTING REQUIREMENTS

Commenter Name: J. P. Cativiela
Commenter Affiliation: Dairy Cares
Document Control Number: EPA-HQ-OAR-2008-0508-1014.1
Comment Excerpt Number: 5

Comment: EPA should use great care in developing reporting requirements for existing biogas digester projects and in contemplating future biogas digester reporting requirements. These monitoring requirements should be limited to what is needed to verify emission reductions for the purposes of banking reduction credits. Further burdensome reporting could dis-incentivize biogas-to-energy projects. Detailed technical emissions monitoring should be reserved only for installation of new or expanded biogas-to-energy projects, as a condition for incentive funding or other project incentives.

Response: EPA has retained the monitoring requirements for digesters in the final rule. See the response to EPA-HQ-OAR-2008-0508-0379.1, excerpt 16 for more information. See the response to EPA-HQ-OAR-2008-0508-0365.1, excerpt 14 for more information on the reporting rule as it relates to incentives to install digesters.

Commenter Name: J. P. Cativiela
Commenter Affiliation: Dairy Cares
Document Control Number: EPA-HQ-OAR-2008-0508-1014.1
Comment Excerpt Number: 3

Comment: The requirements imposed for livestock operations should be greatly simplified. Livestock operators should be able to fill out an EPA-approved questionnaire or other simplified reporting tool for submittal to EPA. If in some cases additional information is needed, EPA could on a case-by-case basis request it.

Response: EPA has removed the manure sampling requirements from the final rule. See the response to comment EPA-HQ-OAR-2008-0508-425.1, excerpt 11, and the preamble.

In response to comments, EPA has added more information to the final rule to help manure management facilities better determine if they might be subject to the requirements of the rule, see the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10 for more information.

Estimation of emissions should be performed by the manure management facility, see the response to EPA-HQ-OAR-2008-0508-0365.1 excerpt 7.

Commenter Name: Robert Naerebout
Commenter Affiliation: Idaho Dairymen's Association, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0314.1
Comment Excerpt Number: 22

Comment: The requirement that dairies certify the accuracy of their data is unfair because no dairy owner or operator representative can truthfully submit a signed and certified document promising that the data collected is accurate. The methods of collecting the data, and the formulae used to process the data, are new creations of a government entity. The EPA has admitted that the accuracy of the data will always be in doubt, yet the rule subjects members of the regulated community to severe penalties if they do not certify accuracy and if they do certify accuracy but the data is found to be inaccurate. This requirement is grossly excessive and unfair. EPA should only require that dairies certify the number of animals, the dairy system used and location. EPA can then estimate CO_2e emissions as it sees fit.

Response: The methodologies for reporting greenhouse gas emissions (methane and nitrous oxide) associated with manure management systems are based on EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, as well as the Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories; see the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5 for more discussion.

See the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10 for more details on EPA tools and guidance to assist facilities in determining applicability and in reporting.

For information on compliance and enforcement, see the response to EPA-HQ-OAR-2008-0508-0365.1 excerpt 6.

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8. RECORDS THAT MUST BE RETAINED

Commenter Name: See Table 1
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0435.1
Comment Excerpt Number: 10

Comment: The recordkeeping and quality assurance performance plan (QAPP) requirements of Section 98.3 (g) are overly burdensome and beyond the capabilities of livestock operations without costly third-party support. EPA should reduce the record keeping and QAPP requirements for livestock operations.

Response: See the response to comment EPA-HQ-OAR-2008-0508-1014.1, excerpt 4 on the monitoring plan requirements of the final rule.

The records will be used to assure the quality of the reported data. The collection and provision of records will allow EPA to perform quality checks on the data provided and the emissions calculated. For more information on EPA's approach to verification, see the preamble. EPA has performed detailed analysis to estimate the compliance costs for these requirements and has determined that the industry could support these activities, as described in the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3.

Commenter Name: Robert Naerebout
Commenter Affiliation: Idaho Dairymen's Association, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0314.1
Comment Excerpt Number: 19

Comment: The complexity of the record keeping requirement is unnccessary and excessively burdensome and is a direct violation of the Paperwork Reduction Act, 4.4. U.S.c. § 3501 el seq., which was enacted to with the purpose of minimizing the paperwork burden on individuals). Furthermore, the punishment for noncompliance, or simple mistakes, is harsh and severe. Dairy and milk production facilities that misreport or fail to report GHG emissions according to the requirements of the proposed rule could be subject to administrative, civil, and criminal penalties. Administrative penalties alone can amount to $32,500 per day per violation. These rules are enforceable by state and federal regulators and by citizen suits that will seek attorneys fees and costs.

Response: See the response to EPA-HQ-OAR-2008-0508-0435.1, excerpt 10. In addition, the recordkeeping in this rule is in compliance with the Paperwork Reduction Act.

For information on compliance and enforcement, see the response to EPA-HQ-OAR-2008-0508-0365.1 excerpt 6.

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9. COST DATA

Commenter Name: Steven M. Pirner
Commenter Affiliation: South Dakota Department of Environment and Natural Resources (SD DENR)
Document Control Number: EPA-HQ-OAR-2008-0508-0576
Comment Excerpt Number: 19

Comment: SD DENR is concerned about the burden of the estimated $6,000 annual cost of monitoring, especially during this time of economic hardship in the livestock industry. SD DENR is also concerned about the ability of the producer to do this monitoring on their own and the lack of available qualified private consulting firms to do this monitoring. These factors again lead us to the conclusion that all manure management systems should be removed from the reporting requirements, especially since they are not putting rock or fossil fuel carbon back into the environment.

Response: EPA evaluated the burden of reporting to industry and has determined that the rule is not overly burdensome to facilities, see the response to comment EPA-HQ-OAR-2008-0508-

0671.1, excerpt 3 and the Regulatory Impact Analysis on the docket. See also the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10 for more details on EPA tools and guidance to assist facilities in determining applicability and in reporting.

Commenter Name: See Table 1
Commenter Affiliation:
Document Control Number: EPA-HQ-OAR-2008-0508-0435.1
Comment Excerpt Number: 9

Comment: EPA has estimated that the average cost to comply with the reporting requirements of the proposal, to conduct the laboratory testing and to do the emissions calculations would be approximately $900 per facility. This number has little relation to the actual costs that producers will incur in complying with the proposed rule.

Response: EPA performed a detailed analysis to determine the costs associated with the rule, for more information see the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3 and the Regulatory Impact Analysis on the docket. Although the commenter does not agree with EPA's analysis, the commenter has not provided additional data for EPA to consider.

EPA acknowledges the difficulty and burden associated with sample collection identified by the commenters and has removed this requirement from the rule, see the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11 for more discussion. EPA has adjusted the cost estimate in the Regulatory Impact Analysis accordingly.

Commenter Name: J. P. Cativiela
Commenter Affiliation: Dairy Cares
Document Control Number: EPA-HQ-OAR-2008-0508-1014.1
Comment Excerpt Number: 8

Comment: EPA's proposed rule has a monitoring component to determine inputs required to estimate GHG emissions from manure management. Discrepancies in the cost per facility were identified in the various documents published by EPA in support of the proposed rule. Based on a review of the "Guide for Agriculture Livestock Sectors" document published by EPA, the cost per facility is estimated to be $900. However, based on a review of the Regulatory Impact Analysis (RIA) and the Preamble to the Proposed Rule, EPA estimates the cost per facility to be approximately $4,800 per facility. There seem to be discrepancies between EPA's assessment of the costs. Furthermore, based on a review of the RIA, the monitoring costs are estimated to be $40 per month. Based on our own review of the analytical cost for total volatile solids (TVS) using Method 160.4 and total Kjeldahl nitrogen (TKN), the percent of nitrogen present in the manure, using Method 351.3, monthly analytical costs will range from $92 to $123. This results in an annual analytical testing cost of $1,100 to $1,500. Based on a review of the cost breakdown tables in the RIA (Tables 4-64, 4-65a, and 4-65b), it does not appear that the analytical costs were included. Therefore, the real cost per facility is closer to $5,900 to $6,300 ($4,800 + $1,100 or $4,800 + $1,500). This estimated total cost does not appear to be included in the cost breakdown in the RIA. These costs result in a substantial burden on the dairies that are subject to the reporting rule, not to mention those dairies that will be required to perform the monitoring just to determine that they are below the 25,000 MT CO_2e threshold and not subject to the

reporting rule. Based on a review of the RIA, "the SUSB data does not provide establishment information for agricultural NAICS codes (e.g., NAICS 112 which covers manure management). However, the per-entity costs are small (less than $1,000 per year) and EPA believes the ultimate parent companies of the entities covered are not small businesses." This statement contradicts with the cost estimate of $4,800 indicated in another section of the RIA (as discussed in Comment 3 above). In fact, the actual analytical laboratory cost alone for dairies without digesters is between $1,100 and $1,500. Therefore, the financial burden to small businesses is more significant than what EPA is asserting in the RIA, particularly if dairies that are close to the reporting threshold are required to perform monitoring to demonstrate whether they are subject or not subject to the proposed rule. In general, not enough is known about the impact of this proposed rule on small businesses and, therefore, the proposed rule could result in a significant burden on the resources of small businesses.

Response: EPA performed a detailed analysis to determine the costs associated with the rule, for more information see the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3 and the Regulatory Impact Analysis on the docket. Although the commenter does not agree with EPA's analysis, the commenter has not provided additional data for EPA to consider.

EPA acknowledges the difficulty and burden associated with sample collection identified by the commenters and has removed this requirement from the rule, see the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11 for more discussion. See also the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10 for more details on EPA tools and guidance to assist facilities in determining applicability and in reporting. EPA has adjusted the cost estimate in the Regulatory Impact Analysis accordingly.

In addition, only farms that exceed the threshold are required to report under this rule. The farms that exceed the threshold are the largest farms in the U.S., which are not small businesses.

Commenter Name: Michael L. H. Marsh
Commenter Affiliation: Western United Dairymen
Document Control Number: EPA-HQ-OAR-2008-0508-0702.1
Comment Excerpt Number: 5

Comment: Western United Dairymen submits that EPA has significantly underestimated the costs associated with implementation of this extremely complex rule, both in cash and in time and frustration. It is critically important for EPA to recognize that nearly every US dairy, regardless of herd size, is family owned and operated. The rule creates a confusing and inaccurate regulatory maze that must be negotiated to make a reasonably valid estimate of emissions. Few dairy families, including the largest, will be able to handle this daunting challenge without substantial expense for professional expertise. Even then, we predict the reports will very likely be far less than accurate while accomplishing little in terms of public benefit. We urge EPA to abandon the mandatory reporting rule for livestock manure management systems.

Response: EPA disagrees that the manure management source category should be excluded from this rule; see the preamble, and the response to comment EPA-HQ-OAR-2008-0508-0724.1, excerpt 1 for the response to this comment.

Changes made from the proposal reduce the burden on livestock operators of both determining compliance with the rule and also of reporting under rule. See comment EPA-HQ-OAR-2008-0508-0906.1 excerpt 1 and comment EPA-HQ-OAR-2008-0508-0336.1 excerpt 10.

EPA performed a detailed analysis to determine the costs associated with the rule, for more information see the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3 and the Regulatory Impact Analysis on the docket. Although the commenter does not agree with EPA's analysis, the commenter has not provided additional data for EPA to consider.

Commenter Name: Robert D. Byrne
Commenter Affiliation: National Milk Producers Federation (NMPF)
Document Control Number: EPA-HQ-OAR-2008-0508-0854.1
Comment Excerpt Number: 4

Comment: EPA has estimated that the average cost to comply with the reporting requirements of the proposal, to conduct the laboratory testing, and do the emissions calculations would be approximately $900 per facility. This number has little relation to the actual costs that producers will incur complying with the proposed rule. Furthermore, the recordkeeping and quality assurance performance plan (QAPP) requirements of Section 98.3 (g) are overly burdensome and beyond the capabilities of livestock operations without costly third party support. EPA should reduce the record keeping and QAPP requirements for livestock operations. Section 98.363 (b) refers to daily biogas monitoring and 98.364 (d) seems to imply that continuous monitoring by gas chromatography is required for methane concentration on anaerobic digester systems. This requirement is unnecessarily burdensome and costly for livestock producers with anaerobic digester systems. Gas chromatography equipment for methane analysis costs approximately $15,000, requires frequent calibrations, and is generally beyond the operational capabilities of livestock producers. Furthermore, professionals with the training and experience to operate this equipment and conduct these measurements on a daily basis are generally not present in the remote areas where the majority of farms that will be subject to this rule are located.

Response: EPA performed a detailed analysis to determine the costs associated with the rule, for more information see the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3 and the Regulatory Impact Analysis on the docket. Although the commenter does not agree with EPA's analysis, the commenter has not provided additional data for EPA to consider.

EPA acknowledges the difficulty and burden associated with sample collection identified by the commenters and has removed this requirement from the rule, see the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11 for more discussion. EPA has adjusted the cost estimate accordingly.

For a response to comments on the recordkeeping and quality assurance performance plan (QAPP), see EPA-HQ-OAR-2008-0508-0435.1, excerpt 10.

See the response to EPA-HQ-OAR-2008-0508-0379.1 excerpt 16 for more explanation on the monitoring requirements for digesters.

Commenter Name: Mark Gibbons
Commenter Affiliation: Dairy Producers of Utah
Document Control Number: EPA-HQ-OAR-2008-0508-1567
Comment Excerpt Number: 1

Comment: We, as dairy producers are very concerned about the amount of time it will take to comply with all the reporting rules as they are now written. Our industry is already the most heavily regulated food in the Country. We are also going through a deep crisis. Virtually all dairy producers are being paid less for their milk than it costs them to produce it. Any added paper work or costly monitoring or collection of data that might end up being required because of this rule change will be devastating. Dairy Producers can, simply, not afford it.

Response: EPA agrees with the commenter on the importance of reducing burden, while also obtaining the data we need. Using data from the current threshold analysis (as described in the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3), EPA is estimating that only 27 dairy farms will be required to report under this rule. These dairy farms are large operations that will be better able to support a financial burden than small operations.

See also the response to comment EPA-HQ-OAR-2008-0508-0336.1, excerpt 10 for more details on EPA tools and guidance to assist facilities in determining applicability and in reporting.

EPA has reevaluated the costs to reflect changes made in the final rule, such as the removal of the requirement to perform manure sampling. For more information see the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11, the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3, and the Regulatory Impact Analysis on the docket.

Commenter Name: Jeff Windett
Commenter Affiliation: Missouri Cattlemen's Association (MCA)
Document Control Number: EPA-HQ-OAR-2008-0508-0762.1
Comment Excerpt Number: 2

Comment: It is also clear the mandatory reporting from small family farms is very unreasonable and will represent a significant cost to families. Many of our family farms do not have the internal capabilities to generate such reporting without the hiring of outside consultants at significant costs. At a time when the economic situation of the country and especially the rural economy is teetering, this expense could send producers out of agriculture and place many rural economies at risk!

Response: See responses to comments EPA-HQ-OAR-2008-0508-1567, excerpt 1, and EPA-HQ-OAR-2008-0508-906.1, excerpt 1.

Commenter Name: Evan A. Teague
Commenter Affiliation: Arkansas Farm Bureau Federation (ARFB)
Document Control Number: EPA-HQ-OAR-2008-0508-0503.1
Comment Excerpt Number: 1

Comment: The proposal estimates a total of 40 to 50 beef, dairy or swine operations might be subject to the rule. However, it omits any discussion of the number of potentially affected poultry operations. The Regulatory Impact Analysis does not adequately address the possible impacts to poultry producers. As a result, the number of manure management facilities affected by this rule is substantially underestimated if poultry operations are considered. We recommend revising this analysis to reflect the possible impact on poultry operations.

Response: EPA has revised its estimate of livestock operations subject to the reporting rule from approximately 40-50 to approximately 100-110. See EPA-HQ-OAR-2008-0508-671.1 excerpt 3 for more details. Based on this analysis, EPA does not expect any poultry facilities to exceed the threshold and be required to report under the rule, see EPA-HQ-OAR-2008-0508-0429.1 excerpt 3 for more information.

Commenter Name: Dr. John A. Lory
Commenter Affiliation: University of Missouri et al.
Document Control Number: EPA-HQ-OAR-2008-0508-0672.1
Comment Excerpt Number: 9

Comment: Table VIII-1 reports that the first year capital costs are $0 for the 43 entities expected to report manure management emissions. Measurements will require a specially designed pen for collecting feces and urine. We do not have a cost estimate for this pen or the increased labor costs associated with managing this specialized facility (because none are known to exist in commercial production); we do know that the estimate cost will not be $0.

Response: EPA acknowledges the difficulty and burden associated with sample collection identified by the commenters and has removed this requirement from the rule, see the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11 for more discussion. EPA has adjusted the costs accordingly, as described in the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3.

Commenter Name: Mark Maslyn
Commenter Affiliation: American Farm Bureau Federation (AFBF)
Document Control Number: EPA-HQ-OAR-2008-0508-0693.1
Comment Excerpt Number: 6

Comment: The proposed rule projects that manure management systems from beef, dairy, hogs and poultry may be covered by the reporting requirements of this rule. The proposal also estimates that a total of about 40 to 50 beef, dairy or swine operations might be subject to the rule. This analysis omits any discussion of the number of poultry operations that may be affected by this rule. Information from one state indicates there may be as many as 26 facilities in that state alone that will be subject to the reporting requirements. We have good reason to suspect that the number of manure management facilities affected by this rule is greatly understated if poultry operations are considered. We request that the Regulatory Impact Analysis be amended to reflect the possible impact on poultry operations.

Response: See response to comment EPA-HQ-OAR-2008-0508-0503.1, excerpt 1.

Commenter Name: Ryan K. Miltner
Commenter Affiliation: Miltner Law Firm, LLC
Document Control Number: EPA-HQ-OAR-2008-0508-0508.1
Comment Excerpt Number: 5

Comment: EPA's cost estimates for compliance with proposed manure sampling requirements in Table 4-64 underestimate actual costs for sampling and compliance. Many dairies will contract consultants to collect the manure samples and analyze the data. These consultants will cost significantly more than EPA estimates for a farm worker or manager. These unidentified additional costs are justified as dairies do not often have the technical expertise to analyze these data. EPA does not identify a budget for data analysis and adjustment of BMPs if necessary.

Response: See the response to comment EPA-HQ-OAR-2008-0508-1014.1, excerpt 8.

Commenter Name: Stewart T. Leeth
Commenter Affiliation: Smithfield Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0553.1
Comment Excerpt Number: 19

Comment: In Section 98.363(b), EPA refers to daily biogas monitoring and 98.354(f) and 98.364(d) seem to imply that continuous monitoring by gas chromatography is required for methane concentration on anaerobic digester systems. (74 Fed. Reg. at 16,705-08). This requirement is unnecessarily burdensome and costly for food processing plants and livestock producers with anaerobic digester systems. Gas chromatography equipment for methane analysis costs approximately $15,000, requires frequent calibrations, and is generally beyond the operational capabilities of livestock producers. As a practical matter, daily analysis is not required because biogas quality does not vary substantially from day to day or month to month. The Chicago Climate Exchange (CCX) only requires annual testing by an approved laboratory and the California Climate Action Registry (CCAR) only requires quarterly analysis by portable hand held equipment. EPA should adopt a similar approach.

Response: EPA has retained the requirement for continuous gas monitoring for anaerobic digestion systems in the final rule, see the response to EPA-HQ-OAR-2008-0508-0379.1 excerpt 16 for more explanation. EPA performed detailed analyses of the costs associated with the rule, as explained in the response to comment EPA-HQ-OAR-2008-0508-0671.1 excerpt 3 and the Regulatory Impact Analysis on the docket.

Commenter Name: Stewart T. Leeth
Commenter Affiliation: Smithfield Foods, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0553.1
Comment Excerpt Number: 16

Comment: EPA's Recordkeeping Requirements are Overly Burdensome. EPA has estimated that the average cost to comply with the reporting requirements of the proposal, to conduct the laboratory testing, and do the emissions calculations would be approximately $900 per facility.

This number has little relation to the actual costs that producers will incur to comply with the proposed rule.

Response: EPA performed a detailed analysis to determine the costs associated with the rule, for more information see the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3 and the Regulatory Impact Analysis on the docket. Although the commenter does not agree with EPA's analysis, the commenter has not provided additional data for EPA to consider.

EPA acknowledges the difficulty and burden associated with sample collection identified by the commenters and has removed this requirement from the rule, see the response to comment EPA-HQ-OAR-2008-0508-0425.1, excerpt 11 for more discussion. EPA has adjusted the cost estimate accordingly.

Commenter Name: Justin Oldfield
Commenter Affiliation: California Cattlemen's Association (CCA)
Document Control Number: EPA-HQ-OAR-2008-0508-0383
Comment Excerpt Number: 6

Comment: Manure management systems and the opportunities to reduce GHG emissions also vary between dairy and beef cattle production systems. Dairies typically use flush systems to clean corrals and store liquid manure in holding ponds for use as irrigation water on animal feed crops. The ponds can be covered with digesters that effectively turn the methane produced from the pond to a biogas. On the other hand, beef cattle operations and feedlots predominantly have dry corrals and solid manure. Management practices and strategies to reduce GHG emissions from open corrals and dry manure packs are not cost effective or readily available to beef producers. Steps in California to install and certify the construction of methane digesters on dairies cannot be applied to beef steers in feedlots.

Response: EPA agrees that emissions can vary based on climate, type of production, and other geographical factors. The methodologies used to estimate emissions in the rule reflect these differences; see response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 5 for more information.

Commenter Name: Robert Naerebout
Commenter Affiliation: Idaho Dairymen's Association, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0314.1
Comment Excerpt Number: 24

Comment: The Economic Impacts provisions significantly underestimate the cost of the rule. The overwhelming majority of dairy farms (not to mention the other industries covered by the rule) are not equipped to handle this maze of regulations. Furthermore, the benefits of the rule are unknown--data, which is likely to be incomplete and inaccurate, will be gathered at enormous expense for the purpose of perhaps developing more overly complex regulations in the future. The EPA, in effect, is proposing regulations as complicated as the tax code for an unascertainable benefit to the public. The negative impacts of this rule on the emerging dairy waste-to-energy industry have not been accounted for. The proposed rule will discourage dairy owners from pursuing anaerobic digestion technology. which generates renewable energy while

managing waste, because emissions from digesters must be reported but emissions from land application do not. The stifling of an emerging green business practice that over time will help the nation reduce its greenhouse gas emissions and stimulate rural economics presents an additional adverse consequence of this proposed rule. The IDA was under the impression that the federal government is seeking to encourage renewable energy production, not discourage it.

Response: The benefits of the rule have been defined by EPA, and are stated in the preamble. .

EPA performed a detailed analysis to determine the costs associated with the rule, for more information see the response to comment EPA-HQ-OAR-2008-0508-0671.1, excerpt 3 and the Regulatory Impact Analysis on the docket. Although the commenter does not agree with EPA's analysis, the commenter has not provided additional data for EPA to consider.

See the response to comment EPA-HQ-OAR-2008-0508-0365.1, excerpt 14 for more information on the reporting rule as it relates to incentives to install digesters.

Commenter Name: Craig Head
Commenter Affiliation: Nebraska Farm Bureau Federation (NFBF)
Document Control Number: EPA-HQ-OAR-2008-0508-0578.1
Comment Excerpt Number: 2

Comment: EPA suggests that the first year capitol costs for entities to report manure management to be zero dollars for impacted operations. We are uncertain how EPA arrived as this estimate given the nature of EPA's proposed mechanism for establishing GHG emissions from manure management systems. EPA's proposed methodology would establish the need for collection of feces and urine from animals prior to entering the manure management system for purposes of determining GHG emissions. Given the nature of EPA's proposed mechanism and the uncertainty surrounding the method of feces and urine collection, there is the potential that special pens and other facilities would be needed for this purpose. It appears such capitol costs would not be zero for these purposes and any costs affiliated for this collection would be in addition to EPA's own estimation of $900 per facility reporting costs for laboratory testing and emissions calculations.

Response: See the response to comment EPA-HQ-OAR-2008-0508-1014.1, excerpt 8.

Table 1

COMMENTER	AFFILIATE	DCN
Michael Formica	National Pork Producers Council (NPPC)	EPA-HQ-OAR-2008-0508-0435.1
Mark Dopp	American Meat Institute (AMI)	EPA-HQ-OAR-2008-0508-0440.1
Stewart T. Leeth	Smithfield Foods, Inc.	EPA-HQ-OAR-2008-0508-0553

Table 2

COMMENTER	AFFILIATE	DCN
Burton Eller	National Cattleman's Beef Association (NCBA)	EPA-HQ-OAR-2008-0508-0418.1
Rick Stott	Agri Beef Co.	EPA-HQ-OAR-2008-0508-0371.1
Todd Schroeder	Nebraska Cattlemen, Inc. (NC)	EPA-HQ-OAR-2008-0508-0416.1

Note: EPA will not be implementing subpart JJ of the Mandatory GHG Reporting Rule using funds provided in its FY2010 appropriations due to a Congressional restriction prohibiting the expenditure of funds for this purpose.

Ross Wilson	Texas Cattle Feeders Association (TCFA)	EPA-HQ-OAR-2008-0508-0395.1

Table 3

COMMENTER	AFFILIATE	DCN
Burton Eller	National Cattleman's Beef Association (NCBA)	EPA-HQ-OAR-2008-0508-0418.1
Rick Stott	Agri Beef Co.	EPA-HQ-OAR-2008-0508-0371.1
Todd Schroeder	Nebraska Cattlemen, Inc. (NC)	EPA-HQ-OAR-2008-0508-0416.1
William Hammerich	Colorado Livestock Association (CLA)	EPA-HQ-OAR-2008-0508-0425.1

Table 4

COMMENTER	AFFILIATE	DCN
Craig Holt Segall	Sierra Club	EPA-HQ-OAR-2008-0508-0635.1
Melissa Thrailkill	Center for Biological Diversity	EPA-HQ-OAR-2008-0508-0430.1