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RE: Public Meeting of the Science Advisory Board Animal Feeding Operations Emission Review Panel

The National Pork Producers Council (NPPC) submits the following introductory comments as a follow up to the initial meeting of the Environmental Protection Agency's (EPA) Science Advisory Board's (SAB) Animal Feeding Operation Emission Review Panel (Panel). These comments touch briefly upon the major issues we believe the Review Panel should be focused on as it begins its work reviewing the data from the National Air Emissions Monitoring Study (NAEMS) and the draft Emission Estimating Methodologies (EEMs) that EPA has developed. We appreciate the opportunity to submit these comments and engage in the Panel's consideration of the NAEMS and draft EEMs. In addition to these introductory comments, NPPC will be submitting additional, detailed technical comments, regarding the NAEMS data and the draft EEMs at a later date. It is our understanding that the SAB will be considering the two draft EEM papers over the course of several meetings and telephone conferences, and we look forward to engaging with the SAB and EPA over our more detailed, technical comments.

NPPC is an association of 43 state pork producer organizations and the voice in Washington for the nation's 67,000 pork producers. The U.S. pork industry represents a significant value-added activity in the agriculture economy and the overall U.S. economy. Nationwide, these 67,000 pork producers marketed more than 103 million hogs in 2005, and those animals provided total gross receipts of \$15 billion. Overall, an estimated 560,000 jobs, \$20.7 billion of personal income and \$34.5 billion of gross national product are supported by the U.S. pork industry.

These preliminary comments can be summarized as follows:

1. The Air Consent Agreements (ACA) are central to this entire scientific effort and the agreements' goals and purposes set the appropriate context for the Panel's work.
2. A key ACA goal is to give farmers a tool they can use to estimate the air emissions from their operations so as to judge their regulatory obligations. In order for that tool to work it should be as uncomplicated and straightforward as possible, and it should make intuitive sense.
3. Each of the NAEMS swine study sites were selected to represent a specific subset of the major swine production systems and climatic conditions, and while not perfectly representative, there should be considerable explanatory power from this design as the vast majority of swine today fall within one of these subsets.
4. The Panel should determine how well each of the monitored swine systems represents their respective classes of operations. If found appropriate, EPA should reject the proposed pooling of the data across all the monitored swine systems.
5. Anaerobic lagoons are completely distinct, biologically, chemically and physically, from the more simple manure storage basins, and they have completely different emissions properties. These differences merit a separate EEM to reflect this.
6. Dairy emissions data should not be pooled with the swine data, as this unnecessarily wastes the study design's power to predict swine systems' emissions.

Goal and Purpose of the Panel: Implementing the Air Consent Agreements

The Panel is performing an important task that the nation's livestock producers believe is necessary; to help EPA bring strong and deeply credible science to the development of the EEMs from the data that were collected through the producer-funded NAEMS process. While there was, and continues to be, disagreement over the value of the Air Consent Agreements and EPA's presumed underlying regulatory authority, Pork producers raised and spent \$6 million for the EPA-supervised monitoring program that generated the swine air emissions data and they therefore have an enormous direct interest in seeing this data used wisely. But the outcome of the Panel's deliberations, assessment, and recommendations to EPA are extremely important not just to hog farmers but to all of U.S. agriculture.

During your initial meeting, the Panel began its deliberations on the "Draft-Development of Emissions Estimating Methodologies for Broiler Animal Feeding Operations" (Broiler EEM) and "Draft-Development of Emissions Estimating Methodologies for Lagoons and Basins at Swine and Dairy Animal Feeding Operations" (Lagoon and Basin EEM). As the Panel continues this work on both these draft documents and eventually the entire body of EEMs, we think it is imperative that the Panel keep in mind that the primary and driving force behind the NAEMS study and EPA's subsequent development of the emissions factor is the Air Consent Agreements ("ACAs"). See 70 Fed. Reg. 4958 et seq (January 31, 2005). According to EPA records, there are some 2,750 ACAs, and they include livestock or poultry producers operating some 14,000 swine, dairy, egg-laying and broiler farms.¹ These producers represent a broad cross section of today's modern, commercial livestock and poultry operations, both in terms of the animal housing and production systems used and in terms of their geographic dispersion. As a result of these ACAs and the establishment of the NAEMS effort funded under the terms of the ACA, producers of these species supplied some \$14.5 million to pay for the independent protocol development, monitoring equipment, collection and compilation of air emissions data from on-farm monitoring systems.

Those agreements were entered into by EPA and the participating producers following the recognition in 2001 by the Administrator of EPA that insufficient data existed to determine the compliance obligations of livestock producers with various federal environmental laws. As a result, EPA entered into a novel agreement with pork producers and other sectors of the animal agriculture with the objective to fund and design a study that might help EPA and those producers develop the tools necessary to answer some of these questions.

These objectives are important because of the expectations that were created for the participating producers on the basis of the commitments made by EPA in entering into these agreements, and because of the enormous investment of monetary resources made by producers. Those objectives include the development of the soundest possible EEMs from the NAEMS data.

In signing this agreement, the livestock and poultry producers were agreeing to:

“(S)hare responsibility for funding an extensive, nationwide emissions monitoring study. The monitoring study will lead to the development of methodologies for estimating emissions from AFOs and will help AFOs to determine and comply with their regulatory responsibilities under the Clean Air Act (CAA); the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); and the Emergency Planning and Community Right-To-Know Act (EPCRA). Once applicable emission estimating methodologies have been published by

¹ See EPA's list of CAFO Respondents to Air Consent Agreements at: <http://www.epa.gov/compliance/resources/agreements/caa/caforespondentlist-022309.pdf>

EPA, the Agreement will also require each participating AFO to certify that it is in compliance with all relevant requirements of the CAA, CERCLA and EPCRA.²

Specifically, the producers entering into the agreements were paying funds for the monitoring study for the express purpose of the:

development of Emissions-Estimating Methodologies that will help animal feeding operations determine and comply with their regulatory responsibilities under the Clean Air Act, CERCLA and EPCRA. (Air Consent Agreement (ACA), Clause 2)

While producers were paying funds for the monitoring study to generate the data used in the development of EEMs, EPA also shares expressly in this goal.

EPA and participating animal feeding operations aim to assist in the development of improved Emissions-Estimating Methodologies for air emissions from animal feeding operations and to ensure that all animal feeding operations are in compliance with applicable Clean Air Act, CERCLA and EPCRA requirements. (ACA, Clause 5, emphasis added)

The language of the ACAs and the supporting EPA documentation make it abundantly clear that the purpose for the collection of the data and the subsequent development of emissions estimating methodologies was the same, and that EPA shared equally in its obligation and intent to meet that purpose in its own efforts:

The purpose of the monitoring study is to: collect data and aggregate it with appropriate existing emissions data; analyze the monitoring results; and create tools (e.g., tables and/or emission models) that AFOs could use to determine whether they emit pollutants at levels that require them to apply for permits under the CAA or submit notifications under CERCLA or EPCRA. The monitoring study is designed to generate scientifically credible data to provide for the characterization of emissions from all major types of AFOs in all geographic areas where they are located.³In one of its press releases in June 2007 with the initiation of the actual NAEMS data gathering, EPA restated that it “intends to use the data from the monitoring study to develop an improved method for estimating emissions from individual AFOs. EPA believes this innovative agreement will bring farms into compliance more quickly than could have been accomplished through traditional, case-by-case enforcement.”⁴

The ACA makes it expressly clear that the emissions estimating methodologies are to be used to “create tools” that would allow a producer to authoritatively establish whether the emissions from their farms were of a nature and quantity to create specific compliance obligations under the Clean Air Act, CERCLA, or EPCRA. Accordingly the focus of the Panel should be to help EPA use the NAEMS data to develop a sound, reliable and usable set of tools for farmers to use to understand how much emissions of these substances are taking place from their operations. With that knowledge in hand, these farmers can in turn establish with confidence what their specific regulatory obligations are under the CAA, CERCLA and EPCRA.

² See EPA’s first Federal Register notice of January 31, 2005 requesting public comment on the draft consent agreements at 70 Fed Reg 4958.

³ 70 FR 4960

⁴ See EPA’s June 14, 2007 press release on the start of the NAEMS effort at: <http://yosemite.epa.gov/opa/admpress.nsf/e87e8bc7fd0c11f1852572a000650c05/123eb5c154ff33b0852572fa00594518!OpenDocument>

Suggested Areas of Focus and Review of the NAEMS Data and Draft Emissions

As noted above, we will be preparing more detailed comments on these draft EEM documents and submitting those to EPA Office of Air before the close of the announced 90 day comment period. As part of that effort we will be providing a more in-depth treatment of the NAEMS' lagoon study sites and the associated implications for these monitoring data to represent the lagoons in operation in the US swine industry. But for the purpose of these comments now and the SAB's initial conversations about where your investigations and review should lead you, we would like to give you some preliminary ideas to consider.

EEMs should be guided by their purpose and the strengths of the available data

One of the most important functions that the Panel could perform is to help EPA wrestle with the question as to the acceptable modeling uses of the data to support good policy making for the issues to be addressed. Ideally the data could be used to estimate parameters for variables representing the actual causal factors that generate air emissions; as such a model would also lend itself to the identification of technically sound and economical measures to mitigate those emissions. To achieve that goal the models must use the correct explanatory variables, in light of the data collected, the other published studies about these same systems, and in light of the generally extensive body of knowledge about their basic chemistry, biology and physics. While it is necessary that the model adopted be a good fit for the data collected, it is not sufficient as a matter of good policy making if the model and its explanatory variables are at direct odds with this other extensive body of knowledge and science as to what is driving emissions levels.

EPA stated in its comments about the ACA when it was first released that EPA "intends to use the data from the monitoring study to develop an improved method for estimating emissions from individual AFOs." We support this goal and note that the "improved method" to estimate emissions need not be complicated to be accurate for the regulatory purposes at hand and to allow it to be embraced by the regulated community. As a matter of fact, in practice, the simpler the "improved method," the more likely it will be used properly by the regulators and accepted by the regulated community. The NAEMS dataset clearly provides a wealth of information for this purpose.

Implications of NAEMS swine study sites as representative of their respective categories

NAEMS monitored emissions from six swine lagoons and basins in North Carolina, Indiana, Iowa and Oklahoma (three at sow operations, three at finishing pig operations). While a very large sum of money was raised from swine producers for this monitoring effort, these are expensive studies and it was not possible to conduct this work in every state or in every region where pigs are grown. Even within the selected states, the expense involved made it impossible to replicate these studies at multiple sites. Recognizing these limitations, but cognizant of the fact that the greater the representativeness of the data collected the greater the value of the NAEMS effort overall, considerable thought was put into the study design and the sites selected for monitoring to enhance its representativeness as much as possible.

The Panel must consider the fact that these particular anaerobic lagoon and basin systems were selected because they do in fact represent well the regions, basins and climates of the country where the vast majority of sows and finishing pigs are produced, and they represent the predominant swine production systems that use these kinds of facilities and in operation today.⁵

⁵ The other major swine production system used for finishing hogs has covered manure storage underneath the animals, like the deep pit systems in use in the Midwest, and the emissions of these systems will of course be the subject of their own draft EEM report from EPA,

As such, it is important to examine the extent to which the NAEMS study sites, and the data collected from them, represent distinct strata and therefore may have greater representative capability than the sample size would indicate. NPPC believes these operations are approximately representative of their respective strata and that the data from an operation within strata had a good chance of being highly representative of all such operations in the strata for the purposes established in the ACA. Approximately 52 percent of the US sows and finishing pigs in inventory today are raised in the four states that were the locations for the six NAEMS' swine study sites. Looked at from a regional perspective -- Iowa and Indiana in the Corn Belt and bordering the corn producing regions of the Upper Midwest, North Carolina in the Southeast, and Oklahoma in the arid west -- these four regions together account for about 95 percent of all the sows and finish hogs in inventory today. The hog production systems that are used at these six locations are in fact the most common types of systems in use today in their respective states and regions.

The US EPA has already established a broad and extensive database about the nature and type of swine and other livestock and poultry production systems in use in the US. While about ten years old at this point, EPA generated this database to support its economic modeling of the livestock and poultry sector during EPA's development of the Clean Water Act Effluent Limitation Guidelines. The data EPA used for this purpose were drawn from extensive USDA datasets, state and industry data and EPA's own data gathering efforts. The documentation describing these datasets and the modeling that EPA conducted can be found at <http://cfpub.epa.gov/npdes/afo/aforule.cfm#2003caforule>.

These two documents describe in great detail the datasets that EPA generated and how they were used in the ELG process.

- [Cost Methodology for the 2003 Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations](#) - Supporting document for the 2003 CAFO Final Rule. Provides the data, methodology, and farm level costs for various regulatory options for CAFOs (EPA-821-R-03-004).
- [Economic Analysis of the 2003 Final Revisions to the NPDES and Effluent Guidelines for CAFOs](#) - Supporting document for the CAFO Final Rule. Economic Analysis (EA) summarizes EPA's analysis of the estimated annual compliance costs and the economic impacts that may be incurred by affected operations that are subject to the final revisions (EPA-821-R-03-002).

While these data are more than ten years old, the regional concentration of production and the predominant hog production systems have changed very little since the time these datasets were assembled. We would encourage the Panel to consider examining these datasets and use them to judge the possible representativeness of the NAEMS study sites. Furthermore, NPPC is willing to work with the Panel and EPA's Office of Air to supply you with other analysis and data concerning the organization and structure of today's hog sector if that were to help you make this determination.

We believe there is the distinct possibility that the data from these study sites could be analyzed according to the strata that they were intended to represent. While pooling of this data might allow gross estimates of mean emissions for all swine lagoons on average for the entire country, it will not be able to capture the unique dynamics that shape or determine the air emissions in these different strata representative of different systems and operating conditions. It would be a serious waste and missed opportunity if pooling is done when the data could in fact have considerable and accurate representative power.

Recognize the critical distinctions between and among anaerobic lagoons and basins

There are fundamental differences between an anaerobic lagoon and a more functionally simple outdoor manure storage facility like a basin. Both have known and distinct properties, design parameters and purposes, all keyed to the desired functions and outcomes from their use. Anaerobic lagoons are one of the oldest and most common systems used for the treatment of human and food wastes as a way to reduce biological oxygen demand, and their engineering and design have been expressly adapted for use with animal manure. Basins, on the other hand, are more simple storage systems with some but far less biological activity than lagoons, and with entirely distinct air emissions profiles. Conceptually, the draft EEMs treatment of them as unitary manure treatment system is simply incorrect, and again, leads to EEMs that may be wasting the explanatory power of this dataset.

Furthermore, there are sizable differences in the properties of different types of lagoon treatment systems in the general category. Some lagoons in hotter, drier climates (like that of the Oklahoma swine study site) are designed as evaporative systems and the amount of process wastewater to be land applied is greatly reduced or in some instances eliminated. The chemistry, biology and emissions from such a lagoon will be very different than that in a more humid climate, like the North Carolina swine study site. Considerable evaporation takes place there, but there is enough precipitation to ensure that process wastewater has to be regularly applied. Lagoons without supplemental heating in different climates with differing lengths of growing seasons have very different properties. Those lagoons in a region with longer warm periods have much more biological activity and therefore different emissions.

Swine and dairy data should not be pooled

We are particularly concerned about the consequences of pooling the monitoring data from the swine and dairy lagoons across the country. EPA has suggested that these emissions data be pooled so as to overcome the lack of data about high temperature conditions at one of the dairy lagoon sites. Not only would this “pooling” further diminish the possible representative power of the data collected at the different swine sites and production systems monitored, it would reduce the power of the swine data to represent swine, a species that is obviously very distinct from dairy cows in their digestive and excretory systems. There are large differences in the biology, chemistry and physical properties of swine versus dairy cattle, and the same is true for the lagoons used to treat their manure.

Thank you again for the important work you are preparing to undertake. We encourage the Panel to guide EPA down a path of ensuring that the EEMs are as accurate as possible, grounded in a common sense understanding of the basic physical act of raising farm animals, and no more complicated in their design and structure than absolutely needed to help farmers estimate their emissions.

Sincerely

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