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Associated Milk
Producers Inc.

Bongards' Creameries

California Dairies, Inc.

Cayuga Marketing

Cooperative Milk
Producers Association

Dairy Farmers
of America, Inc.

Ellsworth
Cooperative Creamery

First District Association

Foremost Farms USA

Lanco Pennland

Land O'Lakes, Inc.

Lone Star Milk Producers

Maola Local Dairies

Michigan Milk
Producers Association

Mount Joy Farmers
Cooperative Association

Northwest Dairy
Association

Oneida-Madison Milk
Producers Cooperative
Association

Prairie Farms Dairy, Inc.

Scioto Cooperative Milk
Producers' Association

Southeast Milk, Inc.

Tillamook County
Creamery Association

United Dairywomen
of Arizona

Upstate Niagara
Cooperative, Inc.

August 18, 2025

National Air Emissions Monitoring Study Group
Office of Air Quality Planning and Standards
United States Environmental Protection Agency
109 T.W. Alexander Drive
Research Triangle Park, NC 27709

Submitted electronically to EPA via the email address: NAEMS@epa.gov

Dear NAEMS Research Group:

NMPF's 24 member cooperatives represent 20,000 U.S. dairy producers, who collectively produce the majority of the nation's milk supply. Since our founding in 1916, NMPF has been dedicated to representing dairy farmers and their cooperatives in national policy discussions that affect the future of U.S. agriculture and public health.

The United States Environmental Protection Agency (USEPA, or EPA) issued a Request for Public Comment on the November 2024 Update to USDA Draft AP-42 Chapter 9, Section 4 - Livestock and Poultry Feed Operations and Air Emissions Estimating Methodologies (EEMs) for Animal Feeding Operations.

In addition to the USDA Draft AP-42, the Dairy EEMs are specifically reported in *Development of Emissions Estimating Methodologies for Animal Feeding Operations Volume 5: Dairy Report Nov 2024* and *Draft Volume 5 Dairy Report Appendices A through G Nov 2024* documents. The EPA EEMs for dairy are comprised of a series of 21 different barn, milking center, lagoon, and corral air emissions models. The barn and milking center EEMs include models that predict NH₃, H₂S, TSP, PM₁₀ and PM_{2.5} emissions, and the lagoon and corral EEMs include models that predict NH₃ and H₂S emissions. These documents are available at <https://www.epa.gov/afos-air/draft-ap-42-chapter-9-section-4-livestock-and-poultry-feed-operations-and-air-emissions> and the EPA has requested that public review comments on these documents be sent via email to the NAEMS Group at NAEMS@EPA.gov by August 18, 2025.

The 30 page *USDA Draft AP-42 Chapter 9, Section 4 - Livestock and Poultry Feed Operations and Air Emissions Estimating Methodologies (EEMs) for Animal Feeding Operations* document, the 48 page *Development of Emissions Estimating Methodologies for Animal Feeding Operations Volume 1: Overview Report*, the 15 page *Draft Volume 1 Overview Report Appendices A and B Nov 2024*, the 137 page *Development of Emissions Estimating Methodologies for Animal Feeding Operations Volume 5: Dairy* document, and the 617 page *Draft*

Volume 5 Dairy Report Appendices A through G were reviewed in order to provide comments regarding the EPA dairy air emissions models.

The systematic evaluations and stress-tests were conducted using the same techniques outlined in two recent Journal of the American Society of Agricultural Engineering publications (*Evaluating draft EPA swine emission models - Part I: Facilities* and *Evaluating draft EPA swine emission models – Part II: Open-source manure storage*) sources cited at the end of this document.

NMPF has worked with a consulting firm at considerable expense and effort to analyze these models and documents to better understand the models and their ability to accurately estimate NH₃, H₂S, TSP, PM₁₀ and PM_{2.5} emissions. The conclusion is that these methodologies cannot predict or estimate actual emissions on different farms and are deeply and irreparably flawed as described below and we believe EPA, and USDA, should permanently cease its efforts in this area.

General Comments:

Erroneous Emissions Estimates

The draft EPA Dairy Emissions Estimating Methodologies (EEMs) are comprised of 21 models for dairy barns, milking centers, lagoons and corrals. These EPA dairy models are fatally flawed because they provide per cow emission factors that increase dramatically as cow inventory changes. For some models the per cow emissions factors increase as cow inventory increases, and for some models the per cow emission factors increase with decreasing cow inventory. This alone is such a significant flaw that the EPA dairy emission models cannot be used to accurately characterize air emissions from US dairy facilities.

The PM_{2.5}, PM₁₀ and TSP models are erroneously sensitive to outside ambient temperature, predicting per cow particulate matter emission factors that change by hundreds of percent when the ambient outside temperature input is changed. This is erroneous as there is no basis for the per cow particulate emission factors to significantly change based on the outside air temperature alone.

Several of the EPA models predict negative emission factors for NH₃, H₂S and particulate matter with outside ambient temperatures below freezing. This is erroneous as negative emission factors do not represent reality.

In their current form the EPA dairy EEMs are not appropriate for predicting dairy farm emissions. The models cannot be used to the degree of precision that is suggested in 2024 EPA reports and equations. Any of the issues noted above makes the models unreliable for use by the US dairy industry, as emissions predicted for US dairy farms in many cases would be grossly over-estimated using the EPA models.

Model Limitations

The EPA Dairy EEMs air emissions models were developed through regression analysis of air emissions data from a very limited number of farms. The National Air Emissions Monitoring Study (NAEMS) data was collected from only five dairy production sites that included three mechanically ventilated barns, two naturally ventilated barns, two milking centers, three manure storage lagoons, and one corral. This low number of facilities is statistically insufficient to accurately represent emissions from the many farm types and sizes of dairy farms currently operating across the United States. Additionally, the EPA EEMs do not provide any mechanism to consider management systems or control strategies that reduce air emissions that are already in use by dairy farmers. The US dairy industry is continually evolving in order to improve environmental management. The EPA Dairy EEMs are representative of dated dairy farm designs and production management methods, and do not reflect the current status of the industry. It is imperative that any dairy air emissions estimation tool adopted by EPA have a mechanism to consider the positive impact of updated systems, management methods, feed composition changes or additives, or other emission reduction strategies, such as manure lagoon and storage covers, that many dairy farmers are currently using.

Model Complexity

The EPA Dairy EEMs have substantial implementation challenges in that they are far too complicated mathematically for a layperson to implement. EPA has indicated the models will be made available via a web-based dashboard. The idea of having the models operate as a “black-box” dashboard is particularly concerning given the significant technical and typographical errors in the 2024 EEM and AP-42 Chapter documents that EPA released to the public for review and comment.

Regulatory Burden

The adoption of the 2024 EPA Dairy EEMs would erroneously implement dairy emission estimates that do not accurately represent emissions from the US dairy industry. The adoption by the EPA of erroneously large emissions estimates would place an unwarranted regulatory and economic burden on the US dairy industry. If adopted, the EPA models would have direct and significant negative regulatory and economic implications at both the state and federal level for dairy producers.

Specific Technical Comments on the Models:

Mechanically Ventilated Barn Models

- 1) The EPA Mechanically Ventilated with Manure Scraping Barn models predict per cow NH₃ emission factors that change with barn inventory. The daily per cow NH₃ emission factors predicted by the EPA model

increase as follows: 0.053 kg NH₃/d-hd, 0.068 kg NH₃/d-hd, 0.209 kg NH₃/d-hd, 17.2 kg NH₃/d-hd, and 61,299 kg NH₃/d-hd as dairy inventory is increased from 500 cows, 1,000 cows, 2,000 cows, 5,000 cows, and to 10,000 cows respectively, at outside ambient conditions of 20 °C (68 °F) and 50% relative humidity. For example, this means that the EPA models predict a per cow NH₃ emission factor that is 253 times larger for the same cow if on a 5,000 head dairy compared to if the cow were on a 1,000 head dairy (17.2 kg NH₃/d-hd vs 0.068 kg NH₃/d-hd). If the same cow were housed on a 10,000 head dairy the EPA model predicts a staggering 61,299 kg NH₃/d-hd emission factor. These results are clearly unreasonable and erroneous, because a change in animal inventory should not impact the per head emission factor.

- 2) The EPA Mechanically Ventilated with Manure Scraping Barn models predict per cow H₂S emission factors that change with barn inventory. The daily per cow H₂S emission factors predicted by the EPA model are as follows: 1.12 g H₂S/d-hd, 1.20 g H₂S/d-hd, 1.85 g H₂S/d-hd, 11.38 g H₂S/d-hd, and 427.43 g H₂S/d-hd as dairy inventory is increased from 500 cows, 1,000 cows, 2,000 cows, 5,000 cows, and to 10,000 cows respectively, at outside ambient conditions of 20 °C (68 °F) and 50% relative humidity. These predictions are erroneous as there is no physical or biological reason for a per cow H₂S emission factor to vary with increasing barn inventory.
- 3) The EPA Mechanically Ventilated with Manure Flushing Barn models predict per cow NH₃ emission factors that change with barn inventory. The daily per cow NH₃ emission factors predicted by the EPA model increase as follows: 0.046 kg NH₃/d-hd, 0.060 kg NH₃/d-hd, 0.186 kg NH₃/d-hd, 15.3 kg NH₃/d-hd, and 54,576 kg NH₃/d-hd as dairy inventory is increased from 500 cows, 1,000 cows, 2,000 cows, 5,000 cows, and to 10,000 cows respectively, at outside ambient conditions of 20 °C (68 °F) and 50% relative humidity. For example, this means that the EPA models predict a per cow NH₃ emission factor that is 255 times larger for the same cow if on a 5,000 head dairy compared to if the cow were on a 1,000 head dairy (15.3 kg NH₃/d-hd vs 0.060 kg NH₃/d-hd). If the same cow were housed on a 10,000 head dairy the EPA model predicts a staggering 54,576 kg NH₃/d-hd emission factor. These results are clearly nonsensical and do not represent physical reality, because a change in animal inventory should not impact the per head emission factor.
- 4) The EPA Mechanically Ventilated with Manure Flushing Barn models predict per cow H₂S emission factors that change with barn inventory. The daily per cow H₂S emission factors predicted by the EPA model are as follows: 6.04 g H₂S/d-hd, 4.98 g H₂S/d-hd, 6.33 g H₂S/d-hd, 35.12 g H₂S/d-hd, 1310 g H₂S/d-hd as dairy inventory is increased from 500 cows, 1,000 cows, 2,000 cows, 5,000 cows, and to 10,000 cows

respectively, at outside ambient conditions of 20 °C (68 °F) and 50% relative humidity. This is erroneous as there is no physical or biological reason for a per cow H₂S emission factor to vary with increasing barn inventory.

- 5) The EPA Mechanically Ventilated Barn models predict per cow PM_{2.5} emission factors that are erroneously sensitive to outside ambient temperature. For example, the model predicts the daily per cow PM_{2.5} emission factors increase 193% (from 196 g/d-hd to 379 g/d-hd) when the outside temperature changes from -20 °C (-4 °F) to 20 °C (68 °F), and all other conditions are held constant. This is erroneous as there is no basis for the per cow PM_{2.5} emission factor to significantly change based on the outside air temperature alone.
- 6) The EPA Mechanically Ventilated Barn models predict per cow PM₁₀ emission factors that are erroneously sensitive to outside ambient temperature. For example, the model predicts the daily per cow PM₁₀ emission factors increase 600% (from 264 g/d-hd to 1,599 g/d-hd) when the outside temperature changes from -20 °C (-4 °F) to 20 °C (68 °F), and all other conditions are held constant. This is erroneous as there is no basis for the per cow PM₁₀ emission factor to significantly change based on the outside air temperature alone.
- 7) The EPA Mechanically Ventilated Barn models predict per cow TSP emission factors that are erroneously sensitive to outside ambient temperature. For example, the model predicts the daily per cow TSP emission factors increase 211% (from 1,446 g/d-hd to 3,061 g/d-hd) when the outside temperature changes from -20 °C (-4 °F) to 20 °C (68 °F), and all other conditions are held constant. This is erroneous as there is no basis for the per cow TSP emission factor to significantly change based on the outside air temperature alone.

EPA Naturally Ventilated Barn Models

- 8) The EPA Naturally Ventilated Barn models predict per cow NH₃ emission factors that change with barn inventory. The daily per cow NH₃ emission factors predicted by the EPA Naturally Ventilated Barn model increase as follows: 0.022 kg NH₃/d-hd, 0.075 kg NH₃/d-hd, 1.24 kg NH₃/d-hd, 15,572 kg NH₃/d-hd, and 243,832,760,000 kg NH₃/d-hd as dairy inventory is increased from 500 cows, 1,000 cows, 2,000 cows, 5,000 cows, and to 10,000 cows respectively, at outside ambient conditions of 20 °C (68 °F) and 50% relative humidity. For example, this means that the EPA models predict a per cow NH₃ emission factor that is 207,627 times larger for the same cow if on a 5,000 head dairy compared to if the cow were on a 1,000 head dairy (15,572 kg NH₃/d-hd vs 0.075 kg NH₃/d-hd). If the same cow were housed on a 10,000 head dairy the EPA model predicts a ludicrous

243,832,726,000e kg NH₃/d-hd emission factor. These results are clearly nonsensical and do not represent physical reality, because a change in animal inventory should not impact the per head emission factor.

- 9) The Naturally Ventilated barn NH₃ models are erroneously sensitive to inventory. The NH₃ naturally ventilated barn model predicts increasing per cow emission factors with increasing barn inventory. EPA acknowledged this serious error with the model and noted that “For naturally ventilated barns, doubling the inventory resulted in a sevenfold increase in NH₃ emissions” in the *Vol 5, Section 8.2.1 Sensitivity to Inventory* section of the document. Note that the sevenfold increase EPA reports is calculated using ambient weather data from Brown County, Wisconsin on January 1, 2021. If this same comparison is made at outside ambient conditions of 20 °C (68 °F) and 50% relative humidity, the EPA Naturally Ventilated Barn model predicts NH₃ emissions from a 2,000 head dairy barn are 16.5 times greater than from a 1,000 head dairy barn. There is no physical or biological reason for a per head-based emission factor to vary with barn inventory. In Section 8.2.3 of the *Vol 5, Section* document discussing model limitations, EPA states “The sensitivity analysis testing shows rapid increases in NH₃ and H₂S emissions at high inventories. EPA will explore models that predict emissions normalized by inventory, as these models will produce a linear relationship between inventory and emissions (with other factors constant), regardless of the size of the operation.” While EPA acknowledges the models are seriously flawed, they offer no solution other than to note that “EPA will explore models that predict emissions normalized by inventory”, but provide no timeline or details on when different models will be developed.
- 10) The EPA Naturally Ventilated Barn models predict per cow H₂S emission factors that change with barn inventory. The daily per cow H₂S emission factors predicted by the EPA model are as follows: 2.32 g H₂S/d-hd, 1.77 g H₂S/d-hd, 1.84 g H₂S/d-hd, 4.91 g H₂S/d-hd, 47.45 g H₂S/d-hd as dairy inventory is increased from 500 cows, 1,000 cows, 2,000 cows, 5,000 cows, and to 10,000 cows respectively, at outside ambient conditions of 20 °C (68 °F) and 50% relative humidity. This is erroneous as there is no physical or biological reason for a per cow H₂S emission factor to vary with increasing barn inventory.
- 11) The EPA Naturally Ventilated Barn models predict per cow PM_{2.5} emission factors increase with decreasing cow inventory. The daily per cow PM_{2.5} emission factors predicted by the EPA model are as follows: 12.3 g PM_{2.5}/d-hd, 5.42 g PM_{2.5}/d-hd, 2.11 g PM_{2.5}/d-hd, 0.37 g PM_{2.5}/d-hd, 0.016 g PM_{2.5}/d-hd as dairy inventory is increased from 500 cows, 1,000 cows, 2,000 cows, 5,000 cows, and to 10,000 cows

respectively, at outside ambient conditions of 20 °C (68 °F) and 50% relative humidity. For example, this means that the EPA models predict a per cow PM2.5 emission factor that is 14.6 times larger for the same cow if on a 1,000 head dairy compared to if the cow were on a 5,000 head dairy (5.42 g PM2.5/d-hd vs 0.37 g PM2.5/d-hd). If the same cow were housed on a 500 head dairy the EPA model predicts a 12.3g PM2.5/d-hd emission factor, which is a 33 times larger per cow emission factor than predicted by EPA for the same cow on a 5,000 head dairy.

12) The EPA Naturally Ventilated Barn models predict increasing per cow PM10 emission factors as cow inventory increases. The daily per cow PM10 emission factors predicted by the EPA Naturally Ventilated model are as follows: 18.6 g PM10/d-hd, 22.5 g PM10/d-hd, 55.6 g PM10/d-hd, 219.9 g PM10/d-hd, 2,253,549 g PM10/d-hd as dairy inventory is increased from 500 cows, 1,000 cows, 2,000 cows, 5,000 cows, and to 10,000 cows respectively, at outside ambient conditions of 20 °C (68 °F) and 50% relative humidity. For example, this means that the EPA Naturally Ventilated Barn models predict a per cow PM10 emission factor that is 2.47 times larger for the same cow if on a 5,000 head dairy compared to if the cow were on a 1,000 head dairy (55.6 g PM10/d-hd vs 22.5 g PM10/d-hd). If the same cow were housed on a 10,000 head dairy the EPA model predicts a staggering 2,253,549 g PM10/d-hd emission factor. These results do not represent physical reality of the systems modeled.

13) The EPA Naturally Ventilated Barn models predict increasing per cow TSP emission factors as cow inventory increases. The daily per cow TSP emission factors predicted by the EPA Naturally Ventilated model are as follows: 58.4 g TSP/d-hd, 131.2 g TSP/d-hd, 1,267.4 g TSP/d-hd, 3,578,863 g TSP/d-hd, and 4,645,283,900,000 g TSP/d-hd as dairy inventory is increased from 500 cows, 1,000 cows, 2,000 cows, 5,000 cows, and to 10,000 cows respectively, at outside ambient conditions of 20 °C (68 °F) and 50% relative humidity. For example, this means that the EPA Naturally Ventilated Barn models predict a per cow TSP emission factor that is 27,278 times larger for the same cow if on a 5,000 head dairy compared to if the cow were on a 1,000 head dairy (3,578,863 g TSP/d-hd vs 131.2 g TSP/d-hd). If the same cow were housed on a 10,000 head dairy the EPA model predicts a completely ridiculous 4,645,283,900,000 g TSP/d-hd emission factor. These results do not represent physical reality.

EPA Milking Center Models

14) The EPA Milking Center models predict per cow PM2.5 emission factors that are erroneously sensitive to outside ambient temperature.

For example, the model predicts the daily per cow PM2.5 emission factors increase 467% (from -42 g/d-hd to 154 g/d-hd) when the outside temperature changes from -20 °C (-4 °F) to 20 °C (68 °F), and all other conditions are held constant. This is erroneous as there is no basis for the per cow PM2.5 emission factor to significantly change based on the outside air temperature alone.

- 15) The EPA Milking Center models predict negative per cow PM2.5 emission factors when the outside ambient temperature is below 0 °C (-32°F). For example, the model predicts the daily per cow PM2.5 emission factor as -42 g/d-hd when the outside temperature is -20 °C (-4 °F). This is erroneous as there is no basis for negative per cow PM2.5 emission factor due to temperature.
- 16) The EPA Milking Center models predict per cow PM10 emission factors that are erroneously sensitive to outside ambient temperature. For example, the model predicts the daily per cow PM10 emission factor increases 929% (from 86 g/d-hd to 799 g/d-hd) when the outside temperature changes from -20 °C (-4 °F) to 20 °C (68 °F), and all other conditions are held constant. This is erroneous as there is no basis for the per cow PM10 emission factor to significantly change based on the outside air temperature alone.
- 17) The EPA Dairy Milking Center models predict per cow TSP emission factors that are erroneously sensitive to outside ambient temperature. For example, the model predicts the daily per cow TSP emission factors increase 405% (from 216 g/d-hd to 876 g/d-hd) when the outside temperature changes from -20 °C (-4 °F) to 20 °C (68 °F), and all other conditions are held constant. This is erroneous as there is no basis for the per cow TSP emission factor to significantly change based on the outside air temperature alone.

EPA Corral Models

- 18) The EPA Dairy Corral H2S models use only ambient relative humidity as a model input. This oversimplification of input factors by EPA has resulted in models that are not capable of accurately representing corral emissions across the ambient weather conditions across the United States.

EPA Lagoon Models

- 19) The EPA Dairy Lagoon models predict increasingly negative NH3 emission factors as the outside ambient temperature falls below 0 °C (-32°F). For example, the model predicts the daily lagoon NH3 emission factor as -0.63 g/d-m² when the outside temperature is -20 °C (-4 °F). Increasingly negative emission factors are predicted by the model as

outside ambient temperature falls farther below freezing. This is erroneous as there is no basis for negative lagoon NH₃ emission factors.

- 20) The EPA Dairy Lagoon models predict increasingly negative H₂S emission factors as the outside ambient temperature falls below 0 °C (-32°F). For example, the model predicts the daily lagoon H₂S emission factor as -0.26 g/d-m² when the outside temperature is -20 °C (-4 °F). Increasingly negative emission factors are predicted by the model as outside ambient temperature falls farther below freezing. This is erroneous as there is no basis for negative lagoon H₂S emission factors.
- 21) The EPA Lagoon NH₃ and H₂S models use only ambient temperature as a model input. This oversimplification of input factors by EPA has resulted in models that are not capable to represent dairy lagoon systems across the United States under vastly different relative humidity and wind speed conditions.

Overall Concerns with EPA Model Representativeness of Current US Dairy Industry

- 22) The use of emission models that include cow inventory as an independent variable is not appropriate given that the range of cow inventories in the data set is extremely narrow. For example, EPA reported in *Development of Emissions Estimating Methodologies for Animal Feeding Operations Volume 5: Dairy Report Nov 2024* Table 5-4 that the cow inventory of mechanically ventilated barns measured ranged from 211 to 864 cows. There is no appropriate inventory range for the EPA models that include cow inventory as a variable because the EPA models were developed from data with no substantive range in cow inventory. Because of this, any inventory input other than that used to develop the models is an extrapolation and result in large and erroneous changes in the per cow emission factor predicted.
- 23) The number of dairy farms monitored is statistically insufficient to represent US dairy farms. The EPA dairy air emission models were created using data from only five confinement dairy barns (three mechanically ventilated barns and two naturally ventilated barns), two milking centers, three lagoons and one corral. This extremely limited data set was used by EPA to develop 21 different air emissions models proposed to be used by the entire US dairy industry. Five farms is simply inadequate to accurately represent emissions from the many farm types and sizes that comprise the US dairy industry.
- 24) The emissions data set used by EPA to develop the Dairy air emission models is far too outdated to represent the current US dairy industry. The data used to develop the EPA emissions models was collected over

the 2007-to-2011 time frame and is now from 14 to 18 years old. It is also important to note that the dairy facilities monitored were built in the 1990's and 2000's, with the oldest facility built in 1990 and the newest facility built in 2004. As such, the data used by EPA to develop the Dairy EEMs reflects 14-to-18-year-old management methods in facilities that were built from 21 to 35 years ago. Over the past 20 years significant advances have been made in dairy genetics, feed composition and additives, management methods, and emissions control strategies that have reduced air emissions from US farms. The adoption of the proposed EPA dairy air emissions models would result in outdated and unrealistically large emissions estimates being erroneously applied to US dairy farms.

- 25) The EPA EEMs do not provide any mechanism to consider management systems or control strategies already in use by dairy farmers. The US dairy industry has dramatically improved production efficiency over the last 25 years. The USDA Economic Research Service reports that per cow milk production in the United States increased 30.6% (from 18,197 pounds per cow in 2000 to 23,777 pounds per cow in 2020). Over this same time period the size of the US dairy cow herd increased only 2.05%. The USDA ERS credits the increasing per cow production efficiency of the US dairy industry over this period primarily to technological progress associated with the adoption of new systems, improved genetics, selective breeding, enhanced feed formulations, and advanced digital record keeping. The EPA Dairy EEMs do not represent the current US dairy industry as they were developed from data collected from very old dairy farms and associated management systems. The proposed EPA Dairy EEMs provide for no mechanism to capture the significant technological progress that has occurred in the US dairy sector since the collection of the NAEMS emissions data.
- 26) The EPA Dairy EEMs have substantial implementation challenges in that the models are far too complicated mathematically for a layman to implement. EPA has indicated the models will be made available in a web-based dashboard. The idea of having the models operate as a “black-box” dashboard is particularly concerning given the significant errors that the EEM and AP-42 Chapter documents that EPA released for comment.

Conclusion

There is a saying in the dairy industry, *when you have seen one dairy farm you have seen one dairy farm*. Therein lies the problem. NMPF believes it is futile to analyze a handful of farms and then try to extrapolate those findings to thousands of other unseen farms. The matter is further complicated because our operations are not static. Our industry and most other agriculture industries change over

time, we pride ourselves in our mission of continuous improvement. For example, in 2008, U.S. dairy was the first food agriculture sector to commission a life-cycle assessment at a national level on fluid milk. This assessment estimated that dairy accounts for about 2% of total GHG emissions in the U.S. — far lower than a global report from the UN Food and Agriculture Organization had suggested. An updated life-cycle assessment will be released in 2025.

Further, due to innovative practices in cow health, improved feed and genetics, and modern management practices, the environmental impact of producing a gallon of milk in 2017 has shrunk significantly from 2007, requiring 30% less water, 21% less land and a 19% smaller carbon footprint. And that is just since 2007.

We are aware that EPA has put decades of effort into the National Air Emissions Monitoring Study and attempting to develop air emission models and methodologies and we appreciate the professionalism and collaboration EPA has shown us over the years. While we have considerable respect for EPA's diligence and dedication, for the reasons listed in these comments and the fact every attempt to create reliable and accurate models has failed, NMPF respectfully requests that EPA terminate once and for all, any and all efforts in this area. Through no fault of your own, it is clear that the overall concept was flawed from the beginning, farms vary far too much from each other and over time. NMPF does not think that this critical factor was appropriately considered and is the reason this effort cannot succeed.

If NMPF can answer any additional questions regarding our concerns, please contact us at 703-294-4355 or cdetlefsen@nmpf.org.

Sincerely,

A handwritten signature in black ink, appearing to read "Clay Detlefsen".

Clay Detlefsen, Esq.
Senior Vice President & Staff Counsel

Sources:

- EPA (2024) Draft AP-42 Chapter 9, Section 4 - Livestock and Poultry Feed Operations. Retrieved from <https://www.epa.gov/afos-air/draft-ap-42-chapter-9-section-4-livestock-and-poultry-feed-operations-and-air-emissions>
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- Njuki, Eric (2022). Sources, Trends, and Drivers of U.S. Dairy Productivity and Efficiency, ERR-305 USDA, Economic Research Service. USDA, Economic Research Service. Economic Research Report Number 305, pages 1 -46. https://www.ers.usda.gov/sites/default/files/_laserfiche/publications/103301/ERR-305.pdf
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- Ramirez, B. C., Li, G., Xiong, Y., Burns, R. T., & Gates, R.S. (2025 A). Evaluating draft EPA swine emission models – Part II: Open-source manure storage. J. ASABE, 68 (issue), pages 285-292. <https://doi.org/10.13031/ja.16205>