



January 12, 2024

Lauren Mosesso
Office of Wastewater Management (4203M)
Office of Water
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

RE: Draft National Pollutant Discharge Elimination System: Pesticide General Permit for Point Source Discharges from the Application of Pesticides; Reissuance, Docket ID: EPA–HQ–OW–2023–0268.

The National Agricultural Aviation Association appreciates the opportunity to comment on EPA’s draft 2026 National Pollutant Discharge Elimination System (NPDES): Pesticide General Permit (PGP) for Point Source Discharges from the Application of Pesticides.

U.S. Aerial Application Industry Background: NAAA represents the interests of the 1,560 aerial application industry owner/operators and 2,028 non-operator agricultural pilots throughout the United States licensed as commercial applicators that use aircraft to enhance the production of food, fiber and bio-energy; protect forestry; protect waterways and rangeland from invasive species; and provide services to agencies and homeowner groups for the control of mosquitoes and other health-threatening pests.

Within agriculture and other pest control situations, manned aerial application is an important method for applying pesticides, for it permits large areas to be covered rapidly—by far the fastest application method of crop inputs—when it matters most. It takes advantage, more than any other form of application, of the often too-brief periods of acceptable weather for spraying and allows timely treatment of pests while they are in critical developmental stages, often over terrain that is too wet or otherwise inaccessible for terrestrial applications. It also treats above the crop canopy, thereby not disrupting the crop and damaging it. Aerial application has greater productivity, accuracy, speed, and lack of damage to the crop compared to ground application¹. Although the average aerial application company is comprised of but six employees and two aircraft, as an industry these small businesses treat nearly 127 million acres of U.S. cropland each season, which is about 28% of all cropland used for crop production in the U.S. In addition

¹ Kováčik, L., and A. Novák, 2020. “Comparison of Aerial Application vs. Ground Application.” *Transportation Research Procedia* 44 (2020) 264–270.

to the cropland acres, aerial applicators annually apply to 5.1 million acres of forest land, 7.9 million acres of pasture and rangeland, and 4.8 million acres for mosquito control and other public health concerns.

While there are alternatives to making aerial applications of pesticides, aerial application has several advantages. In addition to the speed and timeliness advantage aerial application has over other forms of application, there is also a yield difference. Driving a ground sprayer through a standing crop results in a significant yield loss. Research from Purdue University² found that yield loss from ground sprayer wheel tracks varied from 1.3% to 4.9% depending on boom width. While this study was conducted in soybeans, similar results could be expected in other crops as well. Data from a Texas A&M University economics study³ and the 2019 NAAA industry survey⁴ were used to calculate that the aerial application industry is directly responsible for the production of 1.69 billion bushels of corn, 199 million bushels of wheat, 548 million pounds of cotton, 295 million bushels of soybean, and 3.33 billion pounds of rice annually that would be lost every year without the aerial application of pesticides. The value in additional crop yield that the aerial application industry brings to farmers, input suppliers, processors, and agricultural transportation and storage industries for corn, wheat, cotton, soybean, and rice production in the U.S. is estimated to be about \$37 billion⁵.

Research summarized by the University of Minnesota⁶ describes how soil compaction from ground rigs can negatively affect crop yields due to nitrogen loss, reduced potassium availability, inhibition of root respiration due to reduced soil aeration, decreased water infiltration and storage, and decreased root growth. Aerial application offers the only means of applying a crop protection product when the ground is wet and when time is crucial during a pest outbreak. A study on the application efficacy of fungicides on corn applied by ground, aerial, and chemigation applications⁷ further demonstrates that aerial application exceeds ground and chemigation application methods in terms of yield response. The aerial application of crop protection products results in greater harvest yields of crops. This in turn results in less land being used for agricultural production, preserving more wetlands for natural water filtration, forest ecosystems for carbon sequestration and habitat for threatened and endangered species.

The Texas A&M⁴ study revealed that the total area of cropland needed to replace the yield lost if aerial application was not available for corn, wheat, soybean, cotton, and rice production is 27.4 million acres, an area roughly the size of Tennessee. Aerial applicators seed 3.8 million acres of cover crops annually⁵. This means that aerial applicators are responsible for helping to sequester 1.9 million metric tons of CO₂ equivalent annually, which according to the EPA would be the

² Hanna, S., S. Conley, J. Santini, and G. Shaner. 2007. "Managing Fungicide Applications in Soybean." Purdue University Extension Soybean Production Systems SPS-103-W.

<https://www.extension.purdue.edu/extmedia/sps/sps-103-w.pdf>

³ Dharmasena, S. 2020. "How Much is the Aerial Application Industry Worth in the United States?" Research presented at the 2020 Ag Aviation Expo, Savannah, GA. <https://www.agaviation.org/2020aatresearchpapers>

⁴ National Agricultural Aviation Association. May 2019. "2019 NAAA Aerial Application Industry Survey: Operators." <https://www.agaviation.org/Files/Comments/NAAA%202019%20Operator%20Survey.pdf>

⁵ Dharmasena, S. 2021. "Value of the Agricultural Aerial Application Industry in the United States" Research presented at the 2021 Ag Aviation Expo, Savannah, GA. <https://www.agaviation.org/2021aatresearchpapers>

⁶ University of Minnesota. "Soil Compaction." Accessed April 29, 2021. <https://extension.umn.edu/soil-management-and-health/soil-compaction>

⁷ Thomas, D. 2009. Unpublished research results submitted to EPA.

<https://www.agaviation.org/Files/Comments/Fungicide%20efficacy%20results.pdf>

equivalent of removing approximately 412,000 cars with carbon-combustion engines from the roads each year.

The aerial application industry is also actively involved in education and research efforts to improve the accuracy and safety of aerial applications. The National Agricultural Aviation Research and Education Foundation (NAAREF) is a non-profit organization dedicated to promoting research, technology transfer and advanced education among aerial applicators, allied industries, government agencies and academic institutions. NAAREF's Professional Aerial Applicators' Support System (PAASS) program is a four-hour course offered annually at all state and regional agricultural aviation association conventions. The curriculum is brand new every year and a minimum of one hour of PAASS is focused on environmental professionalism. This ensures aerial applicators are kept up to date on the latest information related to making accurate applications and drift mitigation. Nozzle selection, buffer zones, inversions, precision application technology, dissection of real-life drift incidents, and proper spray boom setup are some of the environmental professionalism topics that have been covered in PAASS.

Five years after PAASS became part of the aerial application annual curriculum in 1999, there was a 26% drop in drift incidents according to Association of American Pest Control Officials drift surveys. In addition, ag aircraft accidents have also significantly declined. From 1999 to 2010, the accident rate per 100,000 hours flown dropped by 21.6% compared to pre-PAASS accident rates. From 2011 to 2019, the accident rate dropped even more—30.8%—compared to pre-PAASS accident rates. Each year we continue to see a drop in our accident rate since pre-PAASS days, but now it declines more incrementally. While aviation safety is the domain of the FAA and not the EPA, the reduction in accidents proves PAASS has had, and continues to have, a significant positive impact on the aerial application industry.

Another NAAREF program is Operation S.A.F.E. (Self-regulating Application & Flight Efficiency). The primary component of Operation S.A.F.E. is a fly-in clinic. At a S.A.F.E. fly-in, aerial applicators can have their aircraft calibrated and application patterns (both liquid and dry) measured and evaluated for accuracy and uniformity. Spray droplet size is also measured at a fly-in to ensure the agricultural aircraft is creating the droplet size required by the labels for products to be applied by the aircraft. Many of the concepts used mitigate the risk of drift from agricultural aircraft have originated from ideas first tested at Operation S.A.F.E. fly-ins.

Just this year, NAAA created a professional certification program for the aerial application industry named C-PAASS for Certified Professional Aerial Application Safety Steward. To be certified under C-PAASS aerial applicators must take the PAASS program annually and Operation S.A.F.E. biennially, in addition to belonging as a member to their state/regional agricultural aviation association and the NAAA. Next year, C-PAASS professionals will be required to take and be tested on additional aviation safety and environmental stewardship curriculum offered on-line through learning management system software NAAA installed. The purpose of C-PAASS is to enhance professionalism in the aerial application industry as our statistics show that those that participate in our educational programs are safer from both an aviation and environmental perspective.

Comments

For many years, the NAAA has been involved in the ongoing debate over whether PGPs should be legally required for applications of pesticides that are made in a manner fully consistent with EPA-approved label restrictions and the scientific parameters established for safe use of these

products by the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), the Food Quality Protection Act (FQPA), and other existing state pesticide authorities. The NAAA wholeheartedly agrees with many Congressional lawmakers; pest-control officials in federal, state, county, and municipal governments; and commercial and private interests that PGPs are duplicative, unwarranted burdens that do nothing to further environmental protection. Our comments on this proposed renewed PGP should in no way be considered an endorsement of the PGP, or the 2009 6th Circuit decision (*National Cotton Council v. EPA*) that overturned EPA's 2006 regulation clarifying NPDES permits were not required for such pesticide uses.

Within the proposed PGP, NAAA supports EPA's continued confidence in technology-based effluent limitations and acknowledgement that operator compliance with FIFRA labels may serve as the basis for satisfying the goals of the permit. NAAA would be concerned, however, if EPA would implement additional water quality-based effluent limitations (WQBEL) and FIFRA label use practices obtained from some specific pesticide products as potential enforceable requirements of an updated PGP; NAAA does not agree that EPA should pursue such additional requirements. NAAA supports EPA's continued preference for providing automatic coverage and somewhat reduced compliance requirements to non-decision makers, those engage in pesticide research and development activities, and for applications that do not meet annual treatment thresholds or are not made to Tier 3 waters or waters containing National Marine Fisheries Service (NMFS) or Fish and Wildlife Service (FWS) natural resources of concern. NAAA is concerned, however, that EPA continues to underestimate the associated legal jeopardy, economic costs, and social burdens the PGP imposes on permittees, especially if the 2016 PGP were to be implemented under a much expanded "Waters of the U.S." jurisdictional basis incorporated into the Clean Water Act.

The following comments relay concerns with certain aspect of the PGP and associated documents and reinforce continuing concerns with certain provisions of the 2011, 2016 and 2021 permit that NAAA raised back in 2010.

- 1. Ongoing "Waters of the United States (WOTUS)" Saga in the PGP:** It is clear that the definition of "waters of the US (WOTUS)" remains controversial. Numerous rulings and court decisions over the past several years have resulted in changes in and confusion over the definition of WOTUS. This could result in decision makers and applicators being unclear as to whether certain water bodies would require a permit. This lack of clarity, and uncertainty if EPA continues to consider continually changing definitions, could make compliance more difficult and would likely lead to further challenges to EPA's definitional scheme. EPA should give additional PGP notice and comment opportunity if changes come into effect. If changes are made effective during the 2026 PGP period, EPA should delay changes until the next five-year cycle or allow a new notice and comment period on any relevant changes to the PGP.
- 2. PGP enforcement should not apply to activities that do not involve pesticide discharges:** NAAA remains concerned with a statement made in the 2011 PGP, and since repeated that CWA enforcement and citizen suit liabilities may apply to other activities that occur outside of actual discharges on, over, or near water, such as storage, handling and disposal of pesticides before and after applications. NAAA is concerned that these statements imply EPA is signaling a much broader intent to apply PGP enforcement beyond actual point source discharges of pesticides. FIFRA labels include—directly or by reference—storage, handling, and disposal requirements, worker

protection requirements, and applicator training and certification requirements. These activities rest solely under FIFRA jurisdiction and should not be addressed in the PGP. For example, past PGP documents EPA states "...pesticide use inconsistent with certain FIFRA labeling requirements could result in the Operator being held liable for a Clean Water Act (CWA) violation as well as a FIFRA violation." The NPDES program regulates actual discharges to jurisdictional Waters of the U.S. and not the perceived potential to discharge (i.e., storage of pesticides for future use).

- 3. Endangered Species Act (ESA) issues are an additional redundancy with EPA's FIFRA activities:** EPA is already working expeditiously on compliance with ESA that will be implemented through their registration and registration review processes. Recent examples of their rapid progress on ESA compliance include the ESA workplan, the ESA workplan update, the vulnerable species pilot project, and the herbicide strategy.

Once completed, these and forthcoming projects will ensure that all pesticides registered by EPA will have label language that protects endangered species and critical habitat. Labels will refer applicators to EPA's BLT system, where they will be able to confirm the location of any listed species and habitat and access additional mitigation requirements. To require decision makers to check an entirely different mapping system and consult separately with either FWS or NMFS will only increase the workload – it will offer no additional protections to ESA listed species and critical habitat.

NAAA is working with EPA regarding the protection of ESA species and habitat from aerial applications. In our comments to EPA on the above listed ESA projects, we have made the following points:

- EPA is currently dramatically overestimating the risk of drift from aerial applications. NAAA encourages EPA to use the Tier 3 model in AgDRIFT instead of the Tier 1 as proposed in a letter sent from NAAA to the Office of Pesticide Programs in June of 2020⁸. A recent field study conducted at the University of Arkansas concluded the drift estimates from the Tier 1 model were "greatly over-predicting" the amount of drift physically measured in the field study⁹.
- Wind directional buffers have been proposed in the ESA workplan update, vulnerable species pilot project, the herbicide strategy and NAAA has agreed with EPA on this mitigation strategy. Science has consistently indicated that drift only moves downwind^{9,10,11}. Wind directional buffers provide a win-win solution that balances the needs for optimum agricultural production and protection of endangered species. Aerial applicators can monitor weather conditions in the

⁸ NAAA letter to EPA, June 29, 2020.

<https://www.agaviation.org//Files/Comments/EPA%20letter%20re%20AgDRIFT%20Tier%203%20aerial%20risk%20assessment%20use%2020200629.pdf>

⁹ Butts, T.R., B.K. Fritz, K.B. Kouame, J.K. Norsworthy, L.T. Barber, W.J. Ross, G.M. Lorenz, B.C. Thrash, N.R. Bateman, J.J. Adamczyk. 2022. "Herbicide spray drift from ground and aerial applications: Implications for potential pollinator foraging sources." *Scientific Reports* (2022) 12:18017. <https://doi.org/10.1038/s41598-022-22916-4>

¹⁰ Kirk, I.W., M.E. Teske, H.W. Thistle. 2002. "What About Upwind Buffer Zones for Aerial Applications?" *Journal of Agricultural Safety and Health* 8(3): 333-336.

¹¹ Teske, M.E., S.L. Bird, D.M. Esterly, S.L. Ray, S.G. Perry. 2003. "A User's Guide for AgDRIFT ® 2.0.07: A Tiered Approach for the Assessment of Spray Drift of Pesticides." <https://usermanual.wiki/Pdf/AgDriftusermanualpubFes2003.1946090729.pdf>

cockpit and thus evaluate the need for a buffer zone in real time using a smoker or AIMMS. This enables the pilot to take into account outside wind speed and direction when making every pass. Both smokers and AIMMS can also provide critical information on air stability and the presence of an inversion.

- If additional mitigations are necessary, NAAA has proposed EPA consider using reduced boom lengths and droplet sizes larger than very coarse as mitigation options for aerial applications. NAAA detailed the effectiveness at reducing drift using such combinations in a letter sent to EPA in June of 2023¹².

4. Joint and several liability provisions are unduly burdensome and should be

eliminated: The CWA does not include a statutory provision for attaching joint and several liability to CWA violations like the provision Congress expressly included in other environmental statutes (*e.g.*, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)). Past draft PGPs, however, continue the practice of holding all Operators jointly and severally liable for violations that occur in connection with permitted activities, including any action or inaction of others that is beyond their control. This provision has had a chilling impact on the aerial application industry. Many of NAAA's members are small business owners that lack the resources that would be required to defend themselves adequately against CWA citizen suits. NAAA is aware of several circumstances where NAAA members have had to decline contracts for mosquito control services due to the legal risks imposed by the PGP. With the susceptibility to viruses in our society today, especially with the elderly and those having preexisting conditions and the detections of Zika, West Nile virus and other mosquito-borne and other insect-borne illnesses, a decision to forego pesticide application could put the public at an increased risk of contracting these devastating and potentially fatal illnesses. While EPA indicates it will take into enforcement consideration the relative roles of each party, this not sufficient by itself to address these concerns. NAAA urges EPA to revise the PGP to eliminate the joint and several liability provisions.

5. Potential to require WQBELs and best management practices (BMP) requirements from product labels:

WQBELs would be an unwarranted addition to the PGP as previously mentioned and would create undue burdens on Operators. The current PGP does not include WQBELs, and EPA has noted previously that it has no evidence that the PGP has not adequately protected water quality. Moreover, EPA has cited previously to the United States Geological Survey (USGS) in reports of water monitoring data for pesticides that concluded surface water and groundwater are not generally being adversely impacted by pesticide applications. The potential addition of WQBELs and BMPs, including fish-tissue sampling and water quality monitoring, would be unwarranted, would provide no additional environmental benefits, and would simply add unnecessary financial and legal burdens for Operators. A review of all 50 state PGPs indicates that most states do not incorporate WQBELs into their respective state PGPs. The mere fact that a small fraction of states have chosen to address their political and

¹² NAAA letter to EPA, June 27, 2023. <https://www.agaviation.org/wp-content/uploads/2023/08/202306-epa-letter-drift-mitigation.pdf>

site-specific needs by adopting WQBELs in their state PGPs is not sufficient justification for EPA to adopt these in the PGP.

- 6. Site monitoring and record keeping requirements:** NAAA is concerned that the additional site and visual monitoring and record keeping requirements for each application site as proposed in the draft 2026 PGP have the potential to overly burden aerial applicators. The 2019 NAAA industry survey shows that 46% of aerial application business have three employees or fewer. Tasking the work of additional record keeping and site monitoring would be extremely burdensome to such small aerial application businesses. In addition, EPA should provide further clarification as to the length of time records must be retained.

Conclusion

NAAA urges EPA to consider these comments and recommendations as it finalizes the 2026 PGP. The final 2026 PGP should provide clarity on the waters for which a pesticide application would require a PGP and should not include any unnecessary provisions or additional requirements that would create undue hardship on pesticide applicators. Increased burdens and legal jeopardy could deter NAAA's members from performing work that helps protect the public against insect-borne disease and providing the pest control services that farmers, foresters, natural resource manager, and many other public sectors require.

Thank you for this opportunity to comment.

Sincerely,



Andrew D. Moore
Chief Executive Officer