BEFORE THE U.S. ENVIRONMENTAL PROTECTION AGENCY

PETITION TO ADOPT A REBUTTABLE PRESUMPTION THAT LARGE CAFOs USING WET MANURE MANAGEMENT SYSTEMS ACTUALLY DISCHARGE POLLUTANTS UNDER THE CLEAN WATER ACT

Alabama State Association of Cooperatives, Alianza Nacional de Campesinas, Alliance for the Great Lakes, American Indian Movement Interpretive Center, American Rivers, Anthropocene Alliance, Assateague Coastkeeper, Black Warrior Riverkeeper, California Coastkeeper Alliance, Cape Fear River Watch, Catskill Mountainkeeper, Central California Environmental Justice Network, Clean Water Action, Coachella Valley Waterkeeper, Community Water Center, Concerned Citizens of Tillery, Conservation Law Center, Cortland-Onondaga Federation of Kettle Lake Associations, Earthjustice, Endangered Habitats League, Environment America, Environmental Law and Policy Center, Environmental Working Group, FLOW (For Love Of Water), Friends of the Earth, Friends of Toppenish Creek, GreenLatinos, Healthy Gulf, Hoosier Environmental Council, Humane Society of the United States, Illinois Environmental Council, Inland Empire Waterkeeper, Milwaukee Riverkeeper, Missouri Coalition for the Environment, Missouri Confluence Waterkeeper, Natural Resources Defense Council, North Carolina Conservation Network, Ohio Environmental Council, Orange County Coastkeeper, Our Children's Earth Foundation, Our Santa Fe River, Rural Coalition, Rural Empowerment Association for Community Help, San Francisco Baykeeper, Sierra Club, Snake River Waterkeeper, Three Fires Spiritual and Cultural Education Society, Waterkeeper Alliance, Waterkeepers Chesapeake, Waterway Advocates, Yadkin Riverkeeper

PETITIONERS

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

Concentrated animal feeding operations ("CAFOs")—industrial meat, dairy, and poultry production facilities that hold many hundreds or thousands of animals in close confinement—pollute the nation's water, contaminate its air, generate and spread dangerous pathogens, and exacerbate climate change. As a result, CAFOs cause serious, well-documented harm to humans, wildlife, and the environment. The burdens of CAFO pollution fall disproportionately on communities of color, low-income communities, and under-resourced rural communities. Yet, despite causing serious and disproportionate harm, the CAFO industry largely escapes regulation under the nation's key environmental statutes. This petition urges the U.S. Environmental Protection Agency ("EPA" or "Agency") to take a critical first step toward improving oversight of CAFOs, reducing harmful pollution, and correcting CAFOs' widespread failure to comply with the clear requirements of the Clean Water Act ("CWA" or "Act") by adopting a rebuttable presumption that Large CAFOs using wet manure management systems actually discharge water pollution and, thus, must apply for permits under the CWA.[1]

EPA admits that many CAFOs currently discharge water pollution without permits issued under the CWA, in violation of federal law.[2] CWA permits are key to "advanc[ing] the Act's objectives[,] including the ambitious goal that water pollution be not only reduced, but eliminated," because they "place important restrictions on the quality and character" of authorized water pollution.[3] And Congress plainly required CAFOs to obtain CWA permits before discharging water pollution to the nation's navigable waters.[4] However, although there are at least 21,237 Large CAFOs across the country, only about 6,200 CAFOs hold CWA permits.[5] The majority of Large CAFOs thus lack water pollution permits altogether or operate under state laws and permits that, as compared with permits issued under the CWA, typically are

[1] This request is distinct from the requests in a separate petition submitted to EPA by a different group of petitioners on March 8, 2017. As such, this petition is not a supplement to the March 8, 2017 petition.
[2] *See* EPA, *EPA Legal Tools to Advance Environmental Justice* 75 (2022), https://www.epa.gov/system/files/documents/2022-05/EJ%20Legal%20Tools%20May%202022%20FINAL.pdf.
[3] *Waterkeeper All., Inc. v. EPA*, 399 F.3d 486, 491 (2d Cir. 2005).
[4] *See* 33 U.S.C. §§ 1311(a), 1342(a), 1362(12), 1362(14).
[5] *See* EPA, *NPDES CAFO Permitting Status Report: National Summary, Endyear 2021, completed 07/20/22*, https://www.epa.gov/system/files/documents/2022-07/CAFO%20Status%20Report%202021.pdf. Although EPA's permitting status report is somewhat unclear, Petitioners conclude that EPA's estimate reflects the total number of Large CAFOs in the country, rather than the total number of CAFOs of any size, based on footnote one of the report, as well as records received from EPA in response to a Freedom of Information Act request. However, EPA's estimate is likely low. A review of EPA's CAFO data, along with publicly available CAFO data, found that EPA undercounted the number of CAFOs in at least nine states. *See* Jon Devine & Valerie Baron, *CAFOs: What We Don't Know Is Hurting Us*, Nat. Res. Def. Council at 11–12 (2019), https://www.nrdc.org/sites/default/files/cafos-dont-know-hurting-us-report.pdf. The reviewers thus concluded that "EPA may have significantly underestimated the number of CAFOs" in the country. *Id.* at 5.

less protective of water quality, offer less transparency, and provide fewer opportunities for public participation.

As EPA emphasized in a May 2022 report, CAFOs cause grave harms that disproportionately burden environmental justice communities, and existing regulations fail to achieve necessary protections.[6] This report is a recent entry in the large, well-established, and growing body of evidence showing that CAFOs cause serious harm to human health, degrade the environment, and disproportionately burden communities of color and low-income communities. To combat these long-standing and pervasive problems, EPA proposed "explor[ing] its authority to improve the effectiveness of [its] CAFO regulations."[7] This petition does just that, and it identifies a clear first step. Based on EPA's authority—and responsibility—under the CWA and executive orders aimed at advancing environmental justice, the petition proposes a significant improvement to EPA's CAFO regulations that will expand protections against water pollution, increase transparency and public participation in CAFO permitting, and support enforcement of permit violations.

Petitioners—a nationwide coalition of citizens' groups and community advocacy, environmental justice, and environmental advocacy organizations—are pleased to submit this petition asking EPA to establish a rebuttable presumption that Large CAFOs using wet manure management systems actually discharge water pollution and, thus, must apply for CWA permits.[8] In support of this request, Petitioners summarize decades of well-established scientific research;[9] present a new report on disparities in exposure to CAFO pollution, which, to Petitioners' knowledge, is the first to describe the disproportionate burdens that CAFOs impose on environmental justice communities in California's Central Valley; and include declarations from individuals who live near CAFOs, along with environmental and community advocates who have extensive experience with the harms CAFOs cause. These declarants tell a story that is common in communities across the country where CAFOs are concentrated—CAFOs "create

[6] *See* EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.
[7] *Id.*
[8] Petitioners use EPA's regulatory definition of a "Large CAFO." *See* 40 C.F.R. § 122.23(b)(4). CAFOs using wet manure management systems, also called "liquid manure handling systems," are "operation[s] [where] animals are raised outside with swimming areas or ponds, or with a stream running through an open lot, or in confinement buildings where water is used to flush the manure to a lagoon, pond, or some other liquid storage structure." EPA, *NPDES Permit Writers' Manual for Concentrated Animal Feeding Operations* at Glossary-10 (2012), https://www.epa.gov/sites/default/files/2015-10/documents/cafo_permitmanual_entire.pdf.
[9] Examples of this scientific research are summarized in the annotated bibliography attached as Exhibit 1.

serious water contamination problems,"[10] produce "a very sharp and pungent industrial-type odor,"[11] "destroy[] small farms,"[12] and "break[] up communities."[13]

Although CAFOs of all types and sizes pollute the nation's waters, Large CAFOs using wet manure management systems—that is, predominately Large CAFOs that confine swine and dairy cows[14]—are an especially significant source of water pollution. Nationwide, relatively few Large CAFOs confine the majority of swine and dairy cows produced in the country, and these facilities generate an outsize share of manure. For instance, according to data collected by the U.S. Department of Agriculture ("USDA"), only five percent of swine facilities confine more than 5,000 swine each.[15] But together, those operations confine 73 percent of all swine produced in the country.[16] As for dairy cow facilities, only four percent confine more than 1,000 dairy cows, but those operations account for 50 percent of all dairy cows.[17] **As of 2012, Large CAFOs *alone* generated 404 million tons of manure[18]—that is, over 20 times the amount of**

[10] Decl. of Sonja Trom Eayrs ¶ 12, attached as Exhibit 2.
[11] Decl. of David Carter ¶ 7, attached as Exhibit 3.
[12] Decl. of Kathy Tyler ¶ 8, attached as Exhibit 4.
[13] *Id.*
[14] A swine operation is a Large CAFO if it confines 2,500 or more swine weighing 55 pounds or more or if it confines 10,000 or more swine weighing less than 55 pounds. *See* 40 C.F.R. § 122.23(b)(4). A dairy cow operation is a Large CAFO if it confines 700 or more mature dairy cows. *Id.*
[15] *See* U.S. Dep't Agric., *2017 Census of Agriculture* 23, Tbl. 19 (2019), https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usv1.pdf. Because EPA does not provide publicly available data on the number of Large CAFOs by animal type or individual CAFO size, Petitioners use data from the USDA Census of Agriculture. USDA does not use EPA's thresholds for Large CAFOs when it collects data for the Census of Agriculture. As relevant here, USDA collects data on swine operations with 2,000 to 4,999 swine and 5,000 or more swine. *Id.* Operations in the latter range are most likely to meet EPA's definition of a Large swine CAFO, which includes operations that confine 2,500 or more swine weighing 55 pounds or 10,000 or more swine weighing less than 55 pounds. 40 C.F.R. § 122.23(b)(4). However, for operations that confine 2,000 or more swine, it is also the case that they make up a small percentage of all swine operations but confine the majority of swine raised for food production. As of 2017, only 12 percent of all swine operations (8,324 operations) confined more than 2,000 swine, but those operations confined 94 percent of all swine on farms. *See* USDA, *2017 Census of Agriculture* 23, Tbl. 19 (2019).
[16] *See id.*
[17] *See* USDA, *2017 Census of Agriculture* 23, Tbl. 17 (2019). As relevant here, USDA collects data on dairy cow operations that confine 500 to 999 cows and 1,000 or more cows. *Id.* EPA defines a Large dairy cow CAFO as one that confines 700 or more mature dairy cows. 40 C.F.R. § 122.23(b)(4). For dairy operations that confine 500 or more cows, those operations made up only 6.4 percent (3,464 operations) of all dairy farms, but they accounted for 66 percent of all dairy cows on farms. *See* USDA, *2017 Census of Agriculture* 23, Tbl. 17 (2019).
[18] *See* Noel R. Gollehon et al., USDA, *Estimates of Recoverable and Non-Recoverable Manure Nutrients Based on the Census of Agriculture—2012 Results*, at 9, Tbl. 2 (2016). This number does not include the manure produced by pastured livestock on Large CAFOs.

fecal wet mass produced by all humans in the United States.[19] Storing, transporting, and disposing of this waste using wet manure management systems routinely and predictably results in water pollution.

EPA's current approach to permitting Large CAFOs using wet manure management systems, which depends on self-reporting by polluters, falls short of what is required to protect communities and the environment in at least two significant ways. ***First,* EPA's approach violates the CWA.** The CWA makes clear that CAFOs are subject to the Act's prohibition on discharges of pollutants from point sources to the nation's navigable waters, except as authorized by a permit.[20] This prohibition means that EPA must "either [] issue a permit for [a CAFO's] discharge of the pollutant or [] enforce the total proscription on discharge[s]."[21] However, EPA and state agencies are failing to accomplish either directive. Indeed, in four of the top five swine-producing states and two of the top five dairy cow-confining states, fewer than ten percent of CAFOs have CWA permits.[22] Yet, ample evidence shows that CAFOs in these states and across the country are causing extensive water pollution.[23]

***Second,* EPA's approach fails to implement executive orders dedicated to advancing environmental justice.** Executive Order 12,898 requires EPA to collect data on environmental justice problems, address those problems, and ensure that environmental justice communities are able to participate in its activities.[24] Executive Order 14,008 requires EPA to strengthen enforcement of environmental violations that disproportionately harm environmental justice communities.[25] EPA recently reiterated that these Executive Orders require federal, state, and local environmental permitting programs to "integrate environmental justice . . . into relevant environmental permitting processes."[26] Nonetheless, EPA acknowledges that its current approach to CAFO permitting allows many CAFOs that discharge water pollution to operate without permits altogether or according to state laws and permits that fail to collect standardized

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[19] This figure assumes roughly 149 grams/person/day fecal wet mass (0.06 tons/person/year) and a U.S. population of 332,917,628. *See* C. Rose et al., *The Characterization of Feces and Urine: A Review of the Literature to Inform Advanced Treatment Technology*, 45 Critical Revs. Env't Sci. & Tech 1827 (2015); *See U.S. and World Population Clock*, U.S. Census Bureau, https://www.census.gov/popclock/, for current population (accessed Nov. 2021).
[20] *See* 33 U.S.C. §§ 1311(a), 1342(a), 1362(12), 1362(14).
[21] *L.A. Waterkeeper v. Pruitt*, 320 F. Supp. 3d 1115, 1122 (C.D. Cal. 2018); *see Nat. Res. Def. Council v. Costle*, 568 F.2d 1369, 1375 (D.C. Cir. 1977); *see also Nw. Env't Advocs. v. EPA*, 537 F.3d 1006, 1021–22 (9th Cir. 2008).
[22] *See infra* Section III.A.1.
[23] *See infra* Section III.A.3.
[24] *See* Exec. Order No. 12,898.
[25] *See* Exec. Order No. 14,008.
[26] EPA, *Interim Environmental Justice and Civil Rights in Permitting Frequently Asked Questions* 1 (2022), https://www.epa.gov/system/files/documents/2022-08/EJ%20and%20CR%20in%20PERMITTING%20FAQs%20508%20compliant.pdf.

information, protect water quality, allow for meaningful public participation, or provide for citizen suits, which enable CAFO neighbors and other advocates to enforce permit violations.[27]

Due in part to EPA's failure to implement these executive orders, longstanding disparities in exposure to CAFO pollution persist. According to a recent study, in North Carolina, the percentage of Black, Hispanic, and American Indian residents living within three miles of a Large swine CAFO is 1.42, 1.57, and 2.20 times higher, respectively, than the percentage of non-Hispanic Whites.[28] **If people of all races and ethnicities in the North Carolina study area were exposed to Large swine CAFOs at the same rate, then approximately 53,000 fewer Black residents, 29,400 fewer Hispanic residents, and 16,000 fewer American Indian residents would live within three miles of a Large swine CAFO in North Carolina.**[29] Similarly, in California's Central Valley, the percentage of Hispanic residents living within three miles of a Large dairy cow CAFO is 1.54 times higher than the percentage of non-Hispanic Whites.[30] **If Hispanic people were exposed to Large dairy cow CAFOs at the same rate as White non-Hispanic people, then approximately 227,600 fewer Hispanic people would live within three miles of a Large dairy cow CAFO in California's Central Valley.**[31] And in Iowa, 99.48 percent of all Large swine CAFOs are located in the most rural census tracts, which have the least access to grocery stores, physicians, and hospitals—meaning that people living in those communities might be more susceptible to harm from CAFO pollution and less able to seek help.[32]

To comply with the CWA and environmental justice executive orders, EPA should adopt a rebuttable presumption that Large CAFOs using wet manure management systems actually discharge pollutants. It is well settled that administrative agencies may establish presumptions,[33] and an agency's presumption is lawful if there is "a sound and rational connection" between the proved facts, which trigger the presumption, and the inferred facts, which follow.[34] A sound and rational connection is present "when 'proof of one fact renders the existence of another fact so probable that it is sensible and timesaving to assume the truth of [the inferred] fact . . . until the adversary disproves it.'"[35]

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[27] *See infra* Sections III.B.2 & III.B.3.
[28] *See* Arbor J.L. Quist et al., *Disparities of Industrial Animal Operations in California, Iowa, and North Carolina* 5 (2022) ("Quist Report"), attached as Exhibit 5.
[29] *Id.*
[30] *Id.*
[31] *Id.*
[32] *Id.* at 18, Tbl. 4.
[33] *See Chemical Mfrs. Ass'n v. Dep't of Transp.*, 105 F.3d 702, 705 (D.C. Cir. 1997); *see also Cole v. U.S. Dep't of Agric.*, 33 F.3d 1263, 1267 (11th Cir. 1994) ("The law is well established that presumptions may be established by administrative agencies[.]").
[34] *Chemical Mfrs. Ass'n*, 105 F.3d at 705.
[35] *Id.* (quoting *NLRB v. Curtin Matheson Sci., Inc.*, 494 U.S. 775, 788–79 (1990)) (some internal quotation marks omitted).

As described in detail in this petition, there is a sound and rational connection between Large CAFOs using wet manure management systems and actual discharges. CAFOs using wet manure management systems store urine, feces, and other waste in liquid form in vast pits or large tanks. These CAFOs often use pipes to transport the liquid waste from one location to another, and they typically dispose of the waste by applying it to fields. Using these practices to store, transport, and dispose of massive quantities of waste predictably causes discharges, and these discharges are likely to occur with increasing frequency due to climate change. Large CAFOs using wet manure management systems are an especially significant source of discharges from waste storage, transport, and disposal. **Indeed, a USDA study shows that the *majority* of Large CAFOs generate more manure nutrients than they can feasibly apply to fields at USDA-recommended rates meant to prevent discharges of water pollution.**[36] In other words, the most convenient, affordable strategy for waste disposal available to Large CAFOs likely causes discharges. In addition, the requested presumption is a sensible and timesaving device in light of the difficulty EPA and state agencies face in proving actual discharges on a CAFO-by-CAFO basis and the fact that Large CAFO operators are well-positioned to rebut the presumption in the rare instances in which no discharges occur.

Adopting the requested presumption will protect human health and the environment, while advancing the objectives of the CWA and environmental justice executive orders. The presumption will require Large CAFOs using wet manure management systems to apply for CWA permits or present evidence showing that they do not actually discharge pollutants. It would ensure that discharging CAFOs obtain CWA permits, an important outcome in light of the demonstrated failure of EPA and state governments to control water pollution from CAFOs. And, because CWA permits typically offer increased protections, transparency, and opportunities for public participation, the presumption will benefit people living near CAFOs and help EPA implement the environmental justice goals in Executive Orders 12,898 and 14,008.

Not only does the requested presumption meet the legal requirements for agency presumptions, but it also comports with case law clarifying the circumstances in which EPA may require a CAFO to apply for a CWA permit. Indeed, in 2005, the U.S. Court of Appeals for the Second Circuit expressly raised the prospect of a presumption that Large CAFOs actually discharge, stating that "such a prophylactic measure may be necessary to effectively regulate water pollution from Large CAFOs."[37] As this petition shows, in the nearly 20 years since the Second Circuit's decision, evidence has continued to grow, leaving little question that Large CAFOs using wet manure management systems actually discharge and that a presumption of discharge is necessary to regulate their discharges.

In sum, EPA's current approach to CAFO permitting exposes millions of people to harm, in violation of the CWA and executive orders aimed at advancing environmental justice. By contrast, the requested presumption is fair, legally sound, and protective of communities.

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[36] *See* Gollehon et al., *Estimates of Recoverable and Non-Recoverable Manure Nutrients Based on the Census of Agriculture—2012 Results* 19, Tbl. 7 (2016).
[37] *Waterkeeper All., Inc.*, 399 F.3d at 506, n.22.

Indeed, the requested presumption does nothing more than ensure that discharging CAFOs comply with existing requirements under the CWA. Petitioners urge EPA to act swiftly to adopt this presumption, advance environmental justice, and fulfill the CWA's promise to restore and maintain the nation's waters.

INTRODUCTION

Across the country, CAFOs generate staggering quantities of pollution that cause serious harm to humans, wildlife, and the environment. The burdens of this pollution fall disproportionately on communities of color, low-income communities, and under-resourced rural communities. EPA has known of these problems for decades. Indeed, EPA recently reiterated that "many waters are affected by pollutants from CAFOs," and these pollutants cause environmental injustice.[38] Nonetheless, as described below, EPA is failing to fulfill its legal responsibilities to regulate CAFOs that discharge water pollution. Because of EPA's failure, CAFOs continue to pollute the nation's waters, evade government and public oversight, and largely escape consequences for the harms they cause. Petitioners' members and supporters, along with millions of other people in the United States, suffer as a result. In their words, "CAFOs are industrial facilities, and they pollute on an industrial scale."[39] CAFOs "threaten every ecosystem in [a] watershed,"[40] "put many small farms . . . out of business,"[41] and cause "irreparable rift[s] in the community."[42] For the reasons that follow, Petitioners urge EPA to establish a rebuttable presumption that Large CAFOs using wet manure management systems actually discharge water pollution and, thus, must apply for CWA permits.

I. FACTUAL BACKGROUND

Meat and dairy production in the United States today looks very different than it did just 40 years ago.[43] While most animals were once raised on small, diversified, and independent farms, they are now primarily produced in massive, industrial CAFOs. For example, according to USDA, in 1987, only eight percent of swine were held in facilities with 5,000 or more swine.[44] By 2017, that percentage had increased ninefold; 73 percent of swine were held in facilities with 5,000 or more swine.[45] Likewise, the percentage of dairy cows held in facilities with 500 or more cows has grown dramatically, increasing from nine percent in 1987 to 61 percent in 2017.[46]

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[38] *See* EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.
[39] Decl. of Larry Baldwin ¶ 7, attached as Exhibit 6.
[40] Decl. of Kathryn Bartholomew ¶ 3, attached as Exhibit 7.
[41] Decl. of Edith Haenel ¶ 11, attached as Exhibit 8.
[42] Decl. of Jean Lappe ¶ 14, attached as Exhibit 9.
[43] *See* James M. MacDonald & William D. McBride, U.S. Dep't of Agric., *The Transformation of U.S. Livestock Agriculture: Scale, Efficiency, and Risks* at 1, 5 (2009), https://www.ers.usda.gov/webdocs/publications/44292/10992_eib43.pdf?v=0; *see also* James M. MacDonald, *Tracking the Consolidation of U.S. Agriculture*, 42 Applied Econ. Persps. & Pol'y 361, 370, Tbl. 3 (2020).
[44] *See* U.S. Dep't of Commerce, *1987 Census of Agriculture* 30, Tbl. 32 (1989), https://agcensus.library.cornell.edu/wp-content/uploads/1987-United_States-1987-01-full.pdf.
[45] *See* USDA, *2017 Census of Agriculture* 23, Tbl. 19 (2019).
[46] *See* U.S. Dep't of Commerce, *1987 Census of Agriculture* 30, Tbl. 30 (1989); *see also* USDA, *2017 Census of Agriculture* 23, Tbl. 17 (2019). Because EPA does not provide publicly available data on the number of Large CAFOs by animal type or individual CAFO size, Petitioners use data from the USDA Census of Agriculture. USDA does not use EPA's thresholds for Large CAFOs when it collects data for the Census of Agriculture; instead, it collects data on swine operations with 2,000 to 4,999 swine and 5,000 or more swine, and dairy cow operations with 500 or more cows.

As detailed in this petition, environmental regulations have not kept pace with the transformation of the meat and dairy industry, leaving a significant number of industrial facilities largely unregulated. Without adequate regulation, CAFOs cause a tremendous amount of pollution that harms humans, wildlife, and the environment.

There are now at least 21,237 Large CAFOs across the country.[47] These CAFOs generate a staggering amount of urine and feces. As of 2012, Large CAFOs alone generated over 20 times the amount of fecal wet mass produced by humans in the United States,[48] totaling 404 million tons of manure.[49] Given that meat and dairy production has continued to shift toward large facilities since 2012,[50] the amount of manure produced at Large CAFOs has almost certainly increased. A single CAFO can generate more waste than an entire city. For example, according to the U.S. Government Accountability Office, a dairy CAFO "meeting EPA's large CAFO threshold of 700 dairy cows can create about 17,800 tons of manure annually, which is more than the about 16,000 tons of sanitary waste per year generated by the almost 24,000 residents of Lake Tahoe, California."[51] And, as of 2007, all of the breeding and market swine in North Carolina together generated over 17 million tons of manure annually,[52] which is more than the amount of sanitary waste generated each year by the residents of New York and South Carolina combined.[53] Unlike human waste, however, CAFO waste generally is not treated or disinfected prior to disposal.

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[47] *See* EPA, *NPDES CAFO Permitting Status Report: National Summary, Endyear 2021, completed 07/20/22*, *supra* note 5.
[48] *See* sources cited *supra* note 19.
[49] *See* Gollehon et al., *supra* note 18 at 9, Tbl. 2.
[50] For example, between 2012 and 2017, the total number of swine held in facilities with 5,000 or more swine increased from 44.7 million to 52.7 million, and the percentage of all swine held in facilities of that size increased from 68 percent to 73 percent. *See* USDA, *2017 Census of Agriculture* 23, Tbl. 19 (2019). Similarly, between 2012 and 2017, the total number of dairy cows held in facilities with 1,000 or more cows increased from 7.7 million to 8.95 million, and the percentage of all dairy cows held in facilities of that size increased from 44 percent to 50 percent. *See* USDA., *2012 Census of Agriculture* 21, Tbl. 17 (2014); USDA, *2017 Census of Agriculture* 23, Tbl. 17 (2019).
[51] U.S. Gov't Accountability Office, *Concentrated Animal Feeding Operations: EPA Needs More Information and a Clearly Defined Strategy to Protect Air and Water Quality from Pollutants of Concern* 19 (2008), https://www.gao.gov/assets/gao-08-944.pdf.
[52] *See* EPA, *Literature Review of Contaminants in Livestock and Poultry Manure and Implications for Water Quality*, at 114, Tbl. A-5 (2013), https://nepis.epa.gov/Exe/ZyPDF.cgi/P100H2NI.PDF?Dockey=P100H2NI.PDF.
[53] According to the U.S. Government Accountability Office, a person generates 3.72 pounds of sanitary waste per day. *See* U.S. Gov't Accountability Office, *Concentrated Animal Feeding Operations: EPA Needs More Information and a Clearly Defined Strategy to Protect Air and Water Quality from Pollutants of* Concern 58 (2008), https://www.gao.gov/assets/gao-08-944.pdf. The population of New York is 19,835,913, and the population of South Carolina is 5,190,705. *See* U.S. Census Bureau, *Quick Facts*, https://www.census.gov/quickfacts/fact/table/US/PST045219 (enter "New York" and "South Carolina" in the search bar).

As described below, the manure and other pollutants generated at CAFOs across the country pollute the nation's water, contaminate its air, generate and spread dangerous pathogens, and exacerbate climate change. Each of these harms contributes to the burden that CAFOs impose on communities, particularly communities of color, low-income communities, and rural communities. EPA and other agencies consistently have allowed CAFOs to escape regulation necessary to curb each of these harms, which heightens the importance of EPA taking prompt action now. Although the requested presumption will not address every harm that CAFOs cause, it is a necessary first step toward reducing their water pollution and ensuring that communities have a voice in the proper regulation of CAFOs under the CWA.

A. CAFOs Cause Water Pollution and Threaten Access to Water.

As detailed below, CAFOs cause water pollution that threatens surface water, groundwater, and drinking water. In addition, CAFO water pollution harms wildlife. And CAFO water use threatens communities' access to water. Although CAFOs of all types cause these harms, CAFOs using wet manure management systems pose a particular threat because they handle urine, feces, and other waste in liquid form; this waste typically contains numerous pollutants, including nitrogen, phosphorus, disease-causing pathogens, salts, heavy metals, trace elements, pharmaceuticals, pesticides, hormones, and ions such as magnesium, sodium, potassium, and chloride.[54] According to a leading soil scientist with USDA's Natural Resources Conservation Service, liquid waste "behaves like water;" that is, the waste and associated pollutants easily flow into surface water and groundwater.[55]

1. CAFO Water Pollution Threatens Surface Water, Groundwater, and Drinking Water.

CAFOs using wet manure management systems threaten surface water, groundwater, and drinking water in at least three ways. *First*, these CAFOs typically store liquid waste in vast pits or large tanks. But storage pits and tanks can breach, fail, and overflow, releasing large quantities of waste into surface water,[56] and waste seeps out of storage pits into groundwater.[57] *Second*, CAFOs using wet manure management systems often use pipes to transport liquid waste; these pipes can clog or rupture, releasing waste into surface water and groundwater.

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[54] *See* JoAnn Burkholder et al., *Impacts of Waste from Concentrated Animal Feeding Operations on Water Quality*, 115 Env't Health Persps. 308 (2007).
[55] David Green, *Frank Gibbs: Liquid Manure is Too Wet*, State Line Observer (Aug. 20, 2006), attached as Exhibit 10.
[56] Burkholder et al., *supra* note 54, at 308.
[57] *See* R.L. Huffman & Phillip W. Westerman, *Estimated Seepage Losses from Established Swine Waste Lagoons in the Lower Coastal Plain of North Carolina*, 38 Transactions Am. Soc'y Agric. Eng'rs 449 (1995); *see also* Michael A. Mallin, *Impacts of Industrial Animal Production on Rivers and Estuaries*, 88 Am. Scientist 26, 31 (2000).

Third, CAFOs using wet manure management systems typically dispose of liquid waste by spreading it on fields, and land-applied waste commonly runs off fields into surface water or seeps into subsurface tile drains or groundwater.[58] Indeed, water pollution predictably results from numerous industry-standard, government-authorized waste disposal practices, such as spreading waste on fields during the winter, when soil is unlikely to absorb the waste and crops do not utilize the nutrients it contains. And climate change is worsening CAFO water pollution, leading to increased precipitation and stronger, more frequent storms that cause waste to run off fields and storage pits to breach and overflow.[59] Thus, as demonstrated in more detail below,[60] waste storage, transport, and disposal routinely cause discharges that pollute waterbodies.

Once CAFO waste enters surface water and groundwater, it can contaminate drinking water. Indeed, numerous studies have found CAFO pollutants in drinking wells near CAFOs,[61] and these pollutants can harm human health. For instance, "[o]ne pollution event by a CAFO could become a lingering source of viral contamination for groundwater," posing "a serious threat to drinking water."[62] In addition to dangerous pathogens, CAFO waste is a source of nitrate pollution, and nitrates in drinking water are associated with birth defects and cases of the potentially fatal blood condition methemoglobinemia, or "blue baby syndrome," in infants under six months of age.[63] Exposure to nitrates in drinking water is also associated with an increased risk for hyperthyroidism,[64] insulin-dependent diabetes,[65] bladder cancer,[66] ovarian cancer,[67] and colorectal cancer.[68]

Threats to drinking wells are a serious concern for community members. According to a resident of Worth County, Iowa, where there are 14 CAFOs: "The potential contamination of groundwater is especially worrisome . . . because, like nearly everyone in our community, my

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[58] *Id.*
[59] *See infra* Section IV.B.4.
[60] *See infra* Section IV.B.
[61] *See* Burkholder et al., *supra* note 54, at 310; *see also* Kenneth C. Stone et al., *Impact of Swine Waste Application on Ground and Stream Water Quality in an Eastern Coastal Plain Watershed*, 41 Transactions Am. Society Agric. & Biological Eng'rs 1665, 1670 (1998).
[62] Carrie Hribar, Nat'l Ass'n of Local Bds. of Health, *Understanding Concentrated Animal Feeding Operations and Their Impact on Communities* 4 (2010), https://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf .
[63] *See* Burkholder et al., *supra* note 54, at 310.
[64] *Id.*
[65] *Id.*
[66] *See* Rena R. Jones et al., *Nitrate from Drinking Water and Diet and Bladder Cancer Among Postmenopausal Women in Iowa*, 124 Env't Health Persps. 1751 (2016).
[67] *See* Maki Inoue-Choi et al., *Nitrate and Nitrite Ingestion and Risk of Ovarian Cancer Among Postmenopausal Women in Iowa*, 137 Int'l J. Cancer 173 (2014).
[68] *See* Alexis Temkin et al., *Exposure-Based Assessment and Economic Valuation of Adverse Birth Outcomes and Cancer Risk Due to Nitrate in United States Drinking Water*, 176 Env't Rsch. 108442 (2019).

husband and I get our drinking water from a well."[69] The resident is concerned that she "might learn of groundwater contamination only after people in our community start to get sick."[70] Because of these threats, many people who live near CAFOs have stopped using their wells for drinking water.[71] A resident of Boone County, Iowa, where there are 42 CAFOs, explains: "My husband and I used to drink water from our well, until agricultural pollution made our well water unsafe. Now, we get our drinking water from [a rural water system], which is quite expensive compared to well water."[72] Moreover, public drinking water suppliers have had to build extremely costly water treatment plants. In Haviland, Kansas, for example, a town of 700 people was forced to spend $2.4 million on a treatment plant to address high nitrate levels, which were driven in part by runoff from CAFOs.[73] To cover the cost, water bills in Haviland almost tripled.[74] Similarly, the Boone County, Iowa resident relates that "Des Moines has had to develop one of the most sophisticated water treatment plants in the country, because it treats water that is heavily polluted by CAFOs and other industrial agriculture facilities."[75]

CAFO pollutants in surface water also can harm human health, prevent people from enjoying an area's waterways, and damage local economies. For example, a study of publicly accessible surface waters adjacent to swine CAFOs in North Carolina found multiple pathogens of public health concern, including hepatitis E virus.[76] Ingesting hepatitis E virus can cause acute hepatitis, a potentially fatal condition that, in turn, causes jaundice, anorexia, nausea, and vomiting.[77] In addition, the nitrogen and phosphorus in CAFO waste can cause harmful algal blooms in surface water.[78] Contact with these algal blooms can lead to gastrointestinal tract distress and skin, eye, and ear infections.[79] According to the Executive Director of Lake Erie Waterkeeper, "annual toxic algal blooms in Lake Erie have serious consequences each year,"[80]

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[69] Exhibit 8 ¶ 7.
[70] *Id.*
[71] *See* Decl. of Devon Hall ¶ 11, attached as Exhibit 11; *see also* Exhibit 2 ¶ 10; Exhibit 9 ¶ 7; Exhibit 15 ¶ 8.
[72] Decl. of Danielle Wirth ¶ 7, attached as Exhibit 12.
[73] *See* David Condos, *As Fertilizer Pollutes Tap Water in Small Towns, Rural Kansans Pay the Price*, Kansas Pub. Radio (Mar. 28, 2022), https://kansaspublicradio.org/kpr-news/fertilizer-pollutes-tap-water-small-towns-rural-kansans-pay-price.
[74] *Id.*
[75] Exhibit 12 ¶ 7.
[76] Jennifer Gentry-Shields et al., *Hepatitis E Virus and Coliphages in Waters Proximal to Swine Concentrated Animal Feeding Operations*, 505 Sci. Total Env't 487, 487 (2015).
[77] *See* Julie A. Kase et al., *Detection and Molecular Characterization of Swine Hepatitis E Virus in North Carolina Swine Herds and Their Faecal Wastes*, 347 J. Water & Health 344 (2009) (finding hepatitis E virus in swine feces and swine CAFO waste pits); *see also* Jennifer Gentry-Shields et al., *Hepatitis E Virus and Coliphages in Waters Proximal to Swine Concentrated Animal Feeding Operations*, 505 Sci. Total Env't 487, 487 (2015).
[78] *See* JoAnn M. Burkholder et al., *Impacts to a Coastal River and Estuary from Rupture of a Large Swine Waste Holding Lagoon*, 26 J. Env't Quality 1451 (1997).
[79] *See* Burkholder et al., *supra* note 54, at 310.
[80] Decl. of Sandy Bihn ¶ 10, attached as Exhibit 13.

including causing severe diarrhea and skin infections in people and killing dogs that have come into contact with the water.[81]

In light of these harms, many people who live near CAFOs are no longer able to enjoy local waterways.[82] A resident of Jefferson County, Iowa—where there are approximately 80 CAFOs—explains that she used to take her children swimming in a local lake, but "[a]s the number of CAFOs grew, nutrient and sediment pollution in the lake increased and eventually rendered it unusable."[83] Even after the state spent millions of dollars to restore the lake, residents are still frequently advised that it is not safe for swimming.[84] Nationwide, harmful algal blooms cost the tourism industry nearly $1 billion each year, and they raise the cost of treating drinking water.[85] The EPA Office of Inspector General recently declared that "the prevalence, severity, and frequency of [harmful algal bloom] occurrences in recreational waters . . . will increase as excess nutrients flow into these waters, temperatures rise, and extreme weather events increase with a changing climate."[86] As a result, "EPA needs an agencywide strategic action plan for protecting human health and the environment from this continuing threat."[87]

2. CAFO Water Pollution Threatens Wildlife.

The pollutants in CAFO waste also threaten wildlife. Harmful algal blooms can deplete dissolved oxygen levels and fuel the growth of toxic organisms,[88] sometimes leading to major fish kills.[89] For example, an analysis by the *Chicago Tribune* found that between 2005 and 2014, swine waste impaired 67 miles of Illinois's waterways and caused the deaths of nearly 500,000

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[81] *Id.* ¶ 14.
[82] *See id.* ¶ 13 (describing how algal blooms in Maumee Bay turned the water green and prevented people from swimming and recreating in the Bay); *see also* Decl. of Kemp Burdette ¶ 14, attached as Exhibit 14 ("I don't let my daughters swim in the river [near our home] very often, because I'm concerned that the CAFO pollutants will make them sick.").
[83] Decl. of Diane Rosenberg ¶ 7, attached as Exhibit 15.
[84] *Id.*
[85] *See The Effects: Economy*, EPA, https://www.epa.gov/nutrientpollution/effects-economy (Last accessed Apr. 19, 2022); *see also* All. for the Great Lakes, *Western Lake Erie Basin Drinking Water Systems: Harmful Algal Bloom Cost of Intervention* (2022), https://greatlakes.org/wp-content/uploads/2022/05/FINAL-COI-Report-051622.pdf (finding that a family of five in Toledo, Ohio is paying close to an additional $100 per year to cover the costs of monitoring and treatment for harmful algal blooms).
[86] Office of Inspector Gen., EPA, *EPA Needs an Agencywide Strategic Action Plan to Address Harmful Algal Blooms*, Report No. 21-E-0264, at 17 (2021), https://www.epa.gov/system/files/documents/2021-09/_epaoig_20210929-21-e-0264.pdf.
[87] *Id.*
[88] *See* Burkholder et al., *Impacts to a Coastal River and Estuary from Rupture of a Large Swine Waste Holding Lagoon*, *supra* note 78, at 1462.
[89] *Id.* at 1451.

fish—that is, approximately half the total number of fish killed by water pollution in the state.[90] CAFO pollutants also harm the endocrine and reproductive systems of wild fish, reducing the diversity of fish species in a waterbody.[91]

Community members in areas where CAFOs are concentrated have observed harm to fish and other wildlife. For example, a resident of Yakima County, Washington shares that the increasing concentration of CAFOs in the county has coincided with declining salmon populations.[92] Eating fresh, local salmon "was one of the joys of [her] life," but "locally caught fish is harder to find" and "[m]any salmon species in the region are now endangered."[93] Since CAFOs came to Boone County, Iowa, a resident has noticed that "turtles used to climb up from the creek that runs through [her] land to try nesting in [her] yard, but [she has] not seen some of [her] favorite turtle species for many years."[94] And a resident of Duplin County, North Carolina—where there are more than 520 swine CAFOs—was once an avid fisher, but he stopped fishing after he began to catch fish with open sores, which he believes are caused by bacteria and other pollutants from the many CAFOs in the county.[95]

Among the wildlife at risk from CAFO water pollution are threatened and endangered species. Indeed, multiple federal agencies have specifically identified CAFOs as threats to such species. In North Carolina, the U.S. Fish and Wildlife Service ("FWS") has named CAFOs as threats to the Neuse River waterdog,[96] Atlantic pigtoe,[97] Dwarf wedgemussel,[98] and Carolina madtom,[99] which are all threatened or endangered and depend on clean water. FWS explained that CAFOs threaten these species because "CAFO wastes contain nutrients, pharmaceuticals, and hormones, and cause eutrophication of waterways, toxic blooms of algae and dinoflagellates,

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[90] *See* David Jackson & Gary Marx, *Spills of Pig Waste Kill Hundreds of Thousands of Fish in Illinois*, Chicago Trib. (Aug. 5, 2016), https://www.chicagotribune.com/investigations/ct-pig-farms-pollution-met-20160802-story.html.

[91] *See* Edward P. Kolodziej et al., *Dairy Wastewater, Aquaculture, and Spawning Fish as Sources of Steroid Hormones in the Aquatic Environment*, 38 Env't Sci. & Tech. 6377 (2004); *see also* Jessica K. Leet et al., *Assessing Impacts of Land-Applied Manure from Concentrated Animal Feeding Operations on Fish Populations and Communities*, 46 Env't Sci. & Tech. 13440 (2012); Edward F. Orlando et al., *Endocrine-Disrupting Effects of Cattle Feedlot Effluent on an Aquatic Sentinel Species, the Fathead Minnow*, 112 Env't Health Persps. 353 (2004).

[92] Decl. of Jean Mendoza ¶ 12, attached as Exhibit 16.

[93] *Id.*

[94] Exhibit 12 ¶ 9.

[95] *See* Exhibit 11 ¶ 10.

[96] *See* FWS, Species Status Assessment Report for the Neuse River Waterdog (*Necturus lewisi*) Version 1.2, at 39–40 (2021), https://ecos.fws.gov/ServCat/DownloadFile/195540.

[97] *See* FWS, Species Status Assessment Report for the Atlantic Pigtoe (*Fusconaia masoni*) Version 1.4, at 53–54 (2021), https://ecos.fws.gov/ServCat/DownloadFile/201267.

[98] *See* FWS, Dwarf Wedgemussel *Alasmidonta heterodon* 5-Year Review: Summary and Evaluation, at App'x A (2019), https://ecos.fws.gov/docs/tess/species_nonpublish/2774.pdf.

[99] *See* FWS, Species Status Assessment Report for the Carolina Madtom (*Noturus furiosus*) Version 1.2, at 35–36 (2021), https://ecos.fws.gov/ServCat/DownloadFile/195532.

and endocrine disruption in downstream wildlife."[100] As shown below in Figure One, these species' North Carolina habitat ranges significantly overlap with the locations of CAFOs, including many Large CAFOs. The Neuse River waterdog's North Carolina range has at least 288 Large swine CAFOs, the Atlantic pigtoe's range has at least 125 Large swine CAFOs, the Dwarf wedgemussel's range has at least 43 Large swine CAFOs, and the Carolina madtom's range has at least 254 Large swine CAFOs.[101] Of all these Large CAFOs, only 10 have CWA permits.[102] As discussed below, Large CAFOs are a significant source of water pollution.[103] Thus, these species are especially at risk of harm from CAFOs.

Similarly, the National Oceanic and Atmospheric Administration ("NOAA") has specifically identified CAFOs as a threat to endangered population segments of the Atlantic sturgeon in North Carolina.[104] NOAA explained that CAFOs "contribute[] to both atmospheric and aquatic inputs of nitrogenous contamination, possibly causing [dissolved oxygen] levels to regularly fall below the 5 mg/L state standard."[105] As shown in Figure Two, the Atlantic sturgeon's habitat significantly overlaps with the locations of CAFOs in North Carolina.

In Iowa, FWS has specifically identified CAFOs as a threat to the endangered pallid sturgeon. FWS found that "observed concentrations of nutrients and indicators of nutrient pollution were above benchmark levels throughout the pallid sturgeon's range."[106] It determined that "run-off from agricultural lands and confined animal feeding operations (CAFOs) are the most likely sources."[107] Almost 96 percent of CAFOs in Iowa operate without CWA permits.[108]

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[100] FWS, Species Status Assessment Report for the Neuse River Waterdog (*Necturus lewisi*) Version 1.2, *supra* note 96, at 39.
[101] *See* N.C. Dep't of Env't Quality, *List of Permitted Animal Facilities – 4-1-2020*, https://deq.nc.gov/cafo-map (providing CAFO locations); *see also* FWS, *Environmental Conservation Online System*, https://ecos.fws.gov/ecp/report/species-listings-by-tax-group?statusCategory=Listed&groupName=All%20Animals (enter the species name in the search bar) (providing habitat ranges).
[102] *See* N.C. Dep't of Env't Quality, *List of Permitted Animal Facilities – 4-1-2020*, https://deq.nc.gov/cafo-map (providing CAFO locations and permit types).
[103] *See infra* Section IV.B.5.
[104] *See* Endangered and Threatened Wildlife and Plants; Final Listing Determinations for Two Distinct Population Segments of Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) in the Southeast, 77 Fed. Reg. 5,914, 5,969–70 (Feb. 6, 2012).
[105] *Id.* at 5,969.
[106] *See* Molly Webb et al., *Pallid Sturgeon Basin Wide Contaminants Assessment* 3, FWS, Missouri Dep't of Conservation (2019), http://www.pallidsturgeon.org/wp-content/uploads/2019/12/FINAL-Pallid-Sturgeon-Contaminants-Assessment-8-March-2019.pdf.
[107] *Id*. at 28.
[108] *See* EPA, *NPDES CAFO Permitting Status Report: National Summary, Endyear 2021, completed 07/20/22*, *supra* note 5.

Instead, they operate under state laws that are generally less protective of water quality[109] and, thus, are insufficient to protect threatened and endangered species.

Even where CAFOs are not specifically named as threats, CAFO water pollution almost certainly harms threatened and endangered species, including in Michigan, Iowa, California, and Oregon, where CAFOs are concentrated and CAFO location data are publicly available. In Michigan, the piping plover is sensitive to pollutants from CAFOs, and its range overlaps significantly with areas where CAFOs are concentrated.[110] In Iowa, the Spectaclecae mussel, Higgins eye pearlymussel, Topeka shiner, and Sheepnose mussel are sensitive to CAFO pollutants,[111] and as shown in Figure Three, their ranges also overlap significantly with areas where CAFOs are concentrated.[112] In California, the California tiger salamander, Conservancy fairy shrimp, Vernal pool fairy shrimp, and Vernal pool tadpole shrimp are sensitive to CAFO pollutants and found in areas where CAFOs are concentrated, as demonstrated in Figure Four.[113] And, as shown in Figure Five, in Oregon, swine and dairy CAFOs are concentrated along critical habitat streams for Chinook salmon, coho salmon, and steelhead. Given the concentration of CAFOs in these species' habitats, along with the water pollution CAFOs cause, CAFOs likely harm these species and numerous other threatened and endangered species across the country.

[109] *See infra* Section III.A.3.
[110] *See* Sierra Club Mich. Chapter, *A Watershed Moment: Michigan CAFO Mapping Report*, https://www.sierraclub.org/michigan/michigan-cafo-mapping-report (showing CAFO locations); *see also* FWS, *Environmental Conservation Online System*, *supra* note 101 (providing habitat ranges).
[111] *See* Tyler Lark & Ian Schelly, *Potential Impacts of Cropland Expansion on Threatened and Endangered Species in the United States* (2018), http://www.gibbs-lab.com/wp-content/uploads/2019/01/Endangered_Species_extended_brief.pdf; *see also* Ira R. Adelman et al., *Acute And Chronic Toxicity Of Ammonia, Nitrite, And Nitrate To The Endangered Topeka Shiner (Notropis Topeka) And Fathead Minnows (Pimephales Promelas)*, 28 Env't Toxicology & Chemistry 2216 (2009); Rory T. Mott et al., *Use of Non-Lethal Endpoints to Establish Water Quality Requirements and Optima of the Endangered Topeka Shiner (Notropis topeka)*, 104 Env't Biology of Fishes 1215 (2021).
[112] *See* Iowa Dep't of Nat. Res., *Animal Feeding Operations Databases*, https://programs.iowadnr.gov/animalfeedingoperations/Default.aspx (providing CAFO locations*); see also* FWS, *Environmental Conservation Online System*, *supra* note 101 (providing habitat ranges).
[113] *See* Ca. Env't Protection Agency, Regulated Facility Report (Detail), https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?reportID=8210359&inCommand=drilldown&reportName=RegulatedFacilityDetail&program=ANIMALWASTE (providing CAFO locations); *see also* FWS, *Environmental Conservation Online System*, *supra* note 101 (providing habitat ranges).

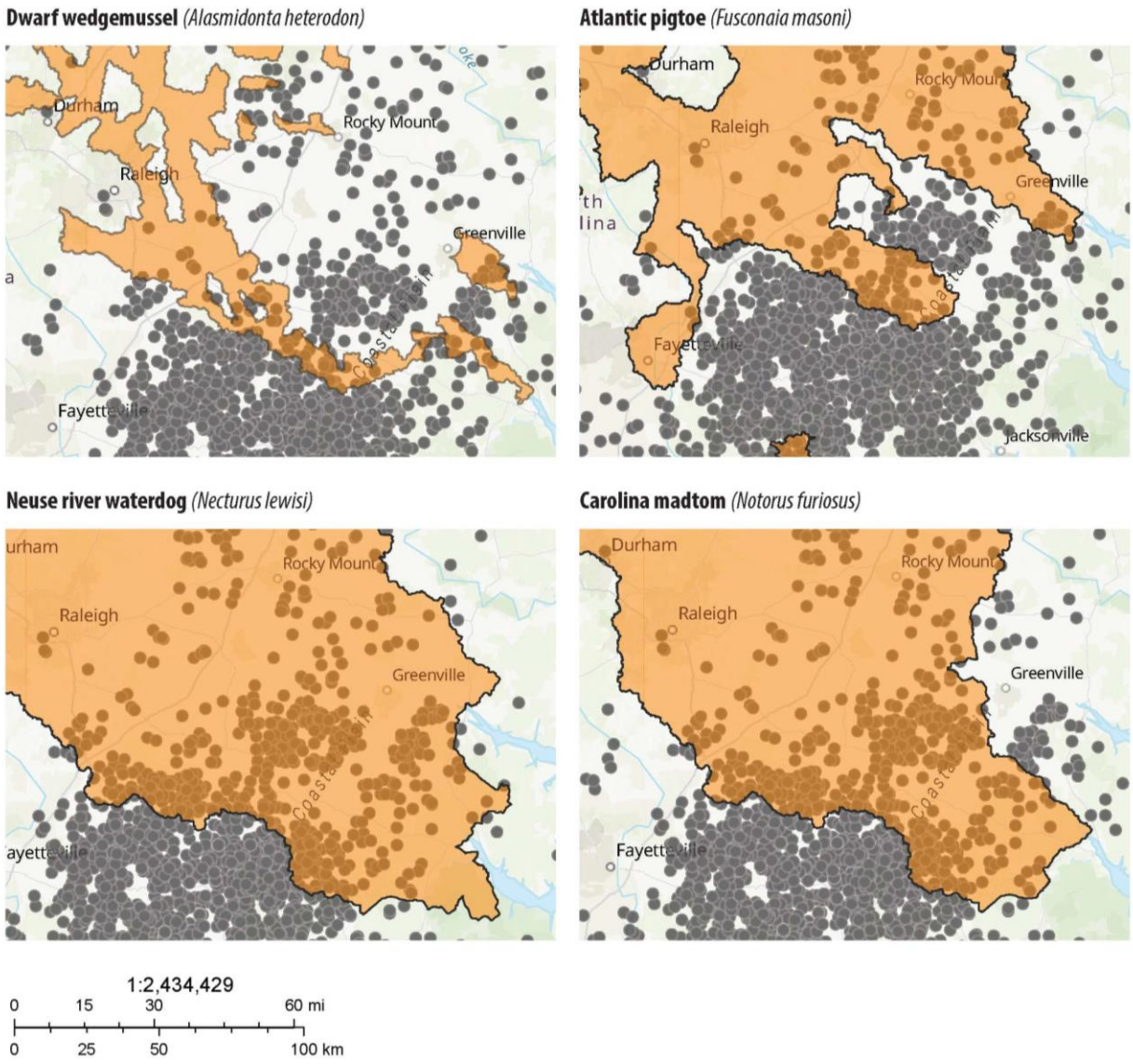

Figure One. Habitat ranges of the Dwarf wedgemussel, Atlantic pigtoe, Neuse River waterdog, and Carolina madtom, along with locations of CAFOs in North Carolina.[114]

[114] *See* sources cited *supra* note 101.

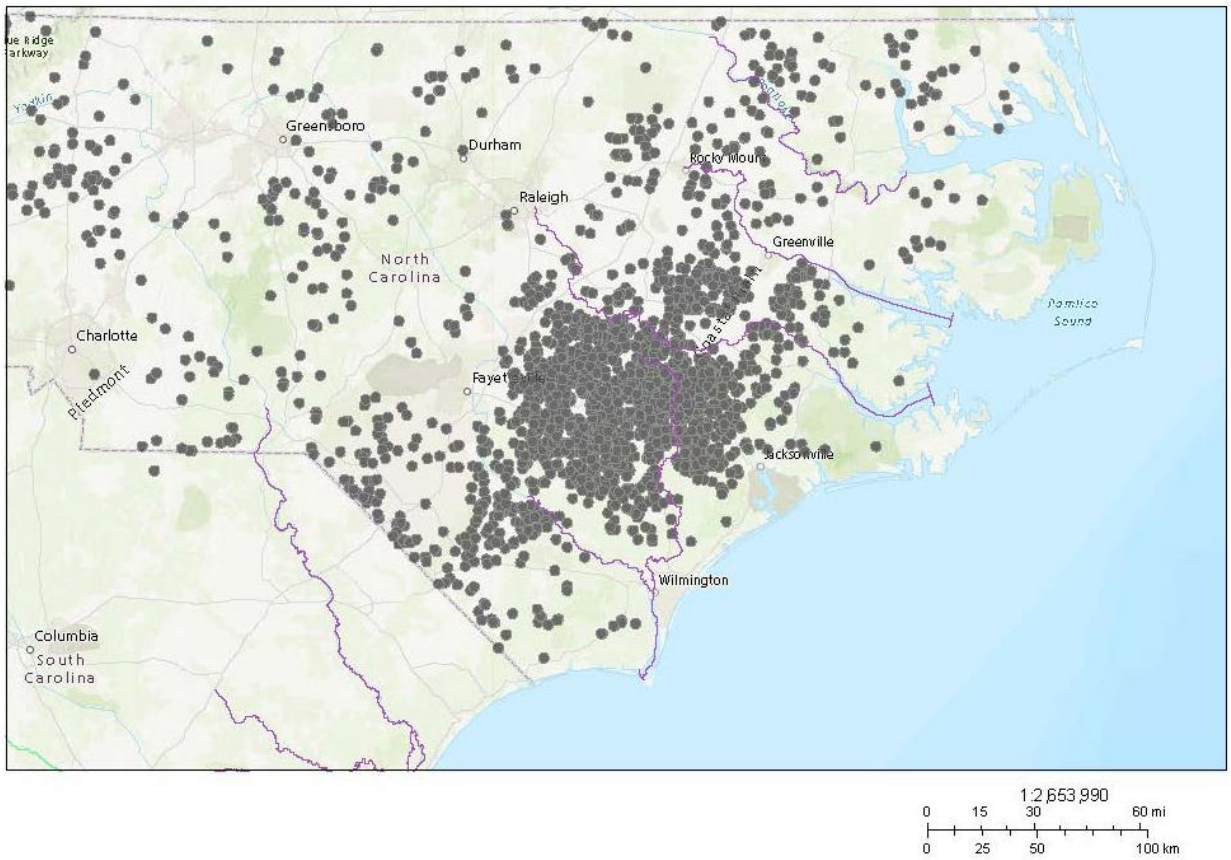

Figure Two. Habitat of the Atlantic sturgeon (shown in purple), along with locations of CAFOs in North Carolina.[115]

[115] *See* N.C. Dep't of Env't Quality, *List of Permitted Animal Facilities – 4-1-2020*, *supra* note 101 (providing CAFO locations); *see also* NOAA, *Atlantic Sturgeon Critical Habitat Map and GIS Data*, https://www.fisheries.noaa.gov/resource/map/atlantic-sturgeon-critical-habitat-map-and-gis-data (providing habitat ranges).

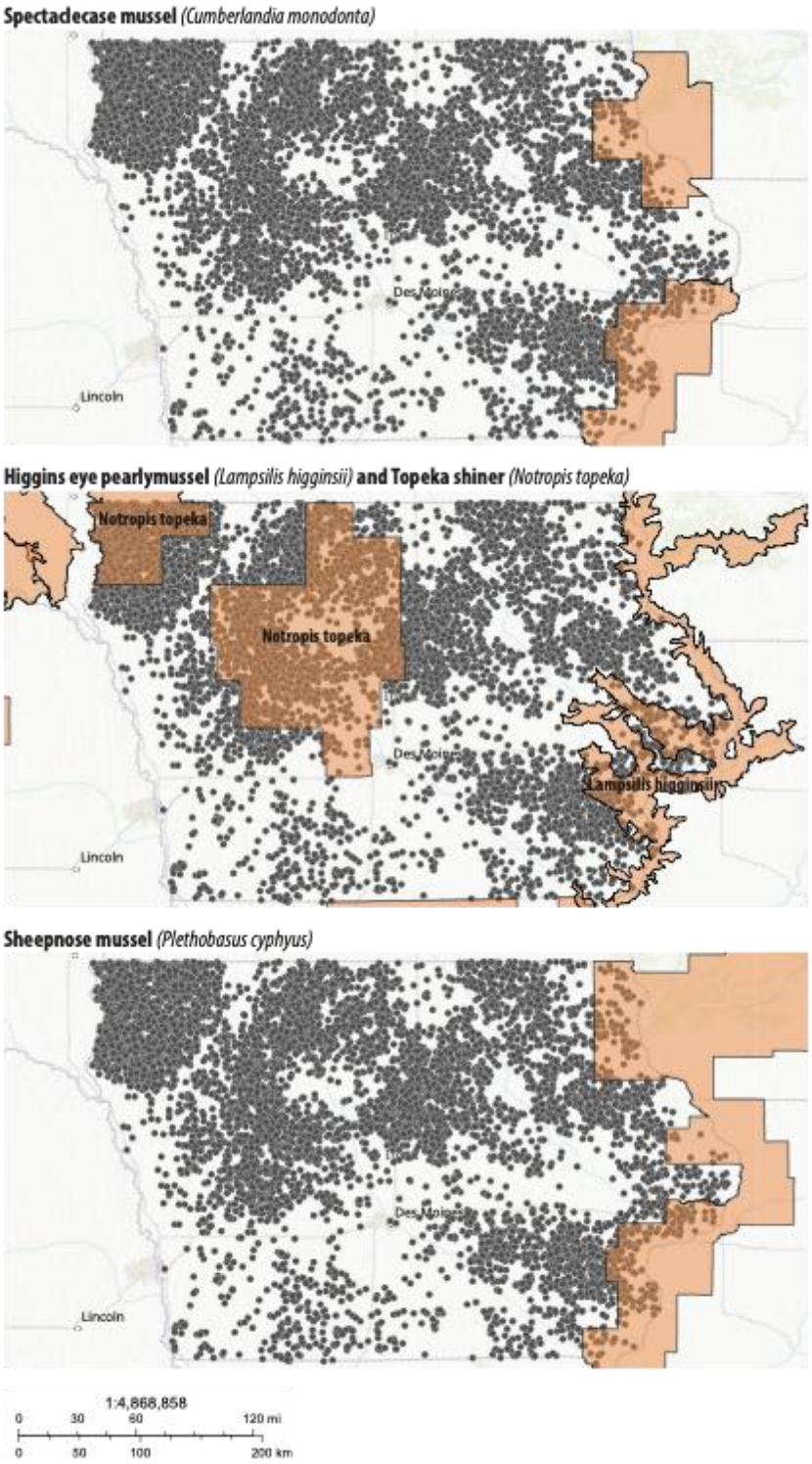

Figure Three. Habitat ranges of the Spectaclecase mussel, Higgins eye pearlymussel, Topeka shiner, and Sheepnose mussel, along with locations of CAFOs in Iowa.[116]

[116] *See* sources cited *supra* note 112.

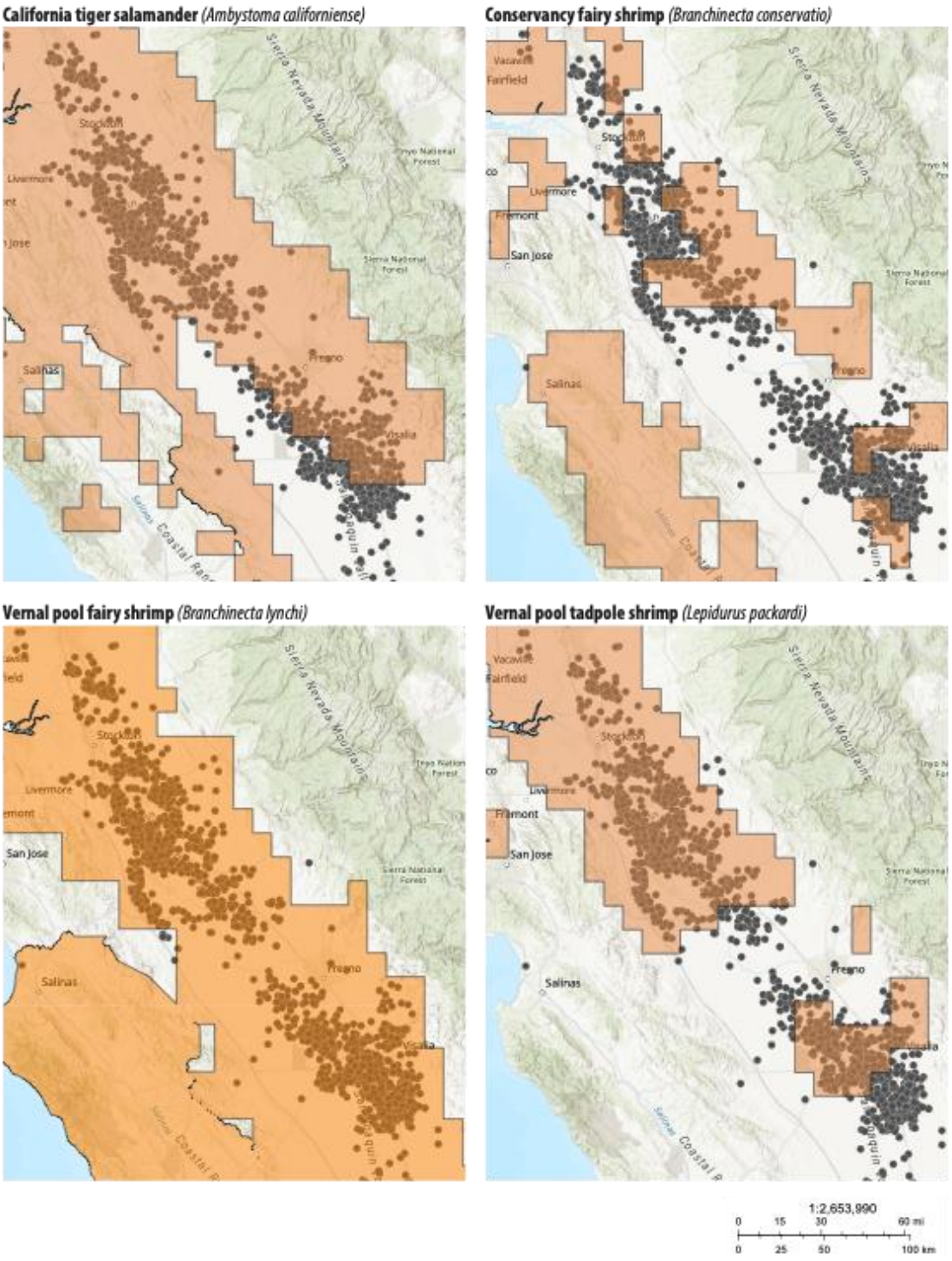

Figure Four. Habitat ranges of the California tiger salamander, Conservancy fairy shrimp, Vernal pool fairy shrimp, and Vernal pool tadpole shrimp, along with locations of CAFOs in California's Central Valley.[117]

[117] *See* sources cited *supra* note 113.

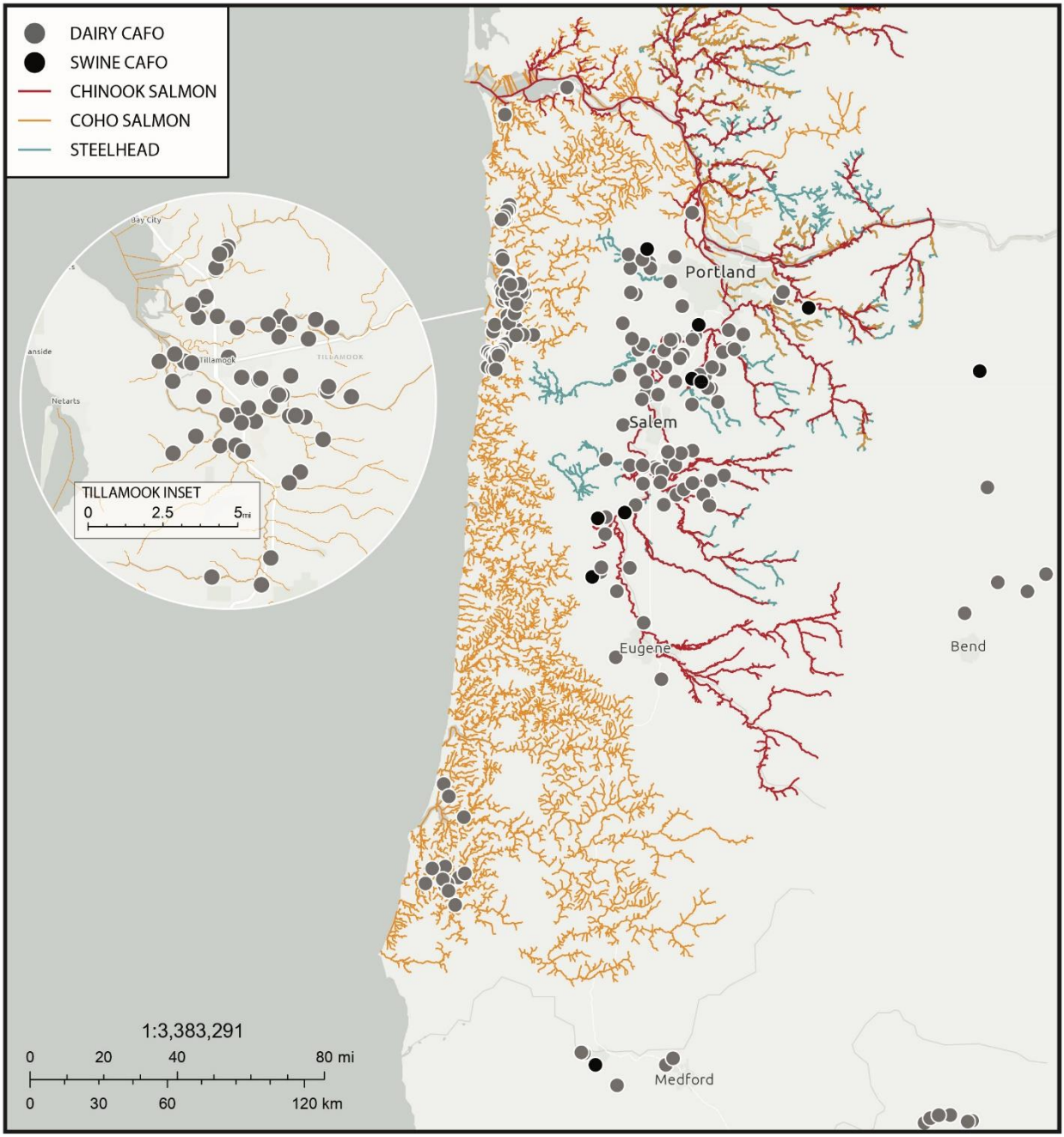

Figure Five. Critical habitat streams of Chinook salmon (shown in red), coho salmon (shown in orange), and steelhead (shown in blue), along with locations of swine and dairy CAFOs in Oregon.[118]

[118] *See* Nat'l Marine Fisheries Serv., WCR/NMFS_WCR_ESA_Critical Habitat (MapServer) (2021), https://www.webapps.nwfsc.noaa.gov/server7/rest/services/WCR/NMFS_WCR_ESA_Critical_Habitat/MapServer (providing critical habitat streams). CAFO locations were obtained from the Oregon Department of Agriculture.

3. CAFOs Threaten Access to Water.

In addition to threatening water quality, CAFOs can imperil communities' access to water. CAFOs use large amounts of water to maintain animals, clean confinement buildings, and wash urine and feces into waste pits. For example, 448 CAFOs in Minnesota reported using a total of 2.3 billion gallons of water in 2017.[119] This is enough water to meet the basic needs of at least 238,356 people for one year.[120] And by one estimate, California's dairy CAFOs use 142 million gallons of water per day to maintain cows and clean the confinement buildings.[121] This is enough water to meet the daily recommended water usage for all the residents of San Jose and San Diego combined.[122] In California and other areas where drought is common, community members fear that CAFO water use will prevent them from having access to the water they need. Indeed, a resident of Yakima County, Washington explains that CAFOs in the area "withdraw millions of gallons of pure water from deep aquifers every day."[123] She worries that "[u]nless CAFOs are monitored more closely, . . . there might not be much water left for future generations."[124]

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EPA acknowledges that "many waters are affected by pollution from CAFOs"[125] and that "all or virtually all large CAFOs have had a discharge [of water pollution] in the past, [or] have a current discharge."[126] Nonetheless, as discussed more fully below,[127] the Agency has struggled to increase its oversight of this pollution, in part because "CAFOs often claim that they do not discharge [water pollution], and EPA and state permitting agencies lack the resources to regularly inspect these facilities to assess these claims."[128] Though courts have struck down

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[119] *See* Dara Meredith Fedrow, *Water Use in Confined Animal Feeding Operations (CAFOs) in Minnesota: Who's Keeping Track?*, Univ. of Montana, at 44 (2019), https://scholarworks.umt.edu/cgi/viewcontent.cgi?article=12430&context=etd#:~:text=The%20water%20appropriation%20permit%20program,different%20amounts%20of%20water%20use.

[120] This calculation is based on the World Health Organization's conclusion that a person needs 50 to 100 liters of water per day to meet their basic needs. *See* UN-Water Decade Programme on Advocacy & Commc'n & Water Supply & Sanitation Collaborative Council, *The Human Right to Water and Sanitation* 2, https://www.un.org/waterforlifedecade/pdf/human_right_to_water_and_sanitation_media_brief.pdf.

[121] *See* Food & Water Watch, *Big Ag, Big Oil and California's Big Water Problem* 6–7 (2021), https://www.foodandwaterwatch.org/wp-content/uploads/2021/10/CA-Water-White-Paper.pdf.

[122] *Id.* at 6.

[123] Exhibit 16 ¶ 7.

[124] *Id.*

[125] EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.

[126] National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations, 66 Fed. Reg. 2,960, 3,007 (Jan. 12, 2001).

[127] *See infra* Section III.A.1.

[128] EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.

certain aspects of EPA's past regulations pertaining to water pollution from CAFOs,[129] this petition presents a first step toward adequate oversight that both comports with all legal requirements[130] and targets an especially significant source of CAFO water pollution.[131]

B. In Addition to Polluting Water, CAFOs Cause Other Harm to Human Health and the Environment.

1. CAFOs Cause Air Pollution.

Not only do CAFOs pollute surface water, groundwater, and well water, but they also generate pollutants that contaminate the air and harm human health and well-being. When CAFO waste decomposes, it releases hydrogen sulfide, ammonia, and hundreds of volatile organic compounds.[132] As of 2017, livestock waste was the largest source of ammonia emissions in the United States.[133] Waste pits, animal confinement buildings, and waste applied to fields emit these gasses and compounds into the air.[134] In addition, the large fans that CAFOs use to ventilate confinement buildings blow animal feed, skin cells, and feces into the air.[135] These gasses, compounds, and particles produce strong odors that are characteristic of CAFOs.[136] People who live near CAFOs describe these odors as "putrid,"[137] "horrifying,"[138] and "unbearable,"[139] and they agree that CAFO odors are nothing like odors from smaller farms.[140] Numerous studies show that air pollutants and odors from CAFOs travel into nearby communities,[141] and the experiences of community members corroborate these studies.

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[129] *See infra* Section IV.F.1.
[130] *See infra* Section IV.F.2.
[131] *See infra* Section IV.B.5.
[132] *See* Virginia T. Guidry et al., *Hydrogen Sulfide Concentrations at Three Middle Schools Near Industrial Livestock Facilities*, 27 J. Exposure Sci. & Env't Epidemiology 167 (2017).
[133] *See* EPA, *2017 National Emissions Inventory (NEI) Data*, https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data#dataq (In the "Data Queries" section, select "Ammonia – NH3" in the "Pollutant" selection box).
[134] *See* Guidry et al., *supra* note 132, at 167.
[135] *Id.*
[136] *Id.*
[137] Exhibit 2 ¶ 6.
[138] *Id.* ¶ 12.
[139] Exhibit 3 ¶ 7.
[140] *See* Decl. of Ronald J. Wyse ¶ 6, attached as Exhibit 17; *see also* Exhibit 3 ¶ 7, Exhibit 8 ¶ 9; Exhibit 7 ¶ 4.
[141] *See* Dana Cole et al., *Concentrated Swine Feeding Operations and Public Health: A Review of Occupational and Community Health Effects*, 108 Env't Health Persps. 685, 693 (2000) (explaining that gasses, dusts, and odors from CAFOs can travel long distances and cause health concerns in neighboring communities); *see also* Burkholder et al., *supra* note 54, at 309 (citing studies showing that ammonia from swine CAFOs commonly moves off-site to contaminate the overlying air); Kelley J. Donham et al., *Community Health and Socioeconomic Issues Surrounding Concentrated Animal Feeding Operations*,

Exposure to CAFO air pollutants can cause serious health problems and even death. A recent study found that ammonia emissions from CAFO waste management practices cause at least 6,900 deaths per year.[142] Exposure to CAFO air pollutants can also cause nausea, headaches, dizziness, runny nose, scratchy throat, burning eyes, coughing, wheezing, and shortness of breath.[143] One study found that people living up to two miles from a CAFO experienced increased rates of these symptoms,[144] and another found that children attending schools up to three miles from CAFOs, who were thus estimated to be exposed to CAFO air pollutants, experienced asthma symptoms, including wheezing.[145] In addition, residents living near CAFOs share stories of themselves or family members suffering from hydrogen sulfide poisoning, which caused headaches, dizziness, and nausea.[146] Beyond causing these health problems, exposure to pollutants associated with CAFOs is linked to high rates of COVID-19 infection and severity.[147]

Odors from CAFOs can also cause psychological harm. Researchers have found that CAFO neighbors regularly subjected to livestock odors experience significantly higher rates of tension, depression, anger, confusion, and fatigue, as compared with otherwise similar people who do not live near CAFOs.[148] These negative moods are concerning not only in their own right, but also because "mood has been found to play a role in immunity . . . and can potentially affect subsequent disease."[149]

In addition to harming physical and psychological health, air pollutants and odors from CAFOs can significantly diminish neighbors' quality of life. For instance, children who suffer from asthma symptoms, which can result from exposure to CAFO air pollution, miss

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115 Env't Health Persps. 317, 318 (2007) (noting that air quality assessments in communities near CAFOs show concentrations of hydrogen sulfide and ammonia); Yelena Ogneva-Himmelberger et al., *CALPUFF and CAFOs: Air Pollution Modeling and Environmental Justice Analysis in the North Carolina Hog Industry*, 4 Int'l J. Geo-Information 150 (2015) (finding that ammonia concentrations in areas downwind of swine CAFOs were up to three times higher than the average concentration in the watershed, exposing approximately 3,500 people to ammonia concentrations higher than the minimal risk level).

[142] *See* Nina G.G. Domingo et al., *Air Quality-Related Health Damages of Food*, 118 Proceedings Nat'l Acad. Scis., at 1, 2, Fig. 1 (2021).

[143] *See* Kendall M. Thu et al., *A Control Study of the Physical and Mental Health of Residents Living Near a Large-Scale Swine Operation*, 3 J. Agric. Safety & Health 13, 16–18 (1997).

[144] *Id.*

[145] *See* Maria C. Mirabelli et al., *Asthma Symptoms Among Adolescents Who Attend Public Schools that are Located Near Confined Swine Feeding Operations*, 118 Pediatrics e66, e70 (2006).

[146] *See* Exhibit 2 ¶ 12; Exhibit 15 ¶ 10.

[147] *See* Biswaranjan Paital & Pawan Kumar Agrawal, *Air Pollution by NO_2 and $PM_{2.5}$ Explains COVID-19 Infection and Severity by Overexpression of Angiotensin-Converting Enzyme 2 in Respiratory Cells: A Review*, 19 Env't Chemistry Letters 25 (2021).

[148] *See* Susan S. Schiffman et al., *The Effect of Environmental Odors Emanating from Commercial Swine Operations on the Mood of Nearby Residents*, 37 Brain Rsch. Bull. 369 (1995).

[149] *Id.* at 370.

opportunities to engage in social, recreational, and physical activities.[150] Similarly, studies show that odor from swine CAFOs prevents neighbors from participating in activities like "barbequing, . . . socializing with neighbors [and family], gardening, working outside, playing, drying laundry outside, opening doors and windows for fresh air and to conserve energy, . . . growing vegetables," and even sleeping through the night.[151] A resident of Dodge County, Minnesota—whose home is surrounded by 12 CAFOs—says, "While our farm traditionally served as a gathering place for multiple generations, children, grandchildren, and great-grandchildren have not been able to gather at our farm for years. The risk that a family gathering will be ruined by the overwhelming stench from area CAFOs is just too great."[152]

Although EPA and other federal agencies have long been aware of the substantial and well-documented harms associated with exposure to air pollution from CAFOs, they have allowed CAFOs to escape regulation necessary to protect public health. In 1998, a group of nearly 50 scientists participating in an expert workshop convened in part by EPA agreed that "odorous emissions from animal operations . . . have an impact on physical health."[153] That same year, air quality experts at a workshop organized by the Centers for Disease Control concluded that "adequate evidence currently exists to indicate airborne emissions from large-scale swine facilities constitute a public health problem."[154] Despite these findings, after years of negotiations with the animal agriculture industry, EPA agreed in 2005 to *excuse* approximately 13,900 industrial animal agriculture facilities from any obligations under the Clean Air Act ("CAA");[155] the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA");[156] and the Emergency Planning and Community Right-to-Know Act

[150] *See* Mirabelli et al., *supra* note 145, at e71.
[151] M. Tajik et al., *Impact of Odor from Industrial Hog Operations on Daily Living Activities*, 18 New Solutions 193, 201 (2008); *see* Exhibit 11 ¶ 14; *see also* Exhibit 4 ¶ 7; Exhibit 2 ¶ 14, Exhibit 17 ¶ 8; Exhibit 9 ¶ 5; Exhibit 3 ¶ 8; Exhibit 7 ¶ 4.
[152] Exhibit 2 ¶ 15.
[153] Kendall M. Thu, *Public Health Concerns for Neighbors of Large-Scale Swine Production*, 8 J. Agric. Safety & Health 175, 179 (2002).
[154] *Id.* at 180.
[155] Stationary sources, potentially including CAFOs, which emit air pollutants in sufficient quantities can trigger CAA permit requirements. *See* 42 U.S.C. § 7661a. However, for over a decade, Congress has passed an appropriations rider that prohibits EPA from using appropriated funds "to promulgate or implement any regulation requiring the issuance of permits under title V of the Clean Air Act (42 U.S.C. 7661 et seq.) for carbon dioxide, nitrous oxide, water vapor, or methane emissions resulting from biological processes associated with livestock production." *See* H.R. 2471, 117th Cong. § 436 (2022).
[156] CERCLA imposes various reporting requirements for releases of hazardous substances, such as ammonia and hydrogen sulfide, including a duty for facility operators to notify EPA when hazardous substances are released. *See* 42 U.S.C. § 9603(a); 40 C.F.R. § 302.4(a).

("EPCRA"),[157] pending the development of metrics for measuring air pollution, known as emissions estimating methodologies ("EEMs").[158]

EPA originally estimated that it would begin publishing EEMs by 2009 and industrial animal agriculture facilities would obtain necessary permits and install emissions controls by 2010,[159] but these dates have come and gone without adequate federal oversight of air pollution from CAFOs. Though EPA published draft EEMs in August 2022, it does not plan to finalize the EEMs until the end of 2023, to say nothing of its plans for requiring facilities to obtain permits and install emissions controls, which remain uncertain.[160] Similarly, EPA has not required CAFOs to report dangerous air emissions under CERCLA and EPCRA. In 2017, the U.S. Court of Appeals for the District of Columbia concluded that EPA lacked authority to exempt CAFOs from these reporting requirements—in part, because EPA conceded that it could respond to emissions reports by requiring CAFO operators to "eliminate the risk" of death or serious injury through improving their management of liquid waste.[161] However, in 2018, Congress exempted CAFOs from reporting dangerous air emissions under CERCLA.[162] And, in 2019, EPA issued a rule exempting CAFOs from reporting emissions under EPCRA, leaving the public with few protections against dangerous CAFO air pollution.[163]

2. CAFOs Generate and Spread Pathogens, Including Antibiotic-Resistant Bacteria.

In addition to the pollutants described above, CAFOs harbor and spread harmful pathogens, including influenza viruses, *Salmonella*, *Leptospira*, and *E. coli*, which cause illness

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[157] EPCRA requires facilities to notify state, tribal, and local authorities of any areas likely to be affected by releases of hazardous and extremely hazardous substances, including ammonia and hydrogen sulfide. *See* 42 U.S.C. § 11004; 40 C.F.R. § 355 App. A.

[158] *See* EPA, Off. of Inspector Gen., *Eleven Years After Agreement, EPA Has Not Developed Reliable Emission Estimation Methods to Determine Whether Animal Feeding Operations Comply with Clean Air Act and Other Statutes Report* (2017), https://www.epa.gov/sites/default/files/2017-09/documents/_epaoig_20170919-17-p-0396.pdf.

[159] *Id.* at 5.

[160] *See* EPA, *National Air Emissions Monitoring Study*, EPA, https://www.epa.gov/afos-air/national-air-emissions-monitoring-study (last visited August 7, 2022).

[161] *Waterkeeper All. v. EPA*, 853 F.3d 527, 536 (D.C. Cir. 2017).

[162] *See* Consolidated Appropriations Act of 2018, H.R. 1625, 115th Cong. § 1102 (2018).

[163] *See* Amendment to Emergency Release Notification Regulations on Reporting Exemption for Air Emissions from Animal Waste at Farms; Emergency Planning and Community Right-to-Know Act, 84 Fed. Reg. 27,533-01 (June 13, 2019). On February 14, 2022, a federal district court granted EPA's motion to remand this rule without vacatur because EPA had admitted a need to "revise or rescind" the rule in light of Executive Order 13,990, which directs federal agencies to review and address rules that fail to improve public health and protect the environment. *See Rural Empowerment Ass'n for Cmty. Help v. EPA*, Civ. Action No. 18-2260 (D.D.C. Feb. 14, 2022). As of September 2022, the exemption—which, as EPA essentially has admitted, fails to improve public health and protect the environment—remains in place.

in humans.[164] Holding large numbers of animals in crowded confinement buildings—where accumulated manure attracts disease-carrying insects—facilitates the spread and mutation of pathogens, putting the health of CAFO workers and community members at risk.[165] Numerous studies demonstrate that pathogens at CAFOs can pass to humans through exposure to contaminated animal tissues, feed, and waste, as well as through surface water, groundwater, and the air.[166] For example, one recent study found that bacteria passed from swine to CAFO workers and neighbors.[167] The same study also found evidence of household-level transmission between CAFO workers and their children.[168]

CAFO operators commonly administer antibiotics at low doses over long periods of time in order to prevent disease, even among healthy animals.[169] Consistent exposure to antibiotics encourages bacteria to develop antibiotic resistance genes,[170] and as a result, many pathogens associated with CAFOs are resistant to common antibiotics.[171] The development and spread of resistance genes and antibiotic-resistant bacteria harm human health. Infections caused by antibiotic-resistant bacteria are difficult and sometimes impossible to treat, leading to prolonged infections, high medical costs, increased spread of resistant infections, and increased death

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[164] *See* Cole et al., *supra* note 141, at 691–93.
[165] *See* Bonnie M. Ballard, *COVID and CAFOs: How a Federal Livestock Welfare Statute May Prevent the Next Pandemic*, 100 N.C. L. Rev. 281, 286–287 (2021), https://scholarship.law.unc.edu/cgi/viewcontent.cgi?article=6861&context=nclr .
[166] *See* Cole et al., *supra* note 141, at 688 (noting that contact with infected urine or tissues can transmit pathogens from animals to humans); *see also* Shawn G. Gibbs et al., *Isolation of Antibiotic-Resistant Bacteria from the Air Plume Downwind of a Swine Confined or Concentrated Animal Feeding Operation*, 114 Env't Health Persps. 1032, 1036 (2006) (finding antibiotic-resistant bacteria in air plumes 150 meters downwind from a swine CAFO); Michael Greger & Gowri Koneswaran, *The Public Health Impacts of Concentrated Animal Feeding Operations on Local Communities*, 33 Family & Cmty. Health 373, 375 (2010) (linking overflowing waste pits, runoff from land application, and the spread of pathogens in the environment); Bridgett M. West et al., *Antibiotic Resistance, Gene Transfer, and Water Quality Patterns Observed in Waterways Near CAFO Farms and Wastewater Treatment Facilities*, 217 Water, Air, & Soil Pollution 473 (2011) (finding that CAFOs may increase the prevalence of multi-drug-resistant bacteria in waterways).
[167] *See* Pranay R. Randad et al., *Transmission of Antimicrobial-Resistant* Staphylococcus aureus *Clonal Complex 9 Between Pigs and Humans, United States*, 27 Emerging Infectious Diseases 740, 742–44 (2021).
[168] *Id.* at 744.
[169] *See* Amy Chapin et al., *Airborne Multidrug-Resistant Bacteria Isolated from a Concentrated Swine Feeding Operation*, 113 Env't Health Persps. 137 (2005).
[170] *Id.*; *see also* Cole et al., *supra* note 141, at 692 (reviewing studies showing that antimicrobial resistance increases "with increasing antimicrobial use on farms").
[171] *See, e.g.*, Engeline van Duijkeren et al., *Transmission of Methicillin-Resistant Staphylococcus Aureus Strains Between Different Kinds of Pig Farms*, 126 Veterinary Microbiology 383, 387–88 (2008); Tushar Khanna et al., *Methicillin Resistant Staphylococcus Aureus Colonization in Pigs and Pig Farmers*, 128 Veterinary Microbiology 298, 301 (2008); Chapin et al., *supra* note 169, *at* 139–41.

rates.[172] In the United States, Methicillin-Resistant *Staphylococcus aureus* ("MRSA"), which causes skin, urinary tract, and wound infections, along with more serious and potentially fatal health problems, including bacteremia, endocarditis, and necrotizing pneumonia,[173] is a major antibiotic resistance threat.[174] Multiple studies have linked CAFOs to the spread of MRSA.[175]

Like CAFO water and air pollution, CAFO antibiotic use escapes regulation necessary to protect public health. The U.S. Food and Drug Administration ("FDA") has acknowledged that animals exposed to antimicrobials, a category of substances that includes antibiotics, "can contribute to the development and proliferation of antimicrobial resistant bacteria," and "antimicrobial resistance poses [a risk] to public health."[176] The World Health Organization recommends that regulatory agencies support "reductions in the overall use of medically important antimicrobials in food-producing animals, including complete restriction of use of antimicrobials for growth promotion and for disease prevention (i.e., in healthy animals considered at risk of infection.)"[177] Nonetheless, in 2021, FDA denied a citizen petition asking the agency to withdraw approval for the preventative and growth-promoting uses of certain antibiotics in livestock and poultry.[178] Since the petition was filed, approval for growth-promoting uses was withdrawn at the request of drug manufacturers, but disease-prevention uses are still allowed. As a result, FDA continues to allow the widespread, long-term use of antibiotics among CAFO animals, despite evidence that medically important antibiotics now are more widely sold for use in swine and cattle production than they are for use in human beings.[179] The threats to human health posed by CAFOs' reliance on antibiotics largely remain unchecked.

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[172] *See* Gibbs et al., *supra* 166, at 1032.
[173] *See* Miranda M. L. van Rijen et al., *Livestock-Associated MRSA Carriage in Patients Without Direct Contact with Livestock*, 9 PLoS ONE e100294, e100294–95 (2014).
[174] *See* Ctrs. for Disease Control & Prevention, *Antibiotic Resistance Threats in the United States, 2013* 77 (2013), https://www.cdc.gov/drugresistance/threat-report-2013/pdf/ar-threats-2013-508.pdf (noting that MRSA infected over 80,000 people and killed 11,285 in 2011).
[175] *See* Gibbs et al., *supra* note 166, at 1,036; *see also* van Duijkeren et al., *supra* note #, at 387; *see also* Noah Rosenblatt-Farrell, *The Landscape of Antibiotic Resistance*, 117 Env't Health Persps. A244, A247 (2009); Joan A. Casey et al., *High-Density Livestock Production and Molecularly Characterized MRSA Infections in Pennsylvania*, 122 Env't Health Persps. 464 (2014).
[176] Letter from Steven M. Solomon, Director, Ctr. For Veterinary Med., U.S. Food & Drug Admin., to Allison Johnson & Avinash Kar, Nat. Res. Def. Council, at 2, 4 (Feb. 25, 2021).
[177] *See* Awa Aidara-Kane et al., *World Health Organization (WHO) Guidelines on Use of Medically Important Antimicrobials in Food-Producing Animals*, 7 Antimicrobial Resistance & Infection Control 1 (2018).
[178] *See* Letter from Steven M. Solomon, *supra* note 176.
[179] *See* David Wallinga et al., Nat. Res. Def. Council, *U.S. Livestock Antibiotic Use Is Rising, Medical Use Falls* (Nov. 18, 2021), https://www.nrdc.org/experts/david-wallinga-md/us-livestock-antibiotic-use-rising-medical-use-falls-0 (explaining that "[s]ales of medically important antibiotics for pigs and cattle combined are 55% higher than sales of those medicines for human patients").

3. CAFOs Exacerbate Climate Change.

In addition to polluting the water and air, CAFOs emit vast quantities of methane and nitrous oxide, two potent greenhouse gasses that contribute to climate change.[180] Manure management and enteric fermentation—a digestive process in cows and other ruminant animals that produces methane as a by-product—are the primary sources of greenhouse gas emissions from CAFOs.[181] Manure primarily emits methane and nitrous oxide when it decomposes anaerobically in waste pits and when CAFO operators dispose of it on fields.[182] The quantity of greenhouse gasses emitted from manure management is growing, with methane emissions increasing by 66 percent from 1990 to 2017 and nitrous oxide emissions increasing by 34 percent over the same time period.[183] As of 2020, manure management was both the fourth-largest source of methane emissions and the fourth-largest source of nitrous oxide emissions in the United States.[184] Wet manure management systems cause particular harm, generating many times more methane than systems that store manure in dry form.[185] Indeed, EPA recently recognized that "[i]n many cases, manure management systems with the most substantial methane emissions are those associated with confined animal management operations where manure is handled in liquid-based systems" and that "the shift toward larger dairy cattle and swine facilities since 1990 has translated into an increasing use of liquid manure management systems, which have higher potential [methane] emissions than dry systems."[186]

Despite CAFOs' substantial contributions to climate change, lawmakers have shielded the CAFO industry from public scrutiny. For over a decade, Congress has prohibited EPA from using its appropriated funds "to implement any provision in a rule, if that provision requires mandatory reporting of greenhouse gas emissions from manure management systems."[187] In addition, a statutory provision known as Section 1619, introduced in the 2008 Farm Bill, prohibits USDA from disclosing certain information about CAFOs and other agricultural operations.[188] Section 1619 has impeded USDA's efforts to conduct scientific research,[189] and it

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[180] *See* Patricia M. Glibert, *From Hogs to HABS: Impacts of Industrial Farming in the US on Nitrogen and Phosphorus and Greenhouse Gas Pollution*, 150 Biogeochemistry 139, 165 (2020).
[181] *See* EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2020*, 2-29, Tbl. 2-10 (2022), https://www.epa.gov/system/files/documents/2022-04/us-ghg-inventory-2022-main-text.pdf.
[182] *See* Glibert, *supra* note 180, at 157.
[183] *Id.* at 139.
[184] *See* EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2020*, *supra* note 181, at ES-13, ES-14.
[185] *See* Olga Gavrilova et al., *Emissions From Livestock and Manure Management*, *in* 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, at 67, Tbl. 10.17 (2019), https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/4_Volume4/19R_V4_Ch10_Livestock.pdf.
[186] EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2020*, *supra* note 181, at 5-12.
[187] H.R. 2471, 117th Cong. § 437 (2022).
[188] *See* 7 U.S.C. § 8791.
[189] *See, e.g.*, Adena R. Rissman et al., *Public Access to Spatial Data on Private-Land Conservation*, 22 Ecology & Soc'y 24 (2017) (explaining that Section 1619 "makes it impossible to assess the efficacy of

has increased inefficiencies between federal and state conservation programs, preventing action to reduce greenhouse gas emissions from CAFOs.[190]

Not only has the CAFO industry largely escaped accountability for its greenhouse gas emissions, but industry actors also have made misleading claims and offered false solutions that exacerbate CAFOs' climate harm. Although multiple meat and dairy industry leaders claim that they will achieve "net zero" emissions targets within the next couple of decades, these claims depend on *ignoring* greenhouse gas emissions from CAFOs, including "enteric and manure emissions from live animal operations."[191] In another act of obfuscation, the industry has advocated for the expansion of biodigesters, which capture methane from CAFO manure to produce biogas, also known as biofuel. Proponents characterize biogas as a "renewable" energy source,[192] but by making methane profitable, the biogas industry eliminates any incentive for CAFO owners and operators to reduce methane emissions through responsible manure management.[193] Indeed, evidence indicates that states already are "overcounting the climate benefits of manure biofuel as a mechanism to reach . . . greenhouse gas reduction targets—a miscount that will only grow as the industry expands."[194] And, as explained in more detail below, early evidence indicates that biogas operations exacerbate the environmental injustice associated with CAFO pollution.[195]

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the hundreds of millions of dollars that the U.S. taxpayer spends on conservation"); Laurie Ristino & Gabriela Steier, *Losing Ground: A Clarion Call for Farm Bill Reform to Ensure a Food Secure Future*, 42 Colum. J. Env't L. 79 (2016) (noting that, because of Section 1619, "[s]cientists are thwarted from, among other things, carrying out research on conservation practices to assess their effectiveness in achieving improved environmental outcomes").

[190] *See* Jess R. Phelps, *Conservation, Regionality, and the Farm Bill*, 71 Me. L. Rev. 293, 339 (2019) (observing that Section 1619 "makes integrated [conservation] project planning . . . more difficult and less effective than would otherwise be the case").

[191] *See, e.g.*, *Environment: Energy and Emissions*, JBS USA, https://sustainability.jbsfoodsgroup.com/chapters/environment/energy-emissions/ (last visited Mar. 30, 2022).

[192] *See* Phoebe Gittleson et al., *The False Promises of Biogas: Why Biogas Is an Environmental Justice Issue*, Env't Just. (2021), https://www.liebertpub.com/doi/pdf/10.1089/env.2021.0025.

[193] *See, e.g.*, Markus Lauer et al., *Making Money from Waste: The Economic Viability of Producing Biogas and Biomethane in the Idaho Dairy Industry*, 222 Applied Energy 621 (2018); Cal. Climate & Agric. Network, *Diversified Strategies for Reducing Methane Emissions from Dairy Operations*, at 5 (2015), https://calclimateag.org/wp-content/uploads/2015/11/Diversified-Strategies-for-Methane-in-Dairies-Oct.-2015.pdf ("Another challenge posed by too great a focus on incentivizing dairy digesters is that, rather than avoiding methane generation altogether, these technologies can actually create incentives to generate methane from manure.").

[194] Tracy Tullis, *Big Oil Wants New York's Cow Manure*, N.Y. Focus (May 25, 2022), https://www.nysfocus.com/2022/05/25/big-oil-wants-new-yorks-cow-manure/.

[195] *See infra* Section III.B.1.b.

C. Large CAFOs Are a Small Percentage of All Animal Operations but a Significant Source of Pollution.

Large CAFOs comprise a small percentage of farms in the United States, but they confine a huge number of animals, which together produce enormous quantities of manure. As shown below in Figure Six, as of 2012, only 0.6 percent of U.S. farms were Large CAFOs.[196] However, Large CAFOs accounted for 32 percent of all animal units on farms[197] and 33 percent of all farm manure.[198] Even in the context of industrial-scale facilities, Large CAFOs confine strikingly high numbers of animals and generate an outsize share of manure; as of 2012, Large CAFOs made up only seven percent of animal feeding operations—that is, facilities that hold any number of animals in confinement[199]—but they accounted for 63 percent of all animal units confined in animal feeding operations and 59 percent of all manure produced at animal feeding operations.[200]

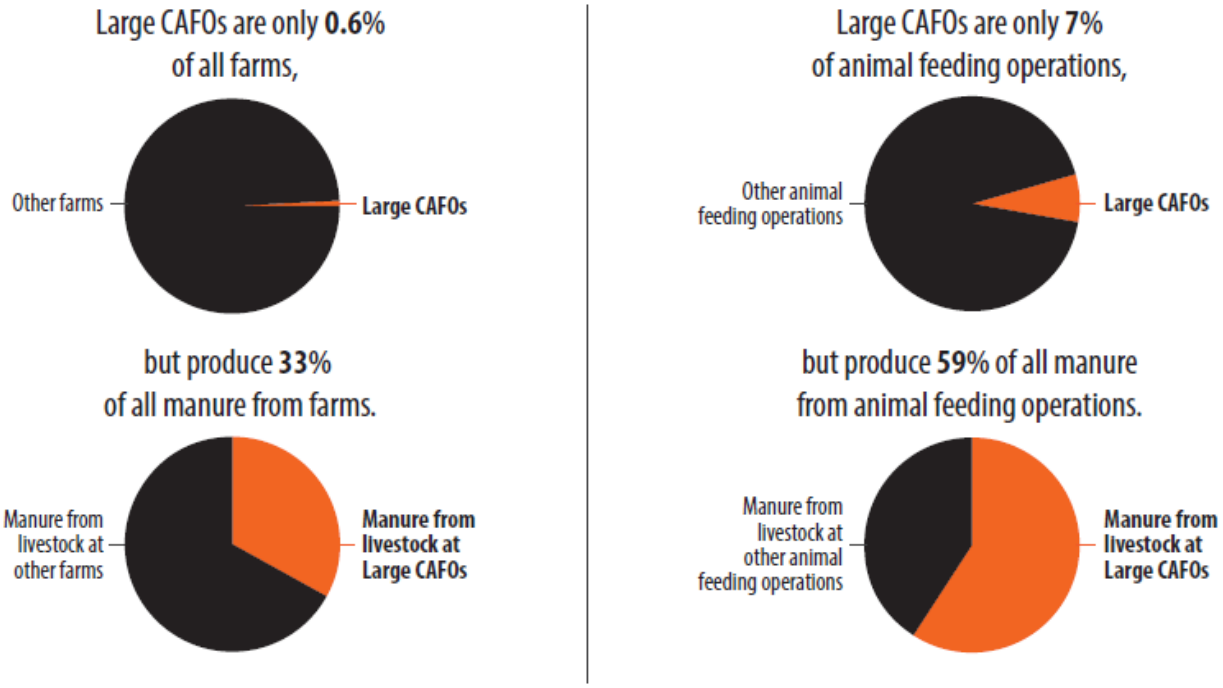

Figure Six. Percentage of manure from farms and all manure from animal feeding operations generated by Large CAFOs.

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[196] *See* Gollehon et al., *supra* note 18 at 4, Tbl. 1.
[197] *See id.* An "animal unit" represents 1,000 pounds of live animal weight. *See* Robert L. Kellogg *et al.*, U.S. Dep't of Agric., Natural Res. Conservation Serv., *Manure Nutrients Relative to the Capacity of Cropland and Pastureland to Assimilate Nutrients: Spatial and Temporal Trends for the United States* 2 (2000). The measure serves as a common unit for comparing different types of animals. *Id.*
[198] *See id.* at 9, Tbl. 2.
[199] *See* 40 C.F.R. § 122.23(b)(1).
[200] *See id.* at 9, Tbl. 2.

Looking to swine and dairy production in particular, Large CAFOs similarly make up a very small percentage of all swine and dairy facilities but confine a huge number of animals. According to the 2017 Census of Agriculture, only five percent of all swine facilities (3,600 operations) confined more than 5,000 swine.[201] Yet, that five percent of facilities confined 73 percent of all swine produced in the United States.[202] And, as for dairy cow facilities, only four percent (1,953 operations) confined more than 1,000 dairy cows, but those facilities accounted for 50 percent of all dairy cows produced in the country.[203] Because the amount of manure produced closely corresponds to the number of animals confined, relatively few Large swine and dairy cow CAFOs produce the majority of swine and dairy cow manure. Given the serious and extensive water pollution that results from this manure,[204] increasing oversight of these few Large CAFOs will achieve significant benefits for humans, wildlife, and the environment.

II. LEGAL BACKGROUND

A. The CWA Specifically Identifies CAFOs as Point Sources Subject to the Act's Requirements.

The CWA expressly states that CAFOs are subject to the Act's requirements. Designed to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters,"[205] the CWA prohibits all discharges of pollutants from point sources to "navigable waters,"[206] except as authorized by permit.[207] The Act defines "point sources" primarily by

[201] *See* USDA, *2017 Census of Agriculture* 23, Tbl. 19 (2019). As previously noted, USDA does not use EPA's thresholds for Large CAFOs when it collects data for the Census of Agriculture. As relevant here, USDA collects data on swine operations with 2,000 to 4,999 swine and 5,000 or more swine. *Id.* Operations in the latter range are most likely to meet EPA's definition of a Large swine CAFO, which includes operations that confine 2,500 or more swine weighing 55 pounds or 10,000 or more swine weighing less than 55 pounds. *See* 40 C.F.R. § 122.23(b)(4). However, for operations that confine 2,000 or more swine, it is also the case that they make up a small percentage of all swine operations but confine the majority of swine raised for food production. As of 2017, only 12 percent of all swine operations (8,324 operations) confined more than 2,000 swine, but those operations confined 94 percent of all swine on farms. *See* USDA, *2017 Census of Agriculture* 23, Tbl. 19 (2019).

[202] *See id.*

[203] *See* USDA, *2017 Census of Agriculture* 23, Tbl. 17 (2019). As relevant here, USDA collects data on dairy cow operations that confine 500 to 999 cows and 1,000 or more cows. *See id.* EPA defines a Large dairy cow CAFO as one that confines 700 or more mature dairy cows. *See* 40 C.F.R. § 122.23(b)(4). For dairy operations that confine 500 or more cows, those operations made up only 6.3 percent (3,464 operations) of all dairy farms, but they accounted for 61 percent of all dairy cows on farms. *See* USDA, *2017 Census of Agriculture* 23, Tbl. 17 (2019).

[204] *See infra* Section IV.B.

[205] 33 U.S.C. § 1251(a).

[206] "Navigable waters" means the "waters of the United States, including the territorial seas." *Id.* § 1362(7).

[207] *See id.* §§ 1311(a), 1342(a), 1362(12).

reference to various types of "conveyance[s]," such as pipes, ditches, and channels.[208] Importantly, the definition also includes one—and only one—industrial category by name: CAFOs.[209]

The CWA's prohibition on unpermitted discharges extends to intermittent, sporadic, and occasionally, groundwater discharges. "[A]n intermittent polluter—one who [discharges] one month out of every three—is just as much 'in violation' of the Act as a continuous violator."[210] In addition, a polluter is liable for discharges of "pollutants that reach navigable waters after traveling through groundwater if [those] discharge[s] [are] the functional equivalent of a direct discharge from the point source into navigable waters."[211] Thus, operations that meet EPA's regulatory definition of a CAFO[212] must obtain CWA permits if they discharge pollutants to the nation's navigable waters, even if their discharges are intermittent, sporadic, or in certain circumstances, allowed to leach through groundwater into a river or stream.[213]

Congress's express inclusion of CAFOs in the definition of "point source" reflects its understanding that CAFOs are significant—and growing—sources of water pollution.[214] In a Senate committee report on the Federal Water Pollution Control Act Amendments of 1971, which became the CWA, Senator Robert Dole remarked that "[a] major new thrust of this bill is in the field of agricultural pollution."[215] Pollution from CAFO waste was of particular concern. As Senator Dole explained:

> Animal and poultry waste, until recent years, has not been considered a major pollutant. Until the past ten or fifteen years few problems existed, because animals were relatively wide-spread on pasture and rangeland and their manure was

[208] *See* 33 U.S.C. § 1362(14).
[209] *Id.* A CAFO's "manure spreading vehicles, as well as manure storing fields, and ditches used to store or transfer the waste" all constitute CAFO point sources under the CWA. *Cmty. Ass'n for Restoration of the Env't v. Henry Bosma Dairy*, 305 F.3d 943, 955 (9th Cir. 2002) ("*CARE II*").
[210] *Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found.*, 484 U.S. 49, 63 (1987); *see also CARE II*, 305 F.3d at 953; *Nat. Res. Def. Council, Inc. v. Texaco Refin. & Mktg, Inc.*, 2 F.3d 493, 501 (39d Cir. 1993); *Carr v. Alta Verde Indus., Inc.*, 931 F.2d 1055, 1062 (5th Cir. 1991); *Atl. States Legal Found., Inc. v. Tyson Foods, Inc.*, 897 F.2d 1128, 1133 (11th Cir. 1990).
[211] *Cnty. of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462, 1477 (2020).
[212] *See* 40 C.F.R. § 122.23(b)(2).
[213] *See* Comments on Ohio's Preliminary Modeling Results for the Maumee Watershed Nutrient TMDL 4 (2022), attached as Exhibit 18 (applying *County of Maui v. Hawaii Wildlife Fund* to discharges from CAFOs).
[214] *See CARE II*, 305 F.3d at 955 ("The very nature of a CAFO and the amount of animal wastes generated constitute a large threat to the quality of the waters of the nation. Therefore, Congress empowered the EPA to regulate CAFOs as point sources."); *see also Cmty. Ass'n for Restoration of the Env't v. Sid Koopman Dairy*, 54 F. Supp. 2d 976, 981 (E.D. Wash. 1999) ("*CARE I*") ("Congress and the EPA were concerned with the amount of animal wastes generated by a CAFO and the threat those wastes pose to the waters of the United States.").
[215] S. Rep. No. 92-414, at 98 (1971).

> deposited on the ground to be naturally recycled through the soil and plant cover. . . ..
>
> The picture has changed dramatically, however, as development of intensive livestock and poultry production on feedlots and in modern buildings has created massive concentrations of manure in small areas. The recycling capacity of the soil and plant cover has been surpassed. In these modern facilities the use of bedding and litter has been greatly reduced; consequently, the manure which is produced remains essentially in the liquid state and is much more difficult to handle without odor and pollution problems. Precipitation runoff from these areas picks up high concentrations of pollutants which reduce oxygen levels in receiving streams and lakes and accelerate the eutrophication process.[216]

As discussed above, the problem identified in this legislative history—industrial animal production that generates "massive concentrations of manure in small areas," causing "odor and pollution problems"[217]—has grown exponentially since 1971. Indeed, a recent federal bill proposing a moratorium on all Large CAFOs reflects the continuing and worsening problems that Large CAFOs pose.[218]

1. CAFOs Operating Under NPDES Permits Are Subject to Specific and Enforceable Effluent Limitations.

To restrict pollutant discharges from CAFOs and other point sources, the CWA established the National Pollutant Discharge Elimination System ("NPDES"), a permitting scheme managed by EPA in partnership with state environmental agencies.[219] NPDES permits include "effluent limitations," which are "restriction[s] established by a State or the [EPA] Administrator on quantities, rates, and concentrations" of discharges.[220] To ensure that NPDES permits meet the CWA's requirements, EPA may object to any NPDES permit that a state proposes to issue if the permit does not comply with the CWA.[221] As the Second Circuit has explained, "the NPDES permit is critical to the successful implementation of the Act because . . . the NPDES permit 'defines, and facilitates compliance with, and enforcement of, a preponderance of a discharger's obligations under the [Act].'"[222]

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[216] *Id.*
[217] *Id.*
[218] *See* Farm System Reform Act of 2021, S.2332, 117th Cong. § 102 (2021).
[219] *See* 33 U.S.C. § 1342. Where state agencies administer the NPDES permitting scheme, they must comply with all requirements of the CWA and federal regulations. *See id.* § 1342(b).
[220] *Id.* at § 1362(11).
[221] *Id.* at § 1342(d).
[222] *Waterkeeper All., Inc.*, 399 F.3d at 492 (quoting *EPA v. California*, 426 U.S. 200, 205 (1976)).

Currently, CAFO NPDES permits rely largely on best management practice effluent limitations, which are qualitative limitations on pollutant discharges.[223] For example, CAFOs operating under NPDES permits must develop and implement a nutrient management plan, which CAFO operators should use to manage the storage and disposal of manure and other waste; analyze manure and soil for their nutrient content at specific intervals; and avoid applying waste within 100 feet of any down-gradient surface water unless certain conditions are satisfied.[224] These best management practices are specific, enforceable requirements for CAFO operations; however, they are not technologically complex and, thus, are not unduly burdensome. As detailed below, the best management practices in NPDES permits are often more protective of water quality than the requirements for CAFOs in state laws and permits.[225]

2. CAFOs Operating Under NPDES Permits Are Subject to Public Participation During the Permitting Process.

The CWA requires that the public have an opportunity to participate in the NPDES permitting process.[226] When a CAFO operator applies for a NPDES permit, the permitting agency must notify the public of the application and make the application available for public review.[227] If the CAFO operator has applied for coverage under a NPDES general permit,[228] and the permitting agency makes a preliminary determination to grant coverage, the agency must accept public comments on the application, including the CAFO's nutrient management plan, which the CAFO operator should use to manage the storage and disposal of manure and other waste to reduce the likelihood of discharges.[229] The agency must respond to "significant comments" received during the comment period and, if necessary, require the CAFO operator to revise its application in response to comments.[230] In addition, before a permitting agency grants any NPDES permit, it must provide an opportunity for a public hearing.[231]

The CWA's legislative history "emphasize[s] that an essential element of the NPDES program is public participation."[232] In fact, lawmakers recognized that "[a] high degree of

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[223] *See* 40 C.F.R. § 412.
[224] *Id.* § 412.4.
[225] *See infra* Section III.A.3.
[226] *See* 33 U.S.C. § 1251(e) ("Public participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the Administrator or any State under this chapter shall be provided for, encouraged, and assisted by the Administrator and the States.").
[227] *See* 33 U.S.C. § 1342(a)(3), (b)(3), (j).
[228] NPDES general permits authorize categories of discharges within geographic areas. *See* 40 C.F.R. § 122.2.
[229] *Id.* § 122.23(h)(1).
[230] *Id.*
[231] *See* 33 U.S.C. § 1342 (a)(3), (b)(3).
[232] *Costle v. Pac. Legal Found.*, 445 U.S. 198, 216 (1980); *see Env't Def. Ctr., Inc. v. EPA*, 344 F.3d 832, 856 (9th Cir. 2003) ("Congress identified public participation rights as a critical means of advancing the goals of the Clean Water Act in its primary statement of the Act's approach and philosophy.").

informed public participation . . . is essential to the accomplishment of the objectives [of the Act]—a restored and protected natural environment."[233] Thus, "[t]he public must have a genuine opportunity to speak on the issue of protection of its waters."[234] In the CAFO NPDES permitting context, public review of nutrient management plans is particularly important. Reviewing nutrient management plans enables the public to "call[] for a hearing about—and then meaningfully comment on—NPDES permits before they issue."[235] And, as discussed below, public participation is also necessary to reveal and begin to address the environmental injustice that CAFOs cause.[236] Despite the importance of public participation, however, state laws and permits governing CAFOs typically provide fewer opportunities for public involvement than NPDES permits.[237]

3. CAFOs Operating Under NPDES Permits Are Subject to Citizen Suits.

In addition to providing for public participation in NPDES permitting, the CWA allows the public to enforce effluent limitations in NPDES permits. The Act provides that, so long as certain conditions are satisfied, any citizen may bring a civil action against any person who has violated an effluent limitation.[238] In other words, the CWA allows citizens to sue CAFOs that violate the terms of the CWA or their NPDES permits. These "citizen suits" allow citizens to "act[] as private attorneys general,"[239] and they are "intended [to be used . . .] to both spur and supplement government enforcement actions."[240] "[A]ccordingly, the purpose of [a citizen] suit is to protect and advance the public's interest in pollution-free waterways[.]"[241]

Citizen suits have played an important role in holding CAFOs accountable for the water pollution they cause. Indeed, one of the seminal decisions involving CAFO water pollution—*Community Association for Restoration of the Environment v. Henry Bosma Dairy*—was the result of a citizen suit.[242] In that case, the U.S. Court of Appeals for the Ninth Circuit affirmed a $171,500 civil penalty assessed against a CAFO operator with "a long history of [NPDES permit] compliance problems," including continuing violations and violations that were likely to recur related to the "misapplication or overapplication" of manure to a nearby field, discharges from which ultimately reached the Yakima River.[243] Advocates also have relied on citizen suits

[233] S. Rep. No. 92-414, at 12.
[234] *Id.* at 72.
[235] *Waterkeeper Alliance, Inc.*, 399 F.3d at 503.
[236] *See infra* Sections II.B.1. and III.B.2.
[237] *See infra* Section III.A.3.
[238] *See* 33 U.S.C. § 1365.
[239] *Pa. Env't Defense Found. v. Bellefonte Borough*, 718 F. Supp. 431, 434 (M.D. Pa. 1989).
[240] *Waterkeeper All., Inc.*, 399 F.3d at 503 (quoting S. Rep. No. 50, 99th Cong., 1st Sess. 28 (1985)).
[241] *Pa. Env't Defense Found.*, 718 F. Supp. at 434.
[242] *See CARE II*, 305 F.3d at 948.
[243] *Id.* at 954.

to challenge CAFOs that discharge water pollution without NPDES permits in violation of federal law, lengthy and costly actions that illustrate the importance of the requested presumption.[244] Citizen suits provide CAFO neighbors with recourse in situations in which EPA and state environmental agencies are unable or unwilling to bring enforcement actions. And, as described below, citizen suits offer members of environmental justice communities who are disproportionately harmed by CAFO permit violations an additional tool to hold those CAFOs accountable.[245] Although citizen suits can be a powerful tool, the CWA imposes limitations to ensure that they do not overwhelm courts or regulated parties with excessive and burdensome litigation.[246] For example, the CWA provides that citizens must provide the federal government and defendants with 60 days' notice of alleged violations prior to filing suit, thereby allowing "agencies [to] step in, investigate, and bring the defendant into compliance."[247] In addition, courts have made clear that a CWA citizen suit will fail if it alleges "wholly past violations;" instead, plaintiffs must "allege a state of either continuous or intermittent violation—that is, a reasonable likelihood that a past polluter will continue to pollute in the future."[248] Because of these limitations, citizen suits serve a narrow but important role in vindicating the CWA's protections. Yet, as discussed below, Petitioners are not aware of any state law governing CAFOs that provides for citizen suits.[249]

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[244] *See, e.g., Carr v. Alta Verde Industries, Inc.*, 931 F. 2d 1055, 1063 (concluding that a discharging cattle facility, which confined up to 30,000 animals and employed a wet manure management system, constituted a CAFO within the meaning of the CWA, and it would "remain[] in a continuing state of violation until it either obtains a permit or no longer meets the definition of a point source"); *Concerned Area Residents for the Env't v. Southview Farm*, 34 F.3d 114, 118, 121, 123 (finding that a dairy facility, which confined 2,200 animals and employed a wet manure management system, constituted a CAFO within the meaning of the CWA and improperly discharged water pollution without an NPDES permit by, among other things, allowing manure to travel through a ditch that ultimately led to the Genesee River and over-applying manure to fields in advance of rain).

[245] *See infra* Section III.B.3.

[246] *See, e.g., Hallstrom v. Tillamook Cnty.*, 493 U.S. 20, 29 (1989) (explaining that the CWA "strike[s] a balance between encouraging citizen enforcement of environmental regulations and avoiding burdening the federal courts with excessive numbers of citizen suits").

[247] *CARE II*, 305 F.3d at 953; *see also Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found., Inc.*, 484 U.S. 49, 60 (1987) (observing that the purpose of the 60-day notice provision is "to give [the alleged violator] an opportunity to bring itself into complete compliance with the Act and thus likewise render unnecessary a citizen suit."); *CARE II*, 305 F.3d at 953 ("The point is to trigger agency enforcement and avoid a lawsuit. Congress did not intend to unduly burden citizens by requiring them to basically carry out the job of the agency.").

[248] *Gwaltney of Smithfield*, 484 U.S. at 57.

[249] *See infra* Section III.B.3.

B. Executive Orders Require EPA to Advance Environmental Justice.

1. Executive Order 12,898 Requires EPA to Collect Data on Environmental Justice Issues, Address Those Issues, and Ensure that Environmental Justice Communities Are Able to Participate in EPA's Activities.

Executive Order 12,898 establishes "the goal of achieving environmental protection for all communities."[250] To accomplish this goal, the order requires each federal agency to "collect, maintain, and analyze information assessing and comparing environmental and human health risks borne by populations identified by race, national origin, or income."[251] The agencies "shall use this information to determine whether their programs, policies, and activities have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations."[252] The order also requires that, to "the greatest extent practicable," each federal agency must "identify[] and address[], as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."[253] In addition, the order requires each federal agency to "conduct its programs, policies, and activities that substantially affect human health or the environment[] in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons . . . from participation" in them.[254]

In response to Executive Order 12,898, EPA developed an environmental justice strategy that reiterates the importance of the objectives in the executive order.[255] The strategy aims to ensure that "[n]o segment of the population, regardless of race, color, national origin, or income, . . . suffers disproportionately from adverse human health or environmental effects, and all people live in clean, healthy, and sustainable communities."[256] EPA recognized that both data and public participation are necessary for achieving this goal. EPA explained that its "mission of protecting public health and the environment depends on individuals within and outside of the Federal government having access to good data for informed decision-making" and that "[a] comprehensive approach to identifying and addressing environmental justice concerns requires

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[250] EPA, *Summary of Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice.
[251] Exec. Order No. 12,898 § 3-302.
[252] *Id.*
[253] *Id.* § 1-101.
[254] *Id.* § 2-2.
[255] *See* EPA, *The Environmental Protection Agency's Environmental Justice Strategy* (1995), https://www.epa.gov/sites/default/files/2015-02/documents/ej_strategy_1995.pdf.
[256] *Id.*

the early involvement of affected communities."[257] EPA also committed to "incorporat[ing] environmental justice concerns into its program for ensuring compliance with Federal environmental requirements at both private and Federal facilities" and to using "the full range of tools available to it to correct noncompliance" in environmental justice communities.[258]

In an August 2022 document, EPA again highlighted the importance of public participation to advancing environmental justice. EPA stated:

> Community engagement should occur as soon as possible and should go far beyond simply posting public notices. With respect to permitting actions that could result in significant health, environmental, and quality of life impacts, the stakes are often that much higher for communities with [environmental justice] concerns. The goal of community engagement is to ensure that the people most affected by the permit have input into the decisions that will impact their lives. . . . Robust community engagement is crucial for making informed permitting decisions that meaningfully consider the site-specific circumstances of the permitting action.[259]

As this petition makes clear, CAFO permitting has significant health, environmental, and quality of life impacts.[260] Thus, opportunities for public participation are crucial for the environmental justice communities that CAFOs disproportionately harm.[261]

2. Executive Order 14,008 Requires EPA to Strengthen Enforcement of Environmental Violations that Disproportionately Harm Environmental Justice Communities.

Executive Order 14,008 reiterates and builds on Executive Order 12,898's requirement that agencies address environmental justice issues. Executive Order 14,008 acknowledges that "[t]o secure an equitable economic future, the United States must ensure that environmental and economic justice are key considerations in how we govern."[262] To this end, the order directs EPA to "strengthen enforcement of environmental violations with disproportionate impact on underserved communities."[263]

Following Executive Order 14,008, EPA Administrator Michael Regan emphasized the role of enforcement in advancing environmental justice. Administrator Regan directed all EPA offices to "examine, and appropriately use, the full array of policy and legal tools at [their]

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[257] *Id.*
[258] *Id.*
[259] EPA, *Interim Environmental Justice and Civil Rights in Permitting Frequently Asked Questions*, *supra* note 26, at 16–17.
[260] *See supra* Section I.
[261] *See infra* Section III.B.1.
[262] Exec. Order No. 14,008 § 219.
[263] *Id.* § 222(i).

disposal to incorporate environmental and climate justice considerations in [their] analysis, rulemaking, permitting, enforcement, . . . and other activities."[264] Administrator Regan also specifically directed EPA offices to "[s]trengthen enforcement of violations of cornerstone environmental statutes and civil rights laws in communities overburdened by pollution."[265]

III. JUSTIFICATION

EPA's current approach to CAFO permitting depends on self-reporting. CAFO operators are responsible for determining whether they discharge and, if so, applying for NPDES permits. EPA's approach allows many CAFOs that discharge water pollution to avoid operating under NPDES permits and instead operate without permits or according to state laws and permits that fail to protect water quality or advance environmental justice. Indeed, EPA itself has acknowledged the importance of "improv[ing] the effectiveness of [its] CAFO regulations."[266] For these reasons and as explained in detail below, when applied to Large CAFOs using wet manure management systems, EPA's current approach violates the CWA and falls short of the environmental justice goals set out in Executive Orders 12,898 and 14,008.

A. EPA's Current Approach to Permitting Large CAFOs Using Wet Manure Management Systems Violates the CWA.

The CWA is the "principal legislative source of the EPA's authority—*and responsibility*—to abate and control water pollution."[267] The Act prohibits discharges from point sources to navigable waters unless the discharger has a permit. For any given discharge subject to the CWA, therefore, EPA must "either [] issue a permit for the discharge of the pollutant or [] enforce the total proscription on discharge[s]."[268] Under no circumstances may EPA "leave pollutants subject to the requirements of the statute unregulated."[269] Because the CWA expressly identifies CAFOs as point sources, EPA must either ensure that discharging CAFOs obtain NPDES permits or enforce the Act's prohibition on unpermitted discharges from CAFOs.[270]

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[264] Michael S. Regan, Message from the Administrator, https://www.epa.gov/sites/default/files/2021-04/documents/regan-messageoncommitmenttoenvironmentaljustice-april072021.pdf.
[265] *Id.*
[266] *See* EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.
[267] *Waterkeeper All., Inc.*, 399 F.3d at 491 (emphasis added).
[268] *L.A. Waterkeeper v. Pruitt*, 320 F. Supp. 3d 1115, 1122 (C.D. Cal. 2018); *see Nat. Res. Def. Council v. Costle*, 568 F.2d 1369, 1375 (D.C. Cir. 1977); *see also Nw. Env't Advocs. v. EPA*, 537 F.3d 1006, 1021–22 (9th Cir. 2008).
[269] *L.A. Waterkeeper*, 320 F. Supp. 3d at 1122 (emphasis omitted).
[270] EPA may not evade this requirement by citing infeasibility. The CWA provides "devices to mitigate the burden to accommodate within a practical regulatory scheme Congress's clear mandate that all point sources have permits." *Nat. Res. Def. Council v. Costle*, 568 F.2d at 1381. For example, EPA may use general permits to avoid an "intolerable permit load." *Id.*

For the reasons below, EPA's self-reporting approach does not ensure that discharging CAFOs obtain NPDES permits. Indeed, EPA admits that, under its current approach, "[m]any CAFOs are not regulated and continue to discharge without NPDES permits," and "many waters are affected by pollutants from CAFOs."[271] EPA also admits that EPA and state agencies are failing to enforce the Act's prohibition on unpermitted discharges.[272] As a result, many CAFOs discharge water pollution without appropriate oversight, causing serious and extensive harm to human health and the environment, including water quality.[273] Thus, EPA's approach runs counter to the CWA and undermines the Act's goal of restoring and maintaining the nation's waters.

1. EPA's Approach Fails to Require NPDES Permits for CAFOs that Discharge.

As EPA is aware, under the Agency's current approach to CAFO permitting, many CAFOs discharge water pollution without NPDES permits, in violation of the CWA.[274] Three sources of evidence demonstrate the under-permitting problem. *First*, EPA's own estimates and admissions indicate that a majority of all discharging CAFOs lack NPDES permits, and the same pattern holds true for Large CAFOs. *Second*, data on NPDES permit coverage in states where CAFOs are concentrated show that many CAFOs almost certainly discharge water pollution without NPDES permits. *Third*, documented evidence of numerous unpermitted discharges confirms that CAFOs routinely discharge water pollution without NPDES permits.

First, EPA's own estimates and admissions show that a majority of CAFOs that discharge water pollution do not, in fact, have NPDES permits. In 2001, EPA estimated that approximately 12,000 CAFOs discharged water pollution, but only 2,530 had applied for NPDES permits, meaning that about 9,470 CAFOs were discharging without NPDES permits in violation of the CWA.[275] In 2009, EPA estimated that there were "19,000 large and medium-sized CAFOs nationwide and that as many as 75% of these may need to obtain NPDES permits because they discharge."[276] However, as of March 2008, only 47 percent—or 8,930 CAFOS—had obtained NPDES permits,[277] meaning that about 5,320 CAFOs were discharging without NPDES permits. Since 2009, the estimated number of Large CAFOs in the country has grown to

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[271] *See* EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.
[272] *Id.*
[273] *See infra* Section III.A.3.
[274] *See* EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.
[275] *See* 66 Fed. Reg. at 2,963.
[276] EPA Office of Civil Enforcement, EPA 325-F-09-001, *EPA Targets Clean Water Act Violations at Livestock Feeding Operations Enforcement Alert* 2 (2009), https://nepis.epa.gov/Exe/ZyPDF.cgi/P10039VB.PDF?Dockey=P10039VB.PDF. EPA did not explain how it determined the percentage of CAFOs required to obtain NPDES permits because they discharge.
[277] *Id.*

21,237, but the number of CAFOs operating under NPDES permits has fallen to 6,266.[278] Conservatively assuming that 75 percent of CAFOs require NPDES permits, as EPA has estimated in the past, this means that almost 10,000 Large CAFOs are discharging without NPDES permits in violation of the CWA. In other words, the under-permitting problem that EPA identified over 20 years ago persists and has grown worse. Indeed, in May 2022, EPA acknowledged that "[m]any CAFOs are not regulated and continue to discharge without NPDES permits."[279]

EPA has acknowledged that Large CAFOs are especially likely to discharge water pollution without NPDES permits. According to EPA, "since the inception of the NPDES permitting program in the 1970s, only a small number of Large CAFOs have actually sought permits . . . while numerous documented discharges occurred over time."[280] The U.S. Court of Appeals for the Second Circuit has reiterated this point, observing that "Large CAFOs are important contributors to water pollution and [] they have, historically at least, improperly tried to circumvent the permitting process."[281]

Second, recent data on NPDES permit coverage in states where swine and dairy CAFOs are most concentrated confirm that discharging CAFOs routinely lack NPDES permits. Most swine and dairy cow CAFOs use wet manure management systems,[282] and wet manure management systems predictably cause discharges.[283] Yet, as the figures below show, in four of the top five swine-producing states and four of the top five dairy cow-confining states,[284] the majority of Large CAFOs do not have NPDES permits. Indeed, in six of these states, fewer than 10 percent of Large CAFOs have NPDES permits, and in three states, *zero* Large CAFOs have NPDES permits. These data strongly suggest that, across the country, thousands of LargeCAFOs are discharging water pollution without a permit in violation of the CWA.

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[278] *See* EPA, *NPDES CAFO Permitting Status Report: National Summary, Endyear 2021, completed 07/20/22*, *supra* note 5.
[279] EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.
[280] National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs), 68 Fed. Reg. 7,176, 7,201 (Feb. 12, 2003).
[281] *Waterkeeper Alliance, Inc.*, 399 F.3d at 506, n.22.
[282] *See* 66 Fed. Reg. at 2,989, 2991.
[283] *See infra* Section IV.B.
[284] *See* Univ. of Iowa Dep't of Geographical & Sustainability Scis., *CAFOs in the US: The Wheres and Whys of Industrial Meat Production in the United States*, https://cafomaps.org/index.html (drawing from the 2017 Census of Agriculture).

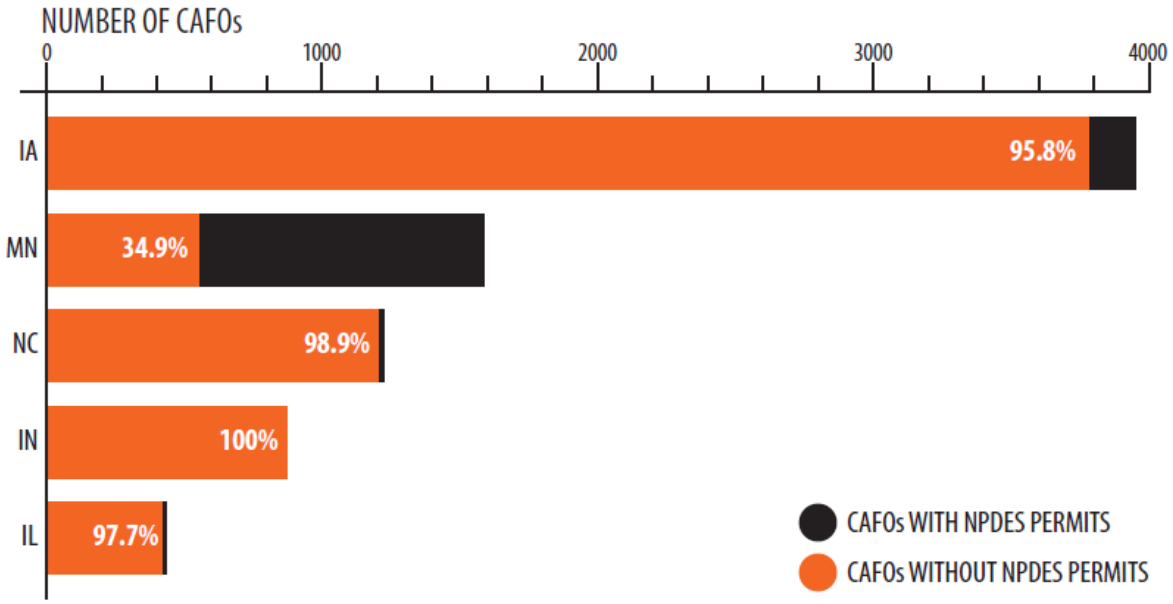

Figure Seven. Percentage of Large CAFOs with NPDES permits in the top five swine-producing states.[285]

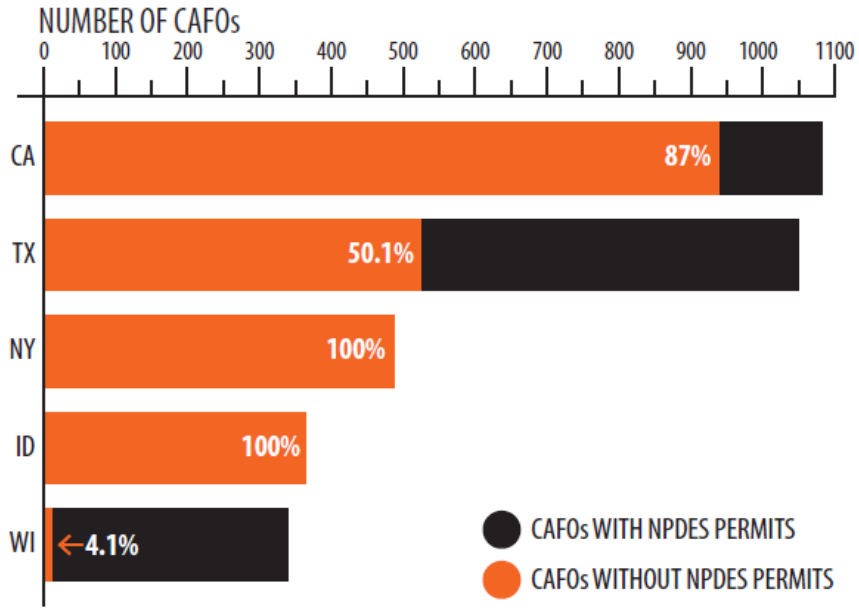

Figure Eight. Percentage of Large CAFOs with NPDES permits in the top five dairy cow-producing states.[286]

[285] *See* EPA, *NPDES CAFO Permitting Status Report: National Summary, Endyear 2021, completed 07/20/22*, *supra* note 5.
[286] *Id.*

CAFO permit coverage in New York, the third-largest dairy cow-confining state, offers particularly strong evidence that discharging CAFOs are operating without NPDES permits. In 2017, a coalition of environmental organizations won an order directing New York to bring its CAFO NPDES permit into compliance with federal law.[287] Following the court's order, 288 CAFOs that had been operating under the NPDES permit switched to New York's state-law CAFO permit.[288] In other words, nearly 300 CAFOs that had previously concluded that they required NPDES permits suddenly claimed that they no longer discharge. At least 30 of those CAFOs had been subject to enforcement actions for NPDES permit violations since 2012, and at least three additional CAFOs had indicated that they were "daily spread" operations with no or minimal manure storage,[289] meaning that they could have no alternative but to land apply waste during conditions that pose a high risk of discharges. Unless those CAFOs significantly changed their practices or facilities—and there is no evidence whatsoever that they did so—this switch was inappropriate, and it led to a serious under-permitting problem in New York.[290]

Third, as EPA itself has acknowledged, "there are numerous documented instances . . . of actual discharges at unpermitted CAFOs."[291] A recent report by the North Carolina Department of Environmental Quality ("NC DEQ") supports this conclusion. Between July 1, 2020 and June 30, 2021, NC DEQ inspectors found 36 separate instances of unpermitted discharges at swine CAFOs.[292] Eighteen of those discharges reached surface waters.[293] Similarly, the Illinois Environmental Protection Agency reported in 2011—the most recent year for which a report is available—that its inspectors visited 189 CAFOs and found that 25 CAFOs without NPDES permits must obtain them.[294] In addition, inspectors observed 63 instances of runoff from production areas, 18 instances of discharges from waste storage structures, 7 instances of intentional discharges, and 12 instances of discharges from land application.[295] In Washington, information produced in response to a public records request revealed that CAFOs are

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[287] *See Riverkeeper, Inc. v. Seggos*, 75 N.Y.S. 3d 854 (N.Y. Sup. Ct. 2018).
[288] *See* "GP-04-02," attached as Exhibit 19. This spreadsheet was produced by the New York Department of Environmental Conservation as part of its response to a 2018 Freedom of Information Law records request. The request sought, *inter alia*, a list of CAFOs formerly covered under the NPDES permit that later obtained coverage under the state-law permit.
[289] Based on records received in response to a 2017 Freedom of Information Law records request.
[290] *See* Lee Harris, *New York Dairy Farms Skirt Clean Water Act Requirements*, The Am. Prospect (Aug. 11, 2021), https://prospect.org/environment/new-york-dairy-farms-skirt-clean-water-act-requirements/.
[291] 68 Fed. Reg. at 7,201.
[292] *See* N.C. Dep't Env't Quality, *Animal Waste Management July 1, 2020 – June 30, 2021* 5, Tbl. 6, https://deq.nc.gov/media/17775/open.
[293] *Id.*
[294] *See* Ill. Env't Protection Agency, *Illinois EPA Livestock Program 2011 Livestock Facility Investigation Annual Report* 2, 4, http://www.epa.state.il.us/water/cafo/reports/2011-livestock-annual.pdf.
[295] *Id.* at 6.

discharging without NPDES permits.[296] And in Ohio, a 2015 report on CAFOs in the Western Lake Erie Watershed found that since 2008, seven dairy CAFOs discharged on at least 44 occasions.[297] According to the Ohio Environmental Protection Agency, none of these CAFOs currently have NPDES permits.[298] These findings likely represent only a small percentage of the total number of unpermitted discharges, as CAFO discharges usually are unplanned or intermittent,[299] and there is no reason to believe that an unplanned or intermittent discharge would be especially likely to coincide with an inspection.

2. EPA and State Agencies Are Failing to Enforce the CWA's Prohibition on Unpermitted Discharges.

Not only does EPA's permitting approach fail to require NPDES permits for discharging CAFOs, but EPA also fails to enforce the CWA's prohibition on unpermitted discharges, in contravention of the CWA. Indeed, the Agency admits that "EPA and state permitting agencies lack the resources to regularly inspect [CAFOs] to assess" whether discharges are occurring, and its existing regulations "make it difficult to compel permit coverage, limit the discharge of pollutants under certain circumstances, and enforce requirements even when discharges have been established."[300] According to a 2016 report, EPA "decreased the number of federal inspections and enforcement actions against [CAFOs] every year" from 2012 to 2015.[301] During that period, the number of EPA inspections at CAFOs dropped from 291 to 141, and the number of enforcement actions fell from 55 to 26.[302] Yet there is no reason to believe that discharges declined during this time. As the report concluded, "[t]he decline is steady, reflecting a trend and not a one-year anomaly."[303] Indeed, given the agency-wide reduction in enforcement from

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[296] *See* Letter from Jean Mendoza, Exec. Director, Friends of Toppenish Creek to Chery Sullivan, Director, Dairy Nutrient Mgmt. Program, Wash. State Dep't of Agric. 2 (Dec. 27, 2019), attached as Exhibit 20.
[297] *See Follow the Manure: Factory Farms and the Lake Erie Algal Crisis* 15, Tbl. 4 (2015), https://drive.google.com/file/d/0B9i1r38NLgy9TkhYdUgwWVhRUEE/view?resourcekey=0-guzNJUhVf7n_OC0heFaXfA.
[298] *See* Ohio Env't Protection Agency, *Concentrated Animal Feeding Operations*, https://epa.ohio.gov/divisions-and-offices/surface-water/permitting/concentrated-animal-feeding-operations#:~:text=You%20are%20also%20responsible%20for,expiration%20date%20of%20your%20permit (listing each CAFO with an NPDES permit).
[299] *See infra* Section IV.C.
[300] *See* EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.
[301] Brett Walton, *Preventing CAFO Water Pollution Not an EPA Priority*, Circle of Blue (Jan. 22, 2016), https://www.circleofblue.org/2016/world/67739/.
[302] *Id.*
[303] *Id.*

2017 to 2020,[304] the trend in declining CAFO inspections and enforcement actions has certainly continued and accelerated.

Like EPA, state agencies administering NPDES programs do not adequately enforce the prohibition on unpermitted discharges. For example, in 2010, EPA released a report finding that the Illinois Environmental Protection Agency "fails to act in a timely and/or appropriate way in response to violations of NPDES program requirements" by CAFOs.[305] In 2012, EPA released another report finding that the Iowa Department of Natural Resources ("IA DNR") failed to act in response to CWA violations by CAFOs in nearly half of the cases EPA reviewed, and IA DNR failed to assess adequate penalties for CWA violations by CAFOs.[306] And, a recent analysis of records from the Missouri Department of Natural Resources ("MO DNR") concerning the 21 swine CAFOs currently owned and operated by Smithfield Foods ("Smithfield") in Missouri found that "[MO DNR's] enforcement efforts appear to have decreased markedly since . . . 2006."[307] Similarly, an analysis of records from the Washington State Department of Ecology found that the agency rarely takes enforcement action in response to complaints about air and water pollution from dairy cow CAFOs and fails to require discharging CAFOs to obtain NPDES permits.[308]

Community members confirm these findings. For example, the Dodge County, Minnesota resident reports that she filed a complaint with the Minnesota Pollution Control Agency ("MPCA") after witnessing a CAFO operator overapply manure on frozen ground, which creates a significant risk of discharge, but MPCA did not investigate her complaint.[309] A resident of Grant County, South Dakota—whose home is surrounded by six CAFOs—says that "[t]here is little oversight of CAFOs in South Dakota" and "there are little or no inspections or

[304] *See* Env't Integrity Project, *New EPA Enforcement Data Show Continued Downward Trend During Trump Administration* (2021), https://environmentalintegrity.org/news/epa-enforcement-data-downward-trend-during-trump-administration/.
[305] EPA Region 5, *Initial Results of an Informal Investigation of the National Pollutant Discharge Elimination System Program for Concentrated Animal Feeding Operations in the State of Illinois* 27 (2010), https://archive.epa.gov/region5/illinoisworkplan/web/pdf/iepa_cafo-report.pdf.
[306] *See* Env't Integrity Project, *EPA Report: Iowa Factory Farm Program Shown to Violate Federal Clean Water Act* (July 13, 2012), https://environmentalintegrity.org/news/epa-report-iowa-factory-farm-program-shown-to-violate-federal-clean-water-act/; *see also* Exhibit 15 ¶ 13 (explaining that IA DNR "fails to take adequate enforcement actions against CAFOs when they pollute waterways"). Though the reports in this section do not distinguish between enforcement actions against unpermitted discharges and those against permit violations, these general enforcement failures strongly suggest that EPA and state agencies are failing to take enforcement actions against unpermitted discharges.
[307] *See* Scott Dye, Socially Responsible Agric. Project, *The Rap Sheet on* Smithfield's *Industrial Hog Facilities in Missouri* 12–71 (2022), https://sraproject.org/1/smithfieldmorapsheet/#:~:text=The%20Rap%20Sheet%20on%20Smithfield's%20Industrial%20Hog%20Facilities%20in%20Missouri,-Share&text=SRAP%20reviewed%20three%20decades%20of,land%20and%20waterways%20across%20Missouri (press "Read the Rap Sheet Hyperlink").
[308] *See* Exhibit 20.
[309] *See* Exhibit 2 ¶ 18.

monitoring to detect spills."[310] And the Executive Director of Snake River Waterkeeper explains that CAFOs in Idaho "avoid operating under NPDES permits because the Idaho Department of Environmental Quality . . . does very little to monitor them or take enforcement actions against them when they discharge."[311] As a result of these weak enforcement efforts by EPA and state agencies, many CAFOs—including Large CAFOs—are able to discharge water pollution without NPDES permits, in violation of federal law, with little fear of being held accountable.

3. EPA's Approach Fails to Restore and Maintain the Nation's Waters.

Not only does EPA's approach to CAFO permitting fail to require that discharging CAFOs obtain NPDES permits or cease discharging, but it also fails to advance our national goal of restoring and maintaining water quality. Under EPA's approach, most Large CAFOs either lack water pollution permits altogether or operate under state laws and permits that typically are less protective of water quality than federal law and regulations governing NPDES permits.[312] Indeed, state laws and permits in California, Idaho, Illinois, Indiana, Iowa, Missouri, New York, North Carolina, and Washington—states where swine and dairy cow CAFOs are concentrated and most CAFOs operate under state laws or permits—all have components that are less stringent than federal law and regulations. Many of these less-stringent components fall into four categories: (1) practices for land application of waste, (2) requirements for monitoring to ensure that a CAFO doses not discharge, (3) provisions for agency review of nutrient management plans, and (4) opportunities for public review and comment on permits and nutrient management plans prior to permit issuance. Moreover, in Idaho, Illinois, and Iowa, not only are state laws less stringent, but they also allow CAFOs that do not operate under NPDES permits to operate without *any* permit to prevent water pollution.

First, some state laws and permits allow practices for the land application of waste that are less protective than federal requirements. One such practice is applying manure in close proximity to waterways. For example, in Idaho, Iowa, North Carolina, and Washington, CAFOs operating under state laws and permits are allowed to apply manure and other waste to fields less than 100 feet from surface waters under some circumstances.[313] In North Carolina, CAFOs sited or expanded prior to September 30, 1995 may apply waste up to 25 feet from streams or

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[310] Exhibit 4 ¶ 9.

[311] Decl. of Buck Ryan ¶ 11, attached as Exhibit 21.

[312] *See* EPA, *NPDES CAFO Permitting Status Report: National Summary, Endyear 2021, completed 07/20/22*, *supra* note 5. Although most states with a substantial number of pig and dairy cow CAFOs have low NPDES permit coverage, some states, including Michigan, Minnesota, and Wisconsin, have achieved high NPDES permit coverage. *See id.*

[313] *See* Iowa Admin. Code 567-65.3(3)(g)(1) (allowing CAFOs to apply waste within 200 feet from surface water if the manure is injected or incorporated into the soil on the same day as it was applied); *see also* N.C. Dep't of Env't Quality, Swine Waste Management System General Permit § I(12)(b)–(d) (April 12, 2019) (allowing land application as close as 25 feet from surface water for certain CAFOs). Idaho law does not set any limits on the distance between land application areas and surface water for dairy cow CAFOs.

waterbodies.[314] In Iowa, CAFOs may apply waste to the edge of waterbodies, provided that they inject or incorporate the waste into the soil.[315] In Washington, CAFOs may apply waste to the edge of waterbodies regardless of the application method.[316] And in Idaho, dairy cow CAFOs are not subject to any statewide prohibition on applying waste within 100 feet of surface waters. Under federal regulations, however, CAFOs operating under NPDES permits may not apply waste less than 100 feet from down-gradient surface water or conduits to surface water, regardless of the application method, unless there is a 35-foot vegetated buffer between the application area and the surface water where application is prohibited.[317] This restriction is necessary because land application close to surface waters is more likely to lead to discharges.[318]

In other states, CAFOs operating under state law and permits can apply waste at higher rates than CAFOs operating under NPDES permits. For example, in Illinois, CAFO operators are allowed to apply waste at rates based on the nitrogen needs of the crops averaged over a five-year period.[319] In other words, in any single year, they may apply *more* waste than is necessary to meet crops' nitrogen needs. By contrast, federal regulations prohibit CAFOs operating under NPDES permits from applying more nitrogen than crops can utilize.[320]

Similarly, in California's Central Valley, CAFO operators are allowed to apply waste at rates that exceed crops' phosphorus needs, until the applications cause "adverse impacts."[321] The Central Valley Regional Water Quality Control Board recognizes that excessive application rates can cause phosphorus to "build up in the soils and . . . cause adverse impacts," including "leav[ing] the land application area in surface runoff and contribut[ing] to excessive algae growth in receiving waters."[322] But CAFO operators are not required to prevent these adverse

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[314] *See* N.C. Dep't of Env't Quality, Swine Waste Management System General Permit § I(12)(b) (April 12, 2019).
[315] *See* Iowa Admin. Code 567-65.3(3)(g)(1) (allowing CAFOs to apply waste within 200 feet from surface water if the manure is injected or incorporated into the soil on the same day as it was applied).
[316] *Compare* State of Wash. Dep't of Ecology, National Pollutant Discharge Elimination System and State Waste Discharge General Permit S4.M. (Jan. 18, 2017) (prohibiting CAFOs from applying waste less than 100 feet from down-gradient surface water or conduits to surface water unless certain conditions are satisfied), *with* State of Wash. Dep't of Ecology, State Waste Discharge General Permit (Jan. 18, 2017) (containing no prohibition on applying waste less than 100 feet from down-gradient surface water or conduits to surface water).
[317] *See* 40 C.F.R. § 412.4(c)(5).
[318] EPA, *NPDES Permit Writers' Manual for Concentrated Animal Feeding Operations* 5-32 (2012), https://www.epa.gov/sites/default/files/2015-10/documents/cafo_permitmanual_entire.pdf. (explaining that the federally required 100-foot setback from waterbodies "reduces pollution by increasing the distance pollutants in land-applied manure, litter or process wastewater has to travel to reach surface water bodies").
[319] *See* 510 Ill. Comp. Stat. 77/20(f)(4).
[320] *See* 40 C.F.R. § 122.42(e)(1)(viii).
[321] Cal. Regional Water Quality Control Board, Central Valley Region, Order R5-2013-0122, Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies, Attach. C, at C-11.
[322] *Id.* at C-11–12.

impacts from occurring; they are required to stop applying waste at rates above crops' phosphorus needs only *after* the adverse impacts have occurred.[323] Federal regulations require CAFOs operating under NPDES permits to take greater precautions when applying waste at rates above crops' phosphorus needs. Under federal regulations, CAFO operators can apply waste at rates above phosphorus needs for one year, but they must not apply *any* additional waste to the crops in subsequent years, until the phosphorus has been removed by harvest and crop removal.[324] As California recognizes, allowing CAFOs to apply waste at higher rates increases the likelihood of discharges.

Second, some state laws and permits have less stringent requirements for monitoring CAFO waste storage structures to ensure that they do not breach or overflow. Under Idaho state law, CAFO operators are not required to inspect waste storage structures at any specific intervals.[325] Under Iowa state law, CAFO operators are required to inspect earthen waste storage structures only "at least semiannually."[326] And under North Carolina state permits, CAFO operators are required to inspect waste storage structures only "at least monthly and after all storm events of greater than one (1) inch in 24 hours."[327] Under federal regulations, by contrast, CAFO operators must inspect waste storage structures weekly and note the level of the waste stored in the structure.[328] As the Ninth Circuit Court of Appeals has held, these federal inspection requirements are, in effect, monitoring requirements, and they help ensure that a CAFO will not discharge from a waste storage structure.[329]

Third, some state laws and permits have weaker requirements for agency review of "nutrient management plans," which CAFOs should use to plan for the storage and disposal of manure and other waste, thereby reducing the likelihood of discharges. Unlike CAFOs operating under federal regulations,[330] CAFOs operating under state law or permits in California's Central Valley, Illinois, New York, and Washington generally do not have to submit their nutrient management plans to the permitting agency for review.[331] But impartial agency review is

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[323] *Id.* at C-11.
[324] *See* 40 C.F.R. § 412.4(b)(3), (c)(2)(ii).
[325] *See* Idaho State Dep't of Agric., *Nutrient Management Plan for Example Dairy Farm* 10 (1998), https://agri.idaho.gov/main/wp-content/uploads/2017/12/ExamplePlan.pdf (noting only that "[c]ontinual inspection and maintenance of waste handling facilities and equipment will prevent unwarranted waste discharges into surface water and groundwater").
[326] Iowa Admin. Code r. 65.15(15)(b).
[327] *See* N.C. Dep't of Env't Quality, Swine Waste Management System General Permit § III(1) (April 12, 2019).
[328] *See* 40 C.F.R. § 412.37(a)(1)(iii).
[329] *See Food & Water Watch v. EPA*, 20 F.4th 506, 516–17 (9th Cir. 2021).
[330] *See* 40 C.F.R. § 122.23(h)(i).
[331] In California, New York, and Washington, CAFO operators do not have to submit their nutrient management plans to the permitting agency at all. In Illinois, only CAFO operators that confine more than 13,350 breeding swine or 45,450 swine for slaughter have to submit their nutrient management plans. *See* 510 Ill. Comp. Stat. 77/20(b)–(d).

essential to ensuring both that CAFOs actually develop nutrient management plans and that those plans are adequate to prevent discharges.[332] In addition, failing to require agency review increases the likelihood that nutrient management plans will remain hidden from the public, as plans in the possession of CAFO operators, unlike plans in the possession of state agencies, likely are not subject to disclosure under public records laws.

Fourth, some states do not provide for public review and comment on permits and nutrient management plans prior to permit issuance. In California's Central Valley, Idaho, Illinois, Indiana, Iowa, Missouri, New York, North Carolina, and Washington, CAFOs operating under state law and permits are not required to make their nutrient management plans available for public review and comment, unlike CAFOs applying to operate under NPDES permits.[333] This difference prevents the public from identifying aspects of a nutrient management plan that are insufficient to protect local waterways, and it also reduces transparency around the plans. In addition, in California's Central Valley, New York, and North Carolina, state law does not provide for public review and comment on CAFO construction permits or water pollution control permits. In those areas, the public cannot provide input on a proposed CAFO before permit issuance, and it has little access to information on the CAFO.

In addition to allowing the less-stringent provisions above, Idaho, Illinois, and Iowa further weaken protections for water quality by allowing CAFOs that do not operate under NPDES permits to operate without *any* water pollution control permits. Permitting systems help protect water quality by making applicable laws and regulations more accessible to CAFO operators and community members. Permits generally reflect a compilation of the laws and regulations that govern a CAFO's operations. Collecting the relevant provisions in a single document that a CAFO operator typically must maintain on site makes it easier for a CAFO operator to consult and adhere to provisions meant to prevent water pollution.[334] When permits are made publicly available, community members are better able to access those provisions and ensure that CAFOs comply with them. Permitting systems also help protect water quality by periodically requiring CAFO operators to provide updated information to state agencies and confirm that they continue to operate in accordance with state laws and regulations. If CAFO operators modify their facilities, they generally must notify the permitting agency, which allows the agency to confirm that the CAFO is still in compliance with the permit's requirements for

[332] *See Waterkeeper All., Inc.*, 399 F.3d at 502 (explaining that a decision not to require agency review of nutrient management plans constitutes failure to "ensure that . . . CAFOs will, in fact, develop nutrient management plans—and waste application rates—that comply with all applicable . . . limitations and standards").
[333] *See* 40 C.F.R. § 122.23(h)(1).
[334] *See, e.g.*, N.Y. Dep't of Env't Conservation, ECL SPDES General Permit for Concentrated Animal Feeding Operations § IV.F.1. (July 22, 2022) (requiring CAFO owners or operators to maintain a copy of the state permit on site).

preventing water pollution.[335] In addition, when a state permit expires, the permitting agency typically issues a renewed permit and requires all CAFOs to reapply for coverage under the renewed permit.[336] CAFOs must resubmit information about their operations and confirm that they are complying with the renewed permit. As discussed below, this information helps state agencies ensure that CAFOs are not discharging water pollution.[337]

Inadequately protective measures in state law and permits have had devastating consequences for the quality of our nation's waters, resulting in contaminated surface water and drinking water in areas where CAFOs are concentrated. For example, a recent study concluded that "[u]nregulated animal factory farms [in Ohio, Indiana, and Michigan] are funneling nutrient-rich pollution into Lake Erie, feeding an enormous toxic algae bloom each summer."[338] Harmful algal blooms also plague the Finger Lakes in New York,[339] which are surrounded by many Large dairy cow CAFOs operating without NPDES permits.[340] In Iowa, the Raccoon River was included in a 2021 inventory of America's most endangered rivers in light of "the grave threat that factory farms and industrial agricultural pollution [in this watershed] pose" to the river.[341] Likewise, in Indiana, 73 percent of the state's river and stream miles are designated as unsafe for recreation.[342] The Indiana Department of Environmental Management lists *E. coli* as the top source of impairment, and it names CAFOs as a significant source of the *E. coli* contamination.[343] And, as discussed below, water pollution in North Carolina and California's Central Valley has been linked to CAFOs in those states.[344] Indeed, NC DEQ has concluded that "[t]he land application of waste . . . is contributing to runoff of nutrients to the nutrient sensitive

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[335] *See* N.C. Dep't of Env't Quality, Swine Waste Management System General Permit § I(6) (April 12, 2019).
[336] *See, e.g.*, *id.* § V(9).
[337] *See infra* Section IV.C.
[338] Env't Working Grp., *Investigation: Manure from Unregulated Factory Farms Fuels Lake Erie's Toxic Algae Blooms* (Apr. 9, 2019), https://www.ewg.org/news-insights/news-release/investigation-manure-unregulated-factory-farms-fuels-lake-eries-toxic.
[339] *See* Citizen staff, *Harmful Algal Blooms Proliferate in Owasco, Skaneateles Lakes*, The Citizen (Aug. 28, 2021), https://auburnpub.com/news/local/harmful-algal-blooms-proliferate-in-owasco-skaneateles-lakes/article_e5fb11e3-e323-5c01-a04b-a0fafdd81051.html.
[340] *See* N.Y. State Dep't of Env't Conservation, Map of Concentrated Animal Feeding Operations in New York State, https://www.dec.ny.gov/permits/36895.html (last accessed May 7, 2022).
[341] Am. Rivers, *Raccoon River Named Among America's Most Endangered Rivers*, https://www.americanrivers.org/conservation-resource/raccoon-river-named-among-americas-most-endangered-rivers/#:~:text=Raccoon%20River%20named%20among%20America's%20Most%20Endangered%20Rivers,-Factory%20farm%20pollution&text=Washington%2C%20D.C.%20%E2%80%93%20Today%2C%20American,pose%20to%20drinking%20water%20supplies.
[342] *See* Env't Integrity Project, *The Clean Water Act at 50: Promises Half Kept at the Half-Century Mark* 33 (2022), https://environmentalintegrity.org/wp-content/uploads/2022/03/CWA@50-report-EMBARGOED-3.17.22.pdf.
[343] *Id.* at 34.
[344] *See infra* Section III.B.1.b.

waters of the Neuse [River]" and, as a result CAFOs "are having a significant negative impact on the Neuse River water quality."[345]

B. EPA's Current Approach to Permitting Large CAFOs Using Wet Manure Management Systems Fails to Implement Executive Orders Dedicated to Advancing Environmental Justice.

Not only does EPA's approach to permitting Large CAFOs using wet manure management systems violate the CWA, but it also fails to implement executive orders dedicated to advancing environmental justice. EPA has acknowledged that "[it] is aware of a growing body of literature suggesting that the communities disproportionately impacted by CAFOs are communities of color and economically disadvantaged communities."[346] In fact, as discussed below, ample well-established and emerging evidence shows that CAFOs disproportionately harm environmental justice communities across this country. EPA has also acknowledged that Executive Orders 12,898 and 14,008 require federal, state, and local environmental permitting programs to "integrate environmental justice . . . into relevant environmental permitting processes."[347] Despite this evidence, EPA's approach to permitting Large CAFOs using wet manure management systems fails to implement the environmental justice initiatives in Executive Orders 12,898 and 14,008.

1. CAFOs Disproportionately Harm Environmental Justice Communities.

As Judge Wilkinson of the U.S. Court of Appeals for the Fourth Circuit acknowledged when assessing claims brought by North Carolina residents against a Large swine CAFO, "[i]t is well-established—almost to the point of judicial notice—that environmental harms are visited disproportionately upon . . . minority populations and poor communities." *McKiver v. Murphy-Brown, LLC*, 980 F.3d 937, 982 (4th Cir. 2020) (Wilkinson, J., concurring).[348] As discussed below, decades of evidence supports this conclusion. Further, new data confirm that CAFOs in North Carolina, California's Central Valley, and Iowa are located disproportionately in communities of color, low-income communities, and under-resourced rural communities. And additional evidence indicates that CAFO pollution harms environmental justice communities.

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[345] Nora Deamer, N.C. Dep't of Env't & Nat. Res., *Neuse River Basinwide Water Quality Plan*, 360 (2009), https://deq.nc.gov/media/4220/download.

[346] *See* EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.

[347] EPA, *Interim Environmental Justice and Civil Rights in Permitting Frequently Asked Questions*, *supra* note 26, at 1.

[348] In *McKiver v. Murphy-Brown*, the Fourth Circuit held that the CAFO's use of a lagoon-and-sprayfield waste management system, "dead boxes" to collect dead swine, and persistent and unconstrained truck traffic was sufficient evidence to support an award of punitive damages. *Id.* at 965–68 (majority opinion).

a. CAFOs Are Located Disproportionately in Environmental Justice Communities.

Decades of well-established evidence shows that CAFOs disproportionately burden people living in environmental justice communities. For example, a 2000 study found that swine CAFOs in North Carolina were located disproportionately in communities with higher levels of poverty, higher proportions of nonwhite people, and higher dependence on wells for household water supply.[349] The study also found that operations run by corporate integrators—that is, corporations that own the animals and establish the confinement conditions that CAFO operators then implement—are more concentrated in poor and nonwhite areas than operations run by independent operators.[350] A 2002 study found that swine CAFOs in Mississippi were located disproportionately in Black communities and low-income communities.[351] Similarly, a 2013 study found that CAFOs in Ohio disproportionately harmed Black and Hispanic residents, as well as low-income residents.[352] And a 2014 study found that swine CAFOs in North Carolina were located disproportionately near Black, Hispanic, and American Indian residents.[353] In 2017, in response to a complaint under Title VI of the Civil Rights Act of 1964 alleging that North Carolina's permitting program for swine CAFOs has discriminatory impacts, EPA expressed "deep concern about the possibility that African Americans, Latinos, and Native Americans have been subject to discrimination" as a result of North Carolina's permitting program.[354] Thus, it is clear that CAFOs have long been a source of environmental injustice across the country.

A recent study of data from North Carolina, California's Central Valley, and Iowa builds on this evidence and confirms this conclusion. To Petitioners' knowledge, this is the first study to describe the disproportionate burdens that CAFOs impose on environmental justice

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[349] *See* Steve Wing et al., *Environmental Injustice in North Carolina's Hog Industry*, 108 Env't Health Persps. 225, 229 (2000); *see also* Gary R. Grant & Steve Wing, *Hogging the Land*, RP&E J., https://reimaginerpe.org/node/164.

[350] *See* Wing et al., *supra* note 349, at 225.

[351] *See* Sacoby M. Wilson et al., *Environmental Injustice and the Mississippi Hog Industry*, 110 Env't Health Persps. 195, 199 (2002).

[352] *See* Julia Lenhardt & Yelena Ogneva-Himmelberger, *Environmental Injustice in the Spatial Distribution of Concentrated Animal Feeding Operations in Ohio*, 6 Env't Just.133 (2013).

[353] *See* Steve Wing & Jill Johnston, Univ. N.C. at Chapel Hill, *Industrial Hog Operations in North Carolina Disproportionately Impact African-Americans, Hispanics and American Indians* 1 (2014), attached as Exhibit 22; *see also* Ji-Young Son et al., *Distribution of Environmental Justice Metrics for Exposure to CAFOs in North Carolina, USA*, 195 Env't Rsch. 110862, 110862 (2021) (finding that CAFOs in North Carolina are located disproportionately in communities of color and low-income communities).

[354] Letter from Lilian S. Dorka, Director, External Civil Rights Compliance Off., EPA, to Wiliam G. Ross, Jr., Acting Secretary, N.C. Dep't of Env't Quality, at 1 (Jan. 12, 2017) ("EPA Letter of Concern"), https://www.epa.gov/sites/default/files/2018-05/documents/letter_of_concern_to_william_g_ross_nc_deq_re_admin_complaint_11r-14-r4_.pdf.

communities in the Central Valley. The study assessed the relationship between the presence of one or more Large CAFOs in a census block and the race and ethnicity of the population in the census block in order to identify disparities in exposure to pollution from Large CAFOs.[355] It also examined CAFO exposure disparities by income, rurality, and social vulnerability. As described in greater detail below, the study concluded that in North Carolina and California's Central Valley, Large CAFOs are disproportionately located in communities of color and low-income communities. And in Iowa, over 7,500 CAFOs—including 3,443 Large CAFOs—burden the state's most rural areas, which span the vast majority of the state and are characterized by a lack of easy access to grocery stores, physicians, and hospitals.[356] In these parts of Iowa, pollution from thousands of Large CAFOs poses a serious risk to almost all residents, especially elderly residents, and it has fundamentally changed the character of rural communities.

In North Carolina, Large swine CAFOs are located disproportionately in communities of color. The percent of people of color[357] living within three miles of a Large swine CAFO in North Carolina is 1.42 times higher than the percent of non-Hispanic Whites.[358] More specifically, the percent of Black, Hispanic, and American Indian[359] residents living within three miles of a Large swine CAFO is 1.42, 1.57, and 2.20 times higher, respectively, than the percent of non-Hispanic Whites.[360] These population statistics translate to tens of thousands of people at risk. If people of all races and ethnicities in the North Carolina study area were exposed to Large swine CAFOs at the same rate, then approximately 53,000 fewer Black residents, 29,400 fewer Hispanic residents, and 16,000 fewer American Indian residents would live within three miles of a Large swine CAFO.[361]

[355] *See* Quist Report at 1.
[356] The study measured rurality using a geographic isolation scale that classifies census tracts according to their access to resources such as food, healthcare, and internet. *Id.* at 4; *see* Nathan J. Doogan et al., *Validation of a New Continuous Geographic Isolation Scale: A Tool for Rural Health Disparities Research*, 215 Social Sci. & Med. 123, 128 (2018).
[357] In the study, the term "people of color" refers to all people who identified as Hispanic and/or one or more non-White race. Quist Report at 4.
[358] *Id.* at 5.
[359] The term "Black" includes residents who identified only as Black, as well as those who identified as Black and another racial or ethnic group. *Id.* at 3–4. The same is true for the terms "Hispanic" and "American Indian." *Id.*
[360] *Id.* at 5.
[361] *Id.*

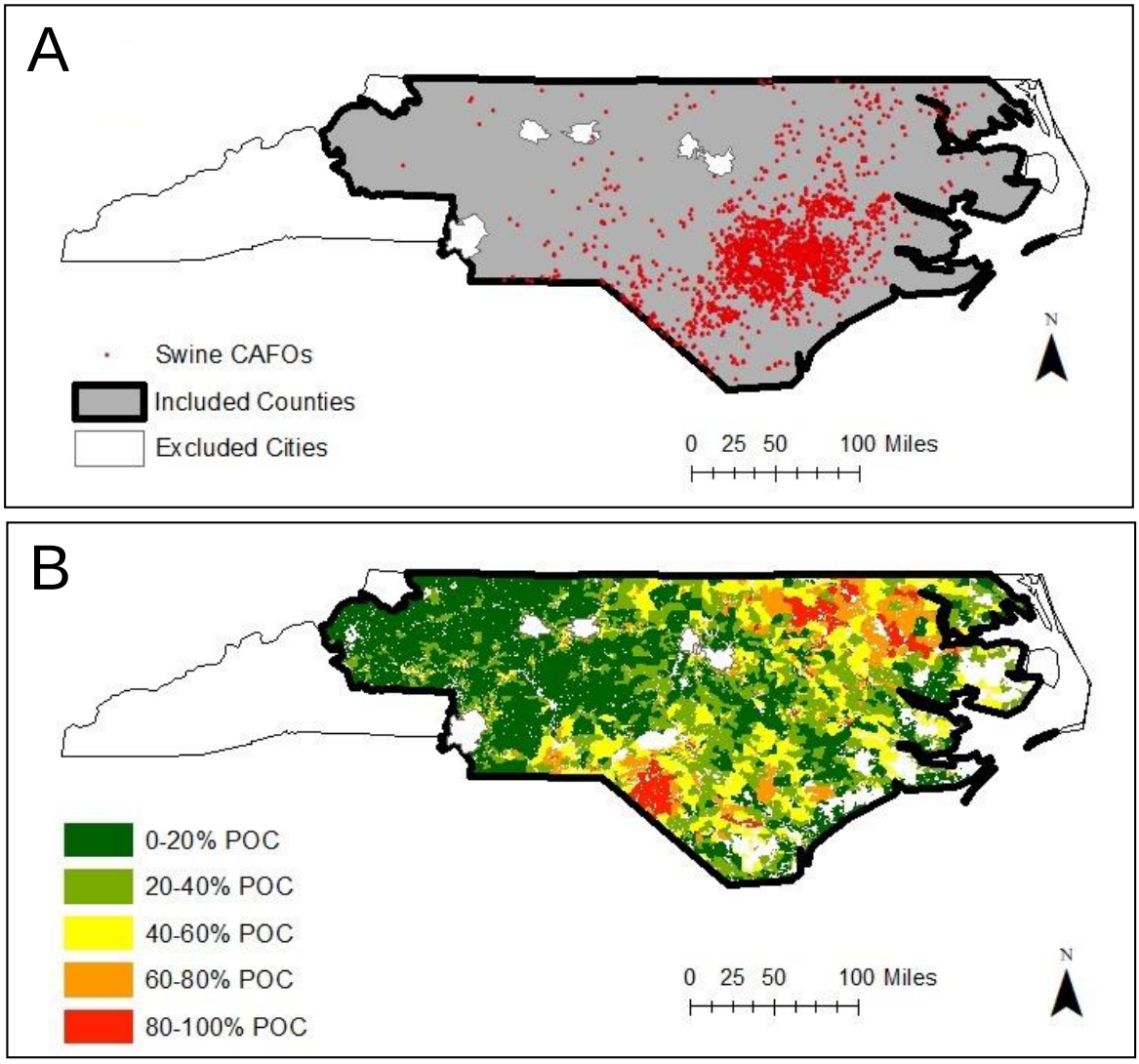

Figure Nine. North Carolina (A) swine CAFOs and (B) census blocks categorized by people of color ("POC"). The largest five cities in North Carolina (populations>250,000) and counties that do not contain swine CAFOs and do not neighbor counties with swine CAFOs were excluded from the study area and analysis. Swine CAFOs are concentrated in eastern North Carolina, where the percent of POC is higher than in central and western North Carolina.[362]

In addition, Large swine CAFOs in North Carolina are located disproportionately in low-income census blocks—that is, census blocks in which more than 35 percent of households fall below the 200 percent poverty level.[363] The percent of North Carolina residents in low-income census blocks living within three miles of a Large swine CAFO is 15 times higher than the

[362] *Id.* at 12.
[363] *See id.* at 6.

percent of residents in higher-income census blocks, where fewer than 20 percent of households are below the 200 percent poverty level.[364]

Like swine CAFOs in North Carolina, Large dairy cow CAFOs in California's Central Valley disproportionately burden communities of color. There, the percent of people of color living within three miles of a Large dairy cow CAFO is 1.29 times higher than the percent of non-Hispanic Whites.[365] Specifically, the percent of Hispanic and American Indian residents living within three miles of a Large dairy cow CAFO is 1.54 and 1.15 times higher, respectively, than the percent of non-Hispanic Whites.[366] If Hispanic people in the Central Valley were exposed to Large dairy cow CAFOs at the same rate as White non-Hispanic people, then approximately 227,600 fewer Hispanic people would live within three miles of a Large dairy cow CAFO.[367]

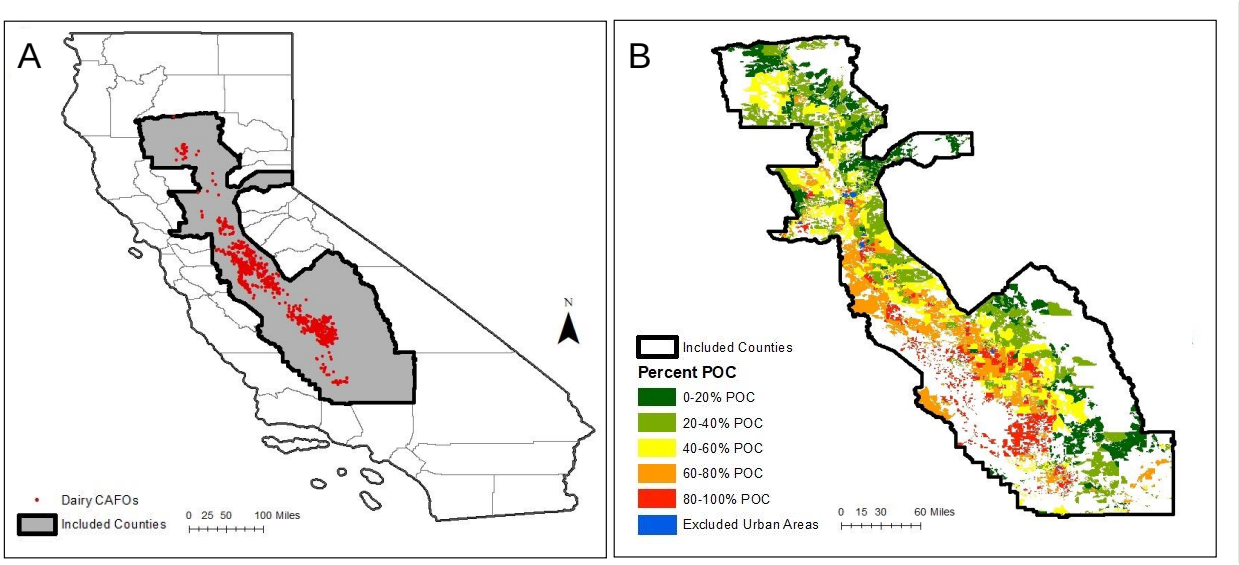

Figure Ten. California (A) dairy cow CAFOs and (B) census blocks categorized by people of color ("POC") within study area. Urban areas and counties that do not contain CAFOs were excluded from the study area and analysis. Dairy cow CAFOs in California tend to be located in areas with a higher percent of POC.[368]

Not only do Large dairy cow CAFOs in the Central Valley disproportionately burden communities of color, but they also disproportionately burden low-income communities. The

[364] *Id.* at 6.
[365] *Id.* at 5.
[366] *Id.*
[367] *Id.*
[368] *Id.* at 10.

percent of residents in low-income census blocks living within three miles of a Large dairy cow CAFO is 2.5 times higher than the percent of residents in higher-income census blocks.[369]

In Iowa, where the population is predominately White and over 7,500 swine CAFOs are spread across the state, harms from CAFOs especially burden the most rural areas, which make up the vast majority of the state and are where residents have the least access to grocery stores, physicians, and hospitals. In Iowa, 7,528 CAFOs, including 3,443 Large CAFOs—that is, 99.07 percent of all CAFOs and 99.48 percent of all Large CAFOs—are located in the most rural census tracts.[370] In the most rural and isolated Iowa census tracts, 80.54 percent of the population—over 1.1 million people—lives within three miles of a CAFO, and 66.68 percent of the population lives within three miles of a Large CAFO.[371]

In addition to burdening very rural communities, Large swine CAFOs in Iowa tend to be located near older residents. Areas in Iowa that have a higher-than-average percent of the population aged 70 and older have a larger proportion of the population living within three miles of a Large CAFO, compared to areas where the population is younger.[372]

Thus, for many elderly Iowans and over one million Iowans with limited access to food and healthcare, CAFO air and water pollution—which can spread for miles[373]—is likely inescapable and poses serious risks. Because CAFO pollution is linked to serious health problems,[374] it is a particular threat to older residents and residents who have the least access to physicians and hospitals. And because CAFO odors often prevent community members from engaging in gardening,[375] it is an especially large burden on people who have the least access to grocery stores. CAFO pollution also disrupts the way of life that inspires many people to live in rural communities.

The concentration of CAFOs in isolated areas in Iowa likely leads to further isolation in these communities. A recent report found that in Iowa, "[c]ounties that sold the most hogs and those with the largest farms suffered declines across several economic indicators—including real median household income and total wage jobs" and "also experienced significant population

[369] *Id.* at 6.
[370] *Id.* at 18, Tbl. 4.
[371] *Id.* at 17, Tbl. 3.
[372] *Id.* at 6.
[373] *See* Thu et al., *supra* note 143, at 13; *see also* Mirabelli et al., *supra* note 145, at e70.
[374] *See supra* Sections I.A. & I.B.
[375] *See supra* Section I.B.1.

decline—twice the rate of Iowa's more rural counties."[376] This report builds on previous research showing that CAFOs adversely affect property values in Iowa and across the country.[377]

b. CAFO Pollution Is Causing Harm in Environmental Justice Communities.

Not only are CAFOs disproportionately located in environmental justice communities, but they are also polluting the water and air and harming human health in those communities. For example, in a study of watersheds with active CAFOs in Eastern North Carolina, researchers found "measurable CAFO effects on water quality" in most watersheds.[378] The researchers concluded that "it is apparent that land-applications of waste manure at swine CAFOs" caused ion and nutrient pollution in the watersheds.[379] This water pollution can harm human health and wildlife, prevent people from enjoying an area's waterways, and damage local economies. In addition, a study of areas downwind of swine CAFOs in North Carolina found ammonia concentrations that were up to three times higher than average.[380] Exposure to ammonia can cause severe coughing, chronic lung disease, and chemical burns to the respiratory tract, skin, and eyes.[381]

North Carolina's CAFOs have harmed community members' health. A recent study found that North Carolina residents who live near high densities of CAFOs have higher rates of all-cause mortality, infant mortality, mortality from anemia, kidney disease, tuberculosis, and septicemia, compared to residents who do not live near CAFOs.[382] Another recent study of North Carolina residents found that living near CAFOs is associated with increased rates of acute gastrointestinal illness, and the association is strongest in Black and American Indian communities.[383]

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[376] Food & Water Watch, *The Economic Cost of Food Monopolies: The Hog Bosses* 1–2 (2022), https://www.foodandwaterwatch.org/wp-content/uploads/2022/05/RPT2_2205_IowaHogs-WEB4.pdf.
[377] *See* Raymond B. Palmquist et al., *Hog Operations, Environmental Effects, and Residential Property Values*, 73 Land Econ. 114 (1997); *see also* Joseph A. Herriges et al., *Living with Hogs in Iowa: The Impact of Livestock Facilities on Rural Residential Property Values*, 81 Land Econ. 530 (2005) (finding a statistically significant relationships between proximity to swine CAFOs and lower property values, especially for residences downwind of operations).
[378] *See* Stephen L. Harden, *Surface-Water Quality in Agricultural Watersheds of the North Carolina Plain Associated with Concentrated Animal Feeding Operations* 50 (2015), https://pubs.usgs.gov/sir/2015/5080/pdf/sir2015-5080.pdf.
[379] *Id.* at 51.
[380] *See* Ogneva-Himmelberger et al., *supra* note 352, at 150.
[381] *Id.* at 151.
[382] *See* Julia Kravchenko et al., *Mortality and Health Outcomes in North Carolina Communities Located in Close Proximity to Hog Concentrated Animal Feeding Operations*, 79 N.C. Med. J. 278 (2018).
[383] *See* Arbor J.L. Quist et al., *Exposure to Industrial Hog Operations and Gastrointestinal Illness in North Carolina, USA*, 830 Sci. Total Env't 154823 (2022).

CAFO pollution is also harming environmental justice communities in California's Central Valley. In the San Joaquin Valley, which makes up the southern portion of the Central Valley, drinking water is highly contaminated with nitrates, and nitrate levels are especially high in majority-Hispanic communities.[384] As of 2019, CAFO land application areas constituted 88 percent of the lands in the San Joaquin Valley that contributed the highest amounts of nitrogen—a source of nitrates—to groundwater,[385] meaning that CAFOs likely bear significant responsibility for the drinking water contamination that disproportionately harms Hispanic communities. Confirming the connection between CAFOs and nitrate pollution, a recent report by a dairy industry group on groundwater quality near 42 dairy CAFOs in the Central Valley found that "elevated [nitrate] concentrations were present beneath all monitored dairies."[386] This contamination forces many Central Valley residents to pay for bottled water, with some spending 10 percent of their household income on drinking water.[387]

In addition, CAFO pollution is harming rural communities in Iowa. A study of private drinking wells in Iowa found unsafe levels of nitrate, coliform bacteria, and fecal coliform bacteria in thousands of wells, and almost 75 percent of the contaminated wells were in rural counties.[388] The study attributed the contamination to fertilizer and animal manure applied to fields.[389]

Algal blooms in Lake Erie, which are fueled by CAFO pollution, are contaminating drinking water in environmental justice communities.[390] A recent report found that of the 35 water systems that get their water from Lake Erie, eight systems serving 77 percent of all people who get water from Lake Erie served communities with a higher percentage of people of color than the state average.[391] In addition, 11 systems serving 78 percent of people served low-

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[384] *See* Ann Weir Schechinger, Env't Working Grp., *In California, Latinos More Likely to Be Drinking Nitrate-Polluted Water* (Oct. 7, 2020), https://www.ewg.org/interactive-maps/2020-california-latinos-more-likely-drinking-nitrate-polluted-water/.
[385] *See* Ellen Hanak et al., Public Policy Institute of California, *Water and the Future of the San Joaquin Valley* 9 (2019), https://www.ppic.org/wp-content/uploads/water-and-the-future-of-the-san-joaquin-valley-overview.pdf.
[386] Central Valley Dairy Representative Monitoring Program, *Summary Representative Monitoring Report (Revised*)* 6 (2019), https://leadershipcounsel.org/wp-content/uploads/2019/10/Dairy-report.pdf.
[387] *See* Twilight Greenaway, *California Dairy Uses Lots of Water. Here's Why It Matters*, Civ. Eats (June 30, 2022), https://civileats.com/2022/06/30/california-dairy-water-uses-climate-change-drought-pollution/?utm_source=Verified+CE+list&utm_campaign=837d1e83fc-EMAIL_CAMPAIGN_7_3_2018_8_13_COPY_01&utm_medium=email&utm_term=0_aae5e4a315-837d1e83fc-294264333.
[388] *See* Env't Working Grp., *Iowa's Private Wells Contaminated by Nitrate and Bacteria* (2019), https://www.ewg.org/interactive-maps/2019_iowa_wells/.
[389] *Id.*
[390] *See* Env't Working Grp., *Lake Erie's Annual Algae Outbreak Mostly Threatens Health of People in Disadvantaged Communities* (2021), https://www.ewg.org/news-insights/news/2021/08/lake-eries-annual-algae-outbreak-mostly-threatens-health-people.
[391] *Id.*

income communities.[392] Because of the harmful algal blooms, these communities are at risk of drinking water contaminated with bacteria that causes gastrointestinal issues and harms the kidney and liver.[393] In the wake of the 2014 algal bloom in Lake Erie, many residents of Toledo, Ohio—where the percentage of people of color is higher than the state average[394]—continued to avoid drinking tap water even five years later.[395]

In Yakima County, Washington, dairy CAFOs are harming environmental justice communities. Yakima County has a high proportion of low-income and Indigenous people and people of color.[396] In 2013, EPA issued a report that concluded that dairies in the Lower Yakima Valley, which includes Yakima County, were likely responsible for elevated nitrate levels in residential drinking wells.[397] And on a map of environmental health disparities in Washington State, Yakima County "is a big, red blemish" due, in part, to pollution from CAFOs.[398]

Further, ample evidence shows that many communities suffering disproportionate harm from CAFOs also are exposed to other pollution sources, which can worsen the human health and environmental problems associated with CAFOs. For example, in North Carolina, the same communities suffering from swine CAFO pollution are also overburdened by pollution from poultry CAFOs.[399] A 2019 report found that "82 million poultry are packed in between four million pigs" in Duplin and Sampson Counties, which together "are home to almost half of all the swine operations in North Carolina."[400] Like swine CAFOs, poultry CAFOs contaminate waterways and emit toxic air pollution.[401]

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[392] *Id.*
[393] *Id.*
[394] *Id.*
[395] *See* All. for the Great Lakes, *Five Years Later: Lessons From the Toledo Water Crisis* (Aug. 1, 2019), https://greatlakes.org/2019/08/five-years-later-lessons-from-the-toledo-water-crisis/.
[396] *See* Letter from Jennifer D. Calkins, Att'y & Diehl Fellow, Western Env't L. Center, et al., to Laura Watson, Dir., Wash. State Dep't of Ecology 4–5 (May 6, 2022), attached as Exhibit 23.
[397] *See* EPA, *Relation Between Nitrate in Water Wells and Potential Sources in the Lower Yakima Valley, Washington* ES-9 (2013), https://www.epa.gov/sites/default/files/2017-12/documents/lower-yakima-valley-groundwater-report-2013.pdf.
[398] *See* Esmy Jimenez, *New Map Shows Hotspots of Environmental Health Hazards for Washington Neighborhoods*, Nw. Pub. Broadcasting (Jan. 20, 2019), https://www.nwpb.org/2019/01/10/new-map-shows-hotspots-of-environmental-health-hazards-for-washington-neighborhoods/.
[399] *See* Soren Rundquist & Don Carr, Env't Working Grp., *Under the Radar: New Data Reveals N.C. Regulators Ignored Decade-Long Explosion of Poultry CAFOs* 3 (2019), https://www.ewg.org/research/under-radar.
[400] *Id.*
[401] *See* Env't Integrity Project, *Poultry Industry Pollution in the Chesapeake Region* 1 (2020), https://environmentalintegrity.org/wp-content/uploads/2020/04/Chesapeake-Poultry-Report-.pdf.

Adding to these burdens, CAFO operators in North Carolina have begun collaborating with energy companies on biogas projects,[402] which entrench the use of wet manure management systems at CAFOs—particularly Large CAFOs[403]—and exacerbate water and air pollution.[404] For example, USDA has concluded that "[c]ompounds such as nitrogen, phosphorus and other elements become more soluble due to [the biogas production process] and therefore have higher potential to move with water."[405] In other words, pollutants in the waste that remains after the biogas production process are even more likely to reach surface water and groundwater. In addition, waste pits used in biogas projects can breach or fail, just as other waste pits. For example, at a swine CAFO in North Carolina, a cover on a waste pit used in a biogas project ruptured, spilling at least 37,000 gallons of gelatinous gray foam into nearby wetlands.[406] In light of the pollution that biogas projects threaten, community groups in North Carolina have filed a complaint against NC DEQ under Title VI of the Civil Rights Act of 1964, contending that NC DEQ's issuance of four permits for biogas projects has discriminatory impacts on communities of color already overburdened by CAFO pollution.[407] EPA is investigating the complaint.[408]

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[402] *See* Michael Sainato & Chelsea Skojec, *The North Carolina Hog Industry's Answer to Pollution: A $500m Pipeline Project*, The Guardian (Dec. 11, 2020), https://www.theguardian.com/us-news/2020/dec/11/north-carolina-hog-industry-lagoons-pipeline; *see also* Phoebe Gittelson et al., *The False Promises of Biogas: Why Biogas Is an Environmental Justice Issue* 4 (2021), https://www.liebertpub.com/doi/epdf/10.1089/env.2021.0025.

[403] *See* Ruthie Lazenby, *Rethinking Manure Biogas* 24–25 (2022), https://www.vermontlaw.edu/sites/default/files/2022-08/Rethinking_Manure_Biogas.pdf.

[404] *See* Viney Aneja, et. al, *Characterizing Ammonia Emissions from Swine Farms in North Carolina: Part 2—Potential Environmentally Superior Technologies for Waste Treatment*, 58 J. Air & Waste Mgmt. Ass'n, 1145, 1156, Tbl. 4 (2008) (finding a 11.9 percent increase in ammonia emissions from an open secondary lagoon storing digester waste over an open lagoon storing conventional hog waste); *see also* Michael A. Holly et al., *Greenhouse Gas and Ammonia Emissions from Digested and Separated Dairy Manure During Storage and After Land Application*, 239 Agric., Ecosystems & Env't 410, 413 (2017) (finding that anaerobic digestion resulted in an 81 percent increase in ammonia emissions from waste storage pits); *see also* Exhibit 11 ¶ 16.

[405] USDA, Conservation Practice Standard, Anaerobic Digester, Code 366, at 366-CPS-6 (2017), https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1254996.pdf.

[406] *See* Adam Wagner, *Really Terrible Science Experiment Leads to Weeks-Long Spill from NC Hog-Waste Lagoon*, The News & Observer (Sept. 6, 2022), https://www.newsobserver.com/news/state/north-carolina/article264779224.html.

[407] *See* Letter from Blakely Hildebrand, Staff Attorney, Southern Env't Law Center, to Michel S. Regan, Administrator & Lilian Dorka, External Civil Rights Compliance Off., EPA 1 (Sept. 27, 2021), https://www.southernenvironment.org/wp-content/uploads/2021/09/2021-09-27-Title-VI-Complaint-Index-DEQ-Biogas-Permits.pdf.

[408] *See* Letter from Lilian S. Dorka, External Civil Rights Compliance Off., EPA, to Blakely Hildebrand, Staff Attorney, Southern Env't Law Center (Jan. 13, 2022), https://www.southernenvironment.org/wp-content/uploads/2022/01/2022.01.13-Final-CP-Acceptance-Ltr.-EPA-Complaint-No.-05RNO-21-R4-NCDEQ-copy.pdf.

Similar patterns are evident in California's Central Valley, where communities disproportionately burdened by CAFO pollution are also overburdened by air pollution from crop production, truck traffic, and oil drilling.[409] And there too, CAFO operators are launching biogas projects.[410]

2. EPA's Approach Fails to Implement Executive Order 12,898.

Officers of the executive branch "are duty-bound to give effect to the policies embodied in the President's direction, to the extent allowed by the law."[411] Thus, "if an executive agency . . . may lawfully implement [an] Executive Order, then it must do so."[412] Despite this clear standard and the Biden Administration's commitment to "ma[ke] achieving environmental justice a top priority,"[413] EPA's approach to CAFO permitting fails to implement the directives in Executive Order 12,898 for at least three reasons. *First*, EPA's approach fails to "collect, maintain, and analyze" information necessary to determine whether CAFOs "have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations."[414] *Second*, EPA's approach fails to "address . . . [the] disproportionately high and adverse human health [and] environmental effects" that CAFOs impose on environmental justice communities.[415] *Third*, EPA's approach fails to ensure that the public is able to participate in the CAFO permitting process.

First, EPA's approach to CAFO permitting does not allow the agency to collect, maintain, and analyze information necessary to show that CAFOs disproportionately harm environmental justice communities, despite clear indications that disproportionate harm exists.[416] As noted above, EPA's approach allows "[m]any CAFOs . . . to discharge [water pollution] without NPDES permits" in violation of federal law, instead allowing CAFOs to operate without water pollution permits or under state laws and permits.[417] However, these state laws and

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[409] *See* Brendan Borrell, *California's Fertile Valley is Awash in Air Pollution*, Mother Jones (Dec. 10, 2018), https://www.motherjones.com/environment/2018/12/californias-fertile-valley-is-awash-in-air-pollution/.
[410] *See* Michael Sainato, *California Subsidies for Dairy Cows' Biogas are a Lose-Lose, Campaigners Say*, The Guardian (Feb. 4, 2022), https://www.theguardian.com/environment/2022/feb/04/california-subsidies-biogas-dairy-cows-emissions-climate.
[411] *Bldg. & Constr. Trades Dep't v. Allbaugh*, 295 F.3d 28, 32 (D.C. Cir. 2002).
[412] *Id.* at 33; *see Sherley v. Sebelius*, 689 F.3d 776, 784–85 (D.C. Cir. 2012).
[413] The White House, *Biden-Harris Administration Outlines Historic Progress on Environmental Justice in Report Submitted to Congress* (May 23, 2022), https://www.whitehouse.gov/ceq/news-updates/2022/05/23/biden-harris-administration-outlines-historic-progress-on-environmental-justice-in-report-submitted-to-congress-2/.
[414] Exec. Order No. 12,898 § 3-302.
[415] *Id* §1-101.
[416] *See supra* Section III.B.1.
[417] *See* EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.

permits do not have standardized information collection requirements.[418] As a result, many states "lack critical data about operations' size, permit status, location, method of storing manure, animal type, and ownership."[419] Because EPA relies on states to collect this data,[420] their failure also affects EPA. And without comprehensive, facility-specific information on CAFOs, EPA more easily can turn a blind eye to the disproportionate burdens that CAFOs impose on environmental justice communities.

Second, EPA's approach to CAFO permitting fails to address the disproportionate burdens imposed by CAFOs. As shown above, EPA's approach allows discharging CAFOs to operate under state laws and permits that are less stringent than NPDES permits.[421] This under-permitting problem is present across the country, including in states where data shows that CAFOs disproportionately burden environmental justice communities. In North Carolina, for example, nearly 99 percent of Large CAFOs operate under state-law permits, rather than NPDES permits.[422] And, as discussed above, North Carolina's state-law permit contains provisions that are less stringent than federal requirements for CAFOs operating under NPDES permits.[423] CAFO operators in North Carolina are allowed to apply manure and other waste to fields less than 100 feet from surface waters, and they are not required to make their nutrient management plans available for public review and comment.[424] Thus, in North Carolina, not only are members of environmental justice communities more likely to live near CAFOs, but they also are more likely to live near CAFOs operating under permits that offer fewer protections against water pollution and less transparency.

The same is true in California's Central Valley. Nearly 87 percent of Large CAFOs in California operate under a state-law general order, rather than NPDES permits.[425] Because most CAFOs in California are concentrated in the Central Valley,[426] it follows that a significant number of Large CAFOs in the Central Valley operate under the state-law general order. And, as discussed above, that order contains provisions that are less stringent than federal

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[418] *See* Jon Devine & Valerie Baron, *CAFOs: What We Don't Know Is Hurting Us*, Nat. Res. Def. Council at 11–12 (2019), https://www.nrdc.org/sites/default/files/cafos-dont-know-hurting-us-report.pdf.
[419] *Id.* at 5.
[420] *See* National Pollutant Discharge Elimination System (NPDES) Concentrated Animal Feeding Operation (CAFO) Reporting Rule, 77 Fed. Reg. 42,679-01, 42, 681 (explaining that EPA will rely on the states for CAFO information).
[421] *See supra* Sections III.A.1. & III.A.3.
[422] *See* EPA, *NPDES CAFO Permitting Status Report: National Summary, Endyear 2021, completed 07/20/22*, *supra* note 5.
[423] *See supra* Section III.A.3.
[424] *Id.*
[425] *See* EPA, *NPDES CAFO Permitting Status Report: National Summary, Endyear 2021, completed 07/20/22*, *supra* note 5.
[426] *See* Sunghoon Baek & Charlotte D. Smith, *Potential Contaminant Runoff from California's Dairy Concentrated Animal Feeding Operations (CAFOs): A Geospatial Analysis*, 11 Int'l J. Water Res. & Env't Eng'g 1, 6 (2019).

requirements.[427] CAFO operators in California are allowed to apply waste at rates that exceed crops' phosphorus needs, even though the Central Valley Regional Water Quality Control Board recognizes that these rates can cause harmful algal blooms and other adverse impacts, and CAFOs are not required to make their nutrient management plans available for public review and comment.[428]

Third, EPA's approach to CAFO permitting limits community members' ability to participate in the CAFO permitting process. EPA's approach allows discharging CAFOs to operate under state laws and permits that, in addition to being less stringent than NPDES permits, also offer fewer opportunities for public participation. This is the case in both North Carolina and California's Central Valley. In both areas, CAFOs operating under state law and permits are not required to make their nutrient management plans available for public review and comment. As a result, under EPA's approach, the communities that disproportionately suffer as a result of CAFO pollution also have little say in decisions to monitor, reduce, or continue that pollution.

3. EPA's Approach Fails to Implement Executive Order 14,008.

EPA's approach to CAFO permitting also fails to implement Executive Order 14,008's directive that EPA strengthen enforcement of environmental violations with disproportionate impacts on environmental justice communities. As explained above, EPA admits that "EPA and state permitting agencies lack the resources to regularly inspect [CAFOs] to assess [whether discharges are occurring," and EPA's current regulations "make it difficult to compel permit coverage, limit the discharge of pollutants under certain circumstances, and enforce requirements even when discharges have been established."[429] In addition, under EPA's current approach, most CAFOs operate under state laws, which generally do not provide for citizen suits. This is the case in both North Carolina and California's Central Valley, where CAFOs disproportionately harm environmental justice communities.

Allowing discharging CAFOs to operate under state laws and permits that do not provide for citizen suits weakens enforcement against CAFOs. Without citizen suits, only permitting agencies can take enforcement actions when CAFOs violate a state law or permit. But, for the reasons detailed below, permitting agencies often lack the facility-specific information necessary to identify violations, and violations commonly are unplanned or intermittent.[430] Unlike permitting agencies, citizens who live near discharging CAFOs are well-suited to identify violations, as they can consistently observe the CAFOs' operations and typically are the first to experience harm associated with CAFO pollution. When citizens identify a violation of a NPDES permit, they can use citizen suits to "both spur and supplement government enforcement

[427] *See supra* Section III.A.3.
[428] *See supra* Section III.A.3.
[429] *See* EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.
[430] *See infra* Section IV.C.

actions."[431] Under EPA's approach, however, which allows many discharging CAFOs to operate without NPDES permits, citizens are left without this recourse.

IV. EPA SHOULD ADOPT A REBUTTABLE PRESUMPTION THAT LARGE CAFOs USING WET MANURE MANAGEMENT SYSTEMS ACTUALLY DISCHARGE POLLUTANTS.

To remedy its failure to satisfy its duties under the CWA and Executive Orders 12,898 and 14,008, EPA should adopt a rebuttable presumption that Large CAFOs using wet manure management systems actually discharge and, thus, must apply for NPDES permits. For the reasons that follow, the requested presumption is legally sound, and it will help ensure the objectives of the CWA and the environmental justice initiatives in Executive Orders 12,898 and 14,008, thereby protecting human health and the environment.[432]

A. EPA May Adopt Rebuttable Presumptions.

It is "well settled" that administrative agencies may establish presumptions.[433] An agency's presumption is lawful if there is "a sound and rational connection" between the proved facts, which trigger the presumption, and the inferred facts, which follow.[434] A sound and rational connection is present "when 'proof of one fact renders the existence of another fact so probable that it is sensible and timesaving to assume the truth of [the inferred] fact . . . until the adversary disproves it.'"[435] In other words, "the circumstances giving rise to the presumption must make it more likely than not that the [inferred] fact exists."[436]

A presumption is sensible and timesaving—and, therefore, appropriate—where the inferred fact is difficult to prove.[437] For example, in *United States Steel Corp. v. Astrue*, the U.S. Court of Appeals for the Eleventh Circuit upheld the Social Security Administration's ("SSA") rebuttable presumption that a beneficiary was employed in the coal industry and, thus, entitled to certain benefits, if the employer was a coal mine operator that had signed a national coal wage agreement and the employment occurred during the employer's participation in the agreement.[438]

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[431] *Waterkeeper All., Inc.*, 399 F.3d at 503 (quoting S. Rep. No. 50, 99th Cong., 1st Sess. 28 (1985)).
[432] *See NLRB v. Tahoe Nugget, Inc.*, 584 F.2d 293, 303 (9th Cir. 1978) (explaining that whether a presumption "ensures the [governing statute's] . . . objective" is a "secondary consideration supporting the presumption's continued vitality").
[433] *Chemical Mfrs. Ass'n,* 105 F.3d 702, 705 (D.C. Cir. 1997); *see also Cole v. U.S. Dep't of Agric.*, 33 F.3d 1263, 1267 (11th Cir. 1994) ("The law is well established that presumptions may be established by administrative agencies[.]").
[434] *Chemical Mfrs. Ass'n*, 105 F.3d at 705.
[435] *Id.* (quoting *NLRB v. Curtin Matheson Scientific, Inc.*, 494 U.S. 775, 788–79 (1990)) (some internal quotation marks omitted).
[436] *Nat'l Mining Ass'n. v. Babbitt*, 172 F.3d 906, 910 (D.C. Cir. 1999).
[437] *See USX Corp. v. Barnhart*, 395 F.3d 161, 172 (3d Cir. 2004).
[438] *See U.S. Steel Corp. v. Astrue*, 495 F.3d 1272, 1284 (11th Cir. 2007).

The court explained that there was a sound connection between the proved and inferred facts and that "the SSA's 'rebuttable presumption is a sensible response' to the difficulty of locating records that the worker was employed specifically in the coal industry[,] as the 'beneficiaries' personnel files can date back fifty to sixty years, and even a [worker]'s own employer can have difficulty retrieving them.'"[439] A presumption is also sensible and timesaving where, as here, the party against whom the presumption applies is well-positioned to rebut the presumption.[440]

Whether a presumption "ensures the [governing statute's] . . . objective" is a "secondary consideration supporting the presumption's continued vitality."[441] For example, in *National Labor Relations Board v. Tahoe Nugget, Inc.*, the Ninth Circuit upheld a presumption adopted by the National Labor Relations Board because there was a sound connection between the proved and inferred facts and, secondarily, because the presumption "ensure[d] the [National Labor Relations Act's] most valued objective: industrial peace."[442] The court explained that "[p]resumptions often function to further social, economic, or other policies, distinct from the fact presumed."[443]

EPA and other agencies commonly adopt rebuttable presumptions, and courts regularly uphold them. For example, in 2003, EPA adopted a rebuttable presumption concerning the designation of "nonattainment" areas under the Clean Air Act.[444] Under the presumption, "if any area within a metropolitan area exceeds the annual [air quality standard], then *all* areas within the metropolitan area presumptively 'contribute' to that violation . . . and therefore warrant 'nonattainment' designations."[445] EPA explained that it adopted the presumption after examining the geographic distribution of pollutant sources in some metropolitan areas and finding that they were distributed throughout the areas.[446] Thus, "[the] presumption reflects EPA's view that, in the absence of evidence to the contrary, violations of the [air quality standard] in urban areas may be presumed attributable at least in part to contributions from sources distributed throughout the Metropolitan Area."[447] Here, EPA has similar support for the requested presumption. Along with the following evidence showing that Large CAFOs using wet manure management systems actually discharge, EPA has examined some CAFOs and concluded that "[m]any . . . discharge without NPDES permits."[448] Thus, absent evidence to the

[439] *Id.* (quoting *USX Corp.*, 395 F.3d at 172).
[440] *See USX Corp.*, 395 F.3d at 172 (noting that the party against whom the presumption applied was "in a position to correct any misapprehensions").
[441] *NLRB v. Tahoe Nugget, Inc.*, 584 F.2d at 303.
[442] *Id.*
[443] *Id.* at 304.
[444] *See Catawba Cnty. v. EPA*, 571 F.3d 20, 25–27 (D.C. Cir. 2009).
[445] *Id.* at 27.
[446] *Id.* at 28.
[447] *Id.*
[448] EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.

contrary, EPA may presume that all Large CAFOs using wet manure management systems actually discharge.

In addition, EPA's regulations implementing the Resource Conservation and Recovery Act include a rebuttable presumption concerning the identification of hazardous waste.[449] And the Department of Transportation ("DOT") uses a rebuttable presumption to identify the cause of loose closures on railroad tank cars transporting hazardous materials.[450] Courts upheld both EPA's presumption regarding the designation of nonattainment areas and DOT's presumption regarding the cause of loose closures on railroad tank cars,[451] and EPA's presumption concerning the identification of hazardous waste has not been challenged.

B. There Is a Sound and Rational Connection Between Large CAFOs Using Wet Manure Management Systems and Actual Discharges.

As described above, CAFOs generate a tremendous amount of urine and feces.[452] CAFOs using wet manure management systems store urine, feces, and other wastewater in liquid form in vast pits or large tanks. These CAFOs often use pipes to transport the liquid waste from one location to another, and they typically dispose of the waste by applying it to fields. For the reasons that follow, using these practices to store, transport, and dispose of large amounts of liquid waste is almost certain to cause at least intermittent or sporadic discharges. Indeed, discharges regularly occur, causing serious harm to human health and the environment, and the effects of climate change increase the risk of additional, severe discharges in the future. Large CAFOs using standard storage, transport, and disposal practices to manage liquid waste are an especially significant source of water pollution. Thus, there is a sound and rational connection between Large CAFOs using wet manure management systems and actual discharges.

1. CAFOs Using Wet Manure Management Systems Discharge from Waste Storage Structures.

Extensive evidence shows that CAFOs using wet manure management systems release pollutants from waste storage structures into surface water and groundwater, because waste pits breach and overflow, waste tanks fail, and waste seeps out of storage pits. Provided that these pollutants reach navigable waters, which CAFO operators can address to rebut the presumption,

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[449] *See* 40 C.F.R. § 279.10(b)(1)(ii). The regulation provides that "[u]sed oil containing more than 1,000 [parts per million] total halogens is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste." *Id.*

[450] *See* 49 C.F.R. § 173.31(d)(2). Under this presumption, "the lack of securement of any closure to a tool-tight condition, detected at any point, will establish a rebuttable presumption that a proper inspection was not performed by the offeror of the car." *Id.*

[451] *See Catawba Cnty. v. EPA*, 571 F.3d at 40; *see also Chemical Mfrs. Ass'n*, 105 F.3d at 707–08.

[452] *See supra S*ection I.

the releases constitute discharges that require a permit under the CWA.[453] As shown below, these discharges are routine, predictable consequences of storing large quantities of liquid waste in vast pits and tanks. Thus, there is a sound and rational connection between waste storage structures and discharges.

Waste pits and tanks regularly breach or fail due to structural problems and precipitation, releasing pollutants into waterbodies. Not only are these incidents common, but they also cause serious harm to wildlife and disrupt recreational and commercial uses of waterways. For example, in August 2005, the side of a CAFO waste pit in New York gave way, spilling three million gallons of waste into the Black River.[454] The waste plume grew to roughly one-fourth the size of the infamous Exxon Valdez oil spill and killed vast numbers of fish.[455] In 2009 in Illinois, a waste pit breach released approximately 200,000 gallons of waste, killing at least 110,436 fish in a nearby creek.[456] In 2017, a storage tank at a CAFO in Oregon failed, releasing 190,000 gallons of manure into the Tillamook River.[457] As a result of the spill, health officials closed the area to recreational and commercial use for more than a week.[458] In 2020 in North Carolina, relatively light precipitation—just two inches of rainfall—caused a waste pit to breach, releasing over three million gallons of waste and killing at least 1,000 fish in surrounding waterways.[459] And there are other structural failures that have occurred at CAFOs across the country, causing extensive water pollution.[460]

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[453] *See* 33 U.S.C. § 1362(12) (defining a discharge as "any addition of any pollutant to navigable waters from any point source"); *see also Cnty. of Maui*, 140 S. Ct. at 1477 (holding that the CWA's permitting requirement extends to "a discharge (from a point source) of pollutants that reach navigable waters after traveling through groundwater if that discharge is the functional equivalent of a direct discharge from the point source into navigable waters").

[454] *See* Michelle York, *Workers Trying to Contain Effects of Big Spill Upstate*, N.Y. Times (Aug. 15, 2005), https://www.nytimes.com/2005/08/15/nyregion/workers-trying-to-contain-effects-of-big-spill-upstate.html.

[455] *Id.*

[456] Jackson & Marx, *supra* note 90.

[457] *See* Tracy Loew, *Dairy Fined $16,800 for Manure Spill that Shut Down Tillamook Bay*, Statesman J. (Feb. 13, 2018), https://www.statesmanjournal.com/story/tech/science/environment/2018/02/13/dairy-fined-16-800-manure-spill-shut-down-tillamook-bay/334888002/.

[458] *Id.*

[459] *See* Lisa Sorg, *1,000+ Dead Fish: NC DEQ Releases More Troubling Details on Hog Lagoon Spill*, NC Policy Watch (July 17, 2020), https://pulse.ncpolicywatch.org/2020/07/17/1000-dead-fish-deq-releases-more-troubling-details-on-hog-lagoon-spill/#sthash.aQq63lkY.dpbs.

[460] *See DNR Assisting With Cleanup of Manure Spill Near the Town of Merrill*, Antigo Times (June 11, 2021), https://antigotimes.com/2021/06/dnr-assisting-with-cleanup-of-manure-spill-near-the-town-of-merrill/ (describing a manure spill caused by an open valve on a manure pit at a dairy cow CAFO in Missouri, which killed fish in multiple sections of a nearby creek); *see also* Lisa Sorg, *Hog Farm That Spilled 1 Million Gallons of Feces, Urine Into Waterways Had Been Warned of Lagoon Problems*, N.C. Policy Watch (Jan. 12, 2021), https://ncpolicywatch.com/2021/01/12/hog-farm-that-spilled-1-million-gallons-of-feces-urine-into-waterways-had-been-warned-of-lagoon-problems/ (describing a waste pit

In addition to breaching, waste storage pits commonly overflow, releasing large amounts of waste. For example, in 2021 in Ohio, a dairy cow CAFO's waste pit overflowed, polluting up to a mile of a nearby stream and leaving the cows to stand in manure a foot deep.[461] Ohio Attorney General Dave Yost said of the overflow, "This isn't a farm right now. It's a biohazard that needs cleaned up before more harm is done."[462] Other overflow incidents have occurred at CAFOs across the country.[463] Waste pit overflows are especially common and destructive in areas that experience hurricanes and other extreme storms. In Eastern North Carolina, where over 500 waste pits are located in or near the state's 100-year floodplain, hurricanes and tropical storms commonly cause overflows.[464] In 1999, flooding from Hurricane Floyd caused at least 45

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breach at a swine CAFO in North Carolina, which spilled an estimated one million gallons of waste into a tributary of the Trent River); Jennifer Bjorhus, *Minnesota Pollution Officials Monitoring Large Stearns County Manure Spill*, Star Tribune (Sept. 26, 2019), https://www.startribune.com/minnesota-pollution-officials-monitoring-large-stearns-county-manure-spill/561460822/ (describing a manure spill caused by a failed valve on a manure storage tank at a dairy cow CAFO in Minnesota); Ad Crabel, *100,000-Gallon Manure Spill Causes Fish Kill in Sadsbury Township*, Lancaster Online (Mar. 6, 2018), https://lancasteronline.com/news/local/100-000-gallon-manure-spill-causes-fish-kill-in-sadsbury-township/article_728195ca-2169-11e8-a744-9bb6fe255de4.html (describing waste pit ruptures in March 2018 and October 2017 at CAFOs in Pennsylvania, which both caused fish kills); *Manure Spill Kills Fish in Creek Near Freedom*, FOX 11 News (July 11, 2017), https://fox11online.com/news/local/fox-cities/manure-spill-kills-fish-in-creek-near-freedom (describing a 20,000 gallon manure spill from a dairy cow CAFO waste pit in Wisconsin, which caused a fish kill); O. Kay Henderson, *Manure Spill at Dubuque County Dairy Farm*, Radio Iowa (Sept. 18, 2014), https://www.radioiowa.com/2014/09/18/manure-spill-at-dubuque-county-dairy-farm/ (describing a manure spill from a dairy cow CAFO waste pit in Iowa, which caused a fish kill).

[461] *See* Cameron Knight, *'Hundreds of Dead Fish' and Foot-Deep Manure: State Acts Against Clermont County Farm*, Cincinnati Enquirer (June 9, 2021), https://www.cincinnati.com/story/news/2021/06/09/foot-deep-manure-and-dead-fish-state-takes-action-against-clermont-co-farm/7619801002/.

[462] *Id.*

[463] *See* Jeremy Boyer, *Cayuga County Farm to Pay $111K Penalty for March Violations*, The Citizen (Aug 4, 2021), https://auburnpub.com/news/local/cayuga-county-farm-to-pay-111k-penalty-for-march-violations/article_5f831245-dad1-50b3-a87c-ea98c1db3123.html (describing an overflow at a dairy cow CAFO in New York that caused waste to enter a tributary of Cayuga Lake); *see also* Tracy Loew, *Oregon Megadairy Lost Velley Farm Fined $187,320 for 224 Environmental Violations*, Statesman J. (Oct. 16, 2018), https://www.statesmanjournal.com/story/tech/science/environment/2018/10/16/oregon-megadairy-lost-valley-farm-fined-environmental-violations/1659452002/ (describing overflows at a Large dairy cow CAFO in Oregon); Assoc. Press, *Heavy Rains Cause Flooding, Manure Discharges in Northwest Iowa*, Des Moines Register (Sept. 21, 2018), https://www.desmoinesregister.com/story/news/2018/09/21/flooding-northwest-iowa-spencer-hartley-national-weather-service-little-sioux-river-storms-rain-road/1379221002/ (describing overflows at 26 CAFOs in Iowa).

[464] *See* Env't Working Grp., *Exposing Fields of Filth* (Nov. 4, 2016), https://www.ewg.org/research/exposing-fields-filth.

waste pits to overflow;[465] in 2016, Hurricane Matthew caused 14 pits to overflow;[466] and in 2018, Hurricane Florence caused 49 pits to breach or overflow and an additional 60 pits to nearly overflow, increasing the risk of later overflows due to additional precipitation.[467] Satellite images taken after Hurricane Florence show brown liquid from flooded waste pits flowing through rivers into the Atlantic ocean.[468] And a resident of Pender County, North Carolina, whose home was flooded after Hurricane Florence, explains that flood waters "flow into communities downstream and sometimes remain there for weeks while animal waste seeps into homes, churches, schools, and anything else in the waters' path."[469]

Waste pits also leach pollutants into soil, groundwater, and aquifers, even in the absence of structural failures or precipitation.[470] Indeed, one court has recognized that the national standards for waste pit design "specifically allow for permeability and, thus, the [pits] are designed to leak."[471] National standards for waste pits with clay liners, which acknowledge that it is "seldom technically or economically feasible" for those pits to leach less than 500 gallons per acre per day,[472] confirm the court's conclusion. In addition, samples of soil around waste pits show that the pits leach pollutants. For example, soil samples collected from 10 feet below the bottom of a waste pit in Washington revealed ammonia and nitrate concentrations in excess of target levels.[473] And a study of waste pits in North Carolina showed that the pits leached moderate to significant amounts of pollutants, including fecal bacteria and nutrients.[474] These

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[465] *See* Amy Henderson et al., *Mathematical Modeling of Algal Blooms Due to Swine CAFOs in Eastern North Carolina*, 15 Am. Inst. Mathematical Scis. 555, 558 (2022).
[466] *See* Kendra Pierre-Louis, *Lagoons of Pig Waste Are Overflowing After Florence. Yes, That's as Nasty as It Sounds*, N.Y. Times (Sept. 19, 2019), https://www.nytimes.com/2018/09/19/climate/florence-hog-farms.html.
[467] *See* Emilie Karrick Surrusco, *The Storm Moved On, but North Carolina's Hog Waste Didn't* (Jan. 9, 2019), https://earthjustice.org/blog/2019-january/hog-waste-creates-problems-for-north-carolina-residents.
[468] *See* Alex Formuzis, *Dramatic Satellite Photos Reveal Impact of Hurricane Florence on North Carolina CAFOs*, Environmental Working Group (Sept. 21, 2018), https://www.ewg.org/news-insights/news-release/dramatic-satellite-photos-reveal-impact-hurricane-florence-north.
[469] Exhibit 14 ¶ 9.
[470] As noted above, these releases of pollutants into groundwater require permits under the CWA so long as they reach navigable waters and are the functional equivalent of direct discharges to navigable waters, which CAFO operators can address to rebut the presumption. *See Cnty. of Maui*, 140 S. Ct. at 1477.
[471] *Cmty. Ass'n for Restoration of the Env't, Inc. v. Cow Palace, LLC*, 80 F. Supp. 3d 1180, 1223 (E.D. Wash. 2015).
[472] Nat. Res. Conservation Serv., *Design and Construction Guidelines for Impoundments Lined with Clay or Amendment-Treated Soil* 10D-15 (2008), https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17767.wba.
[473] *See* Anchor QEA, LLC, *H&S Bosma Dairy Lagoon No. 3 Abandonment Plan* 4 (2022), attached as Exhibit 24.
[474] *See* R.L. Huffman & Phillip W. Westerman, *Estimated Seepage Losses from Established Swine Waste Lagoons in the Lower Coastal Plain of North Carolina*, 38 Transactions Am. Soc'y Agric. & Biological Eng'rs 449 (1995).

results led researchers to conclude that "about half of the older, unlined swine lagoons in the lower coastal plain of North Carolina are inadvertently contributing to local contamination of the surficial aquifer," and "[t]his could also be true of swine lagoons constructed in a similar manner in the lower coastal plain of other states in the Atlantic Coastal Plain."[475] As explained above, 99 percent of swine CAFOs in North Carolina do not have NPDES permits authorizing the discharge of pollutants.

Evidence of soil, groundwater, and aquifer contamination from waste pits is unsurprising, because studies show that widely used waste pit construction features are insufficient to prevent, and may in fact exacerbate, leaching of pollutants. For instance, a study of waste pits constructed in sandy soil without liners found that the pits continued to leach pollutants into groundwater even after 3.5 to 5 years of receiving waste, which contradicts the common assumption that, over time, animal waste creates a natural liner.[476] Another study of waste pits in Iowa concluded that most waste pits in the state were constructed to sit at least partially below the water table, increasing the likelihood that pollutants leaching from the pits reach groundwater.[477]

EPA has acknowledged that wet manure storage causes discharges in a variety of circumstances. As EPA has explained, "[d]ry weather discharges to surface waters associated with CAFOs have been reported to occur through spills or other accidental discharges from lagoons and irrigation systems, or through intentional releases. Other reported causes of discharge to surface waters are overflows from containment systems following rainfall, catastrophic spills from failure of manure containment systems, and washouts from floodwaters when lagoons are sited on floodplains."[478] As this quote shows, storing large quantities of liquid waste in vast pits and tanks presents numerous threats to surface waters.

2. CAFOs Using Wet Manure Management Systems Discharge from Waste Transport Pipes.

Not only do CAFOs using wet manure management systems discharge from waste storage structures, but they also discharge from waste transport pipes. As shown below, there is ample evidence that transport pipes cause spills—and, often, repeated spills occur at the same facilities. Provided that spills from transport pipes reach navigable waters, which CAFO operators can address to rebut the presumption, they constitute discharges that require a permit

[475] *Id.* at 453.
[476] *See* Philip Wayne Westerman et al., *Swine-Lagoon Seepage in Sandy Soil*, 38 Transactions Am. Soc'y Agric. & Biological Eng'rs 1749 (1995).
[477] *See* William W. Simpkins et al., *Potential Impact of Earthen Waste Storage Structures on Water Resources in Iowa*, 38 J. Am. Water Res. Ass'n 759, 769 (2002).
[478] 68 Fed. Reg. at 7,236–37.

under the CWA.[479] Thus, there is a sound and rational connection between transporting liquid waste through pipes and water pollution discharges.

CAFOs regularly spill waste from transport pipes, and this waste regularly contaminates waterbodies. For example, in February 2022, a pipe at a dairy cow CAFO in New York burst and discharged waste to a nearby stream.[480] In 2018, a pipe at a Michigan dairy cow CAFO released up to 10,000 gallons of waste to a tributary of the Coldwater River, a popular trout-fishing stream.[481] And in 2013, a pipe at a Wisconsin dairy cow CAFO ruptured, releasing 300,000 gallons of waste into a creek.[482]

The report on CAFOs owned by Smithfield Foods in Missouri confirms that waste transport pipe spills are common, recurring events. Of the 21 CAFOs analyzed, all but one reported at least one waste spill due to a broken or blocked pipe over a thirty-year period.[483] Many of the facilities reported repeated spills from waste transport pipes. For example, a facility in Daviess County, Missouri reported at least 32 transport pipe spills between 1991 and 2021, including five spills in a single year.[484] On at least two occasions, these spills flowed into a tributary of Raccoon Creek.[485] Similarly, another facility in Daviess County reported at least 19 transport pipe spills between 1991 and 2021.[486] At least two of the spills entered Hickory Creek or a tributary of the creek,[487] and one flowed onto a neighboring property.[488]

3. CAFOs Using Wet Manure Management Systems Discharge from Land Application.

In addition to discharging from waste storage structures and transport pipes, CAFOs using wet manure management systems discharge from land application. Indeed, according to EPA, "the runoff from land application of manure at CAFOs is a major route of pollutant

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[479] *See* 33 U.S.C. § 1362(12) (defining a discharge as "any addition of any pollutant to navigable waters from any point source"); *see also Cnty. of Maui*, 140 S. Ct. at 1477 (holding that the CWA's permitting requirement extends to "a discharge (from a point source) of pollutants that reach navigable waters after traveling through groundwater if that discharge is the functional equivalent of a direct discharge from the point source into navigable waters").
[480] *See* Lucas Day, *DEC Monitor Manure Spill in Skaneateles*, Finger Lakes Daily News (Feb. 10, 2022), https://www.fingerlakesdailynews.com/2022/02/10/1330882/.
[481] *See* Garrett Ellison, *Kent County Dairy CAFO Pipeline Spills Manure into River*, M Live (May 1, 2018), https://www.mlive.com/news/grand-rapids/2018/05/coldwater_river_manure_spill.html.
[482] *See* Lee Bergquist & Kevin Crowe, *Manure Spills in 2013 the Highest in Seven Years Statewide*, Milwaukee Journal Sentinel (Dec. 5, 2013), https://archive.jsonline.com/news/wisconsin/manure-spills-in-2013-the-highest-in-seven-years-statewide-b99157574z1-234701931.html.
[483] *See* Dye, *supra* note 307.
[484] *See id.*
[485] *Id.* at 15, 16.
[486] *Id.* at 12–71.
[487] *Id.* at 30, 58.
[488] *Id.* at 33.

discharges from CAFOs."[489] This is true for at least four reasons. *First*, CAFOs applying waste at recommended application rates allowed by states likely cause discharges because those rates often cause CAFOs to apply nutrients in excess of crop needs. *Second*, CAFOs commonly apply waste during the winter, which causes discharges. *Third*, CAFOs regularly apply waste shortly before or during wet weather, which also causes discharges. And *fourth*, CAFOs often apply waste to fields with tile drainage systems, which causes discharges as well. In each of these situations, provided that the activities release pollutants to navigable waters, which CAFO operators can address to rebut the presumption, the releases constitute discharges that require a permit under the CWA.[490] As shown below, not only are these practices common, but they also are often allowed under state laws and permits. Ample evidence of CAFO pollutants in waterbodies near land application sites supports the conclusion that land application results in the discharge of water pollution. Thus, there is a sound and rational connection between land application and discharges.

a. Land Application at Recommended Rates Causes Discharges.

When CAFOs land apply manure, a certain amount of nitrogen and phosphorus from the manure will be taken up by living organisms, including plant roots, or retained in the soil. However, when CAFO operators apply more nitrogen and phosphorus than living organisms can take up and the soil can retain, the excess nutrients almost certainly will cause water pollution, either directly or indirectly. Nitrogen and phosphorus that is not taken up by plants or retained in soil pollutes water directly by running off into surface water or percolating into groundwater, which is hydrologically connected to surface water.[491] Nitrogen also pollutes water indirectly, by volatilizing—that is, entering the atmosphere as ammonia—and then depositing from the air into surface water.[492]

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[489] 68 Fed. Reg. at 7,196.

[490] *See* 33 U.S.C. § 1362(12) (defining a discharge as "any addition of any pollutant to navigable waters from any point source"); *see also Cnty. of Maui*, 140 S. Ct. at 1477 (holding that the CWA's permitting requirement extends to "a discharge (from a point source) of pollutants that reach navigable waters after traveling through groundwater if that discharge is the functional equivalent of a direct discharge from the point source into navigable waters"). As discussed below, the wet weather discharges described in this section do not constitute agricultural stormwater discharges.

[491] *See Cnty. of Maui*, 140 S. Ct. at 1470 (explaining that groundwater, like "[v]irtually all water, polluted or not, eventually makes its way to navigable water"). As noted above, these releases of pollutants require permits under the CWA so long as they reach navigable waters or are the functional equivalent of direct discharges to navigable waters, which CAFO operators can address to rebut the presumption. *See id.* at 1477.

[492] Volatilized ammonia that is deposited into surface waters constitutes a discharge that requires an NPDES permit in at least one state. *See In re. Assateague Coastal Tr.*, No. 482915-V (Md. Cir. Ct. Mar. 11, 2021). Another state court has concluded that the state agency has the authority to require NPDES permits for depositions of ammonia and other pollutants into surface waters. *See Rose Acre Farms Inc. v. N.C. Dep't of Env't*, No. 12-CVS-10, 2013 WL 459353 ¶ 56 (N.C. Super. Ct. Jan. 4, 2013).

In an effort to reduce the likelihood that land application will cause water pollution, USDA and other entities establish recommended nutrient application rates.[493] However, well-established scientific evidence demonstrates that even at recommended rates, land application of manure leads to the addition of more nutrients than plants can take up and soil can retain, posing a serious threat of water pollution. In fact, recommended rates assume that some nutrients will be "lost" to the environment, even under ideal conditions.[494] Researchers analyzing recommended application rates for Coastal bermudagrass, a crop commonly grown on CAFO land application fields, found that "[n]itrogen application at the recommended rate . . . resulted in [phosphorus] application at nearly *three times* the recommended rate."[495] The researchers concluded that, due to the difficulty of balancing application rates for multiple nutrients, continued application at the recommended rate would result in phosphorus discharges, because eventually, more phosphorus would be added than the soil could retain.[496] Another recent study found that "standard operating procedures for land application of swine wastes create significant potential for nutrient overloads of soils and potential export of excess nutrients from CAFOs to the surrounding environment."[497] And numerous other studies have reached similar conclusions.[498]

Given the massive amount of animal urine and feces that CAFOs generate, many CAFOs have no alternative for waste disposal other than land application *above* recommended rates. As an individual with nearly 20 years of experience documenting water pollution from CAFOs explains, "most CAFOs don't have enough land to absorb the volume of waste they generate, and it's expensive to move liquid waste very far," so CAFOs "typically overapply waste to the land they have."[499] This also holds true for Large CAFOs. As discussed below, most Large

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[493] Recommended rates are often referred to as "agronomic" rates—that is, rates that meet but do not exceed the crops' nutrient needs. However, as shown in this section, these rates are not always agronomic, as they can lead to the application of excess nutrients.

[494] *See* Thomas F. Morris et al., *Strengths and Limitations of Nitrogen Rate Recommendations for Corn and Opportunities for Improvement*, 110 Agronomy J. 1, 1–2 (2018).

[495] R. O. Evans et al., *Subsurface Drainage Water Quality from Land Application of Swine Lagoon Effluent*, 27 Am. Soc'y Agric. Eng'rs 473, 479 (1984) (emphasis added).

[496] *Id.*

[497] Kimberley A. Rosov et al., *Waste Nutrients from U.S. Animal Feeding Operations: Regulations are Inconsistent Across States and Inadequately Assess Nutrient Export Risk*, 269 J. Env't Mgmt. 1, 8 (2020).

[498] *See* Philip Wayne Westerman et al., *Swine Manure and Lagoon Effluent Applied to a Temperate Forage Mixture: II. Rainfall Runoff and Soil Chemical Properties*, 16 J. Env't Quality 106 (1987) (finding that manure application to tall fescue at "acceptable maximum application rates" led to "much higher applications of [nitrogen, phosphorus, potassium], and other nutrients than are normally used," posing "surface and groundwater pollution hazards"); *see also* Burkholder et al., *supra* note 54, at 308.(citing additional studies showing that land application "even at recommended application rates" can cause pollutants to enter surface water and groundwater).

[499] Exhibit 6 ¶ 5; *see also* Exhibit 13 ¶ 8 ("I strongly suspect that CAFO operators commonly overapply manure on fields close to their confinement buildings, because it is too expensive for them to transport the manure to fields that are farther away and might have more need for the nutrients in the manure.").

CAFOs generate more manure nutrients than they can feasibly apply at recommended rates,[500] meaning that they are almost certainly applying waste in excess of those rates and, thus, causing discharges. Because standard, authorized land application rates likely lead to discharges, and many CAFOs are likely applying waste above those rates, the connection between land application and water pollution discharges is sound and rational.

b. Winter Land Application Causes Discharges.

In addition to land application at recommended rates, land application during the winter also causes discharges. Winter application poses an especially significant risk of discharges if the ground is frozen or snow-covered, preventing soil from absorbing the waste.[501] But, even if soil can absorb the waste, winter application poses a serious risk because crops typically do not take up a significant amount of nutrients during the winter, meaning that land application during the winter is even more likely to result in discharges of excess nutrients.[502]

Numerous studies confirm that "winter application of manure is the least desirable from both a nutrient utilization and pollution standpoint."[503] For example, one study involving a watershed in New York found that applying manure to snow-covered fields for five days caused a "significant increase" in phosphorus concentrations in the watershed.[504] Another study concluded that "[o]ver half of annual runoff can occur during the winter season in temperate regions with snow and frozen soils present."[505] And a survey of studies of winter application concluded that "the vast majority of studies suggest that winter application of manure increases loss of nutrients."[506] Moreover, another study concluded that climate change-induced warmer

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[500] *See infra* Section III.C.2.v.
[501] *See* Melanie N. Stock et al., *Fall Tillage Reduced Nutrient Loads from Liquid Manure Application During the Freezing Season*, 48 J. Env't Quality 889, 889 (2019) ("Winter application . . . can lead to elevated runoff risks from frozen soils, snowmelt, and rain-on-snow events."); *see also* Jason S. Smith et al., *Winter Manure Application: Management Practices and Environmental Impact* 12 (2017), https://soilhealthnexus.org/files/2018/02/ncrwn-winter-manure-app-mngmt-practices-enviro-impact-report-FINAL.pdf ("Most frozen soils have been shown to be impervious. Impervious soils carry a greatly increased risk of snowmelt causing a runoff event capable of carrying particulate matter, pathogens, and soluble compounds contained in winter spread manure.").
[502] *See* Jian Liu et al., *Seasonal Manure Application Timing and Storge Effects on Field- and Watershed-Level Phosphorus Losses*, 46 J. Env't Quality 1403 (2017) ("Winter manure applications, which experience minimal, if any, nutrient crop uptake, often coincide with active transport pathways created by frozen and water-saturated soils.").
[503] Theodore W. Lewis & Joseph C. Makarewicz, *Winter Application of Manure on an Agricultural Watershed and its Impact on Downstream Nutrient Fluxes*, 35 J. Great Lakes Res. 43 (2009).
[504] *Id.* Similarly, another study found that fall and winter land applications increased total phosphorus losses by 12 to 16 percent as compared to spring land applications. *See* Liu et al., *supra* note 502, at 1403.
[505] Stock et al., *supra* note 501, at 889.
[506] Smith et al., *supra* note 501, at 11.

winter temperatures are exacerbating winter runoff.[507] As a result, "[t]he assumption that discharge and nutrient transport remains low during the winter months no longer holds."[508]

Despite these serious risks, state laws and permits in many states allow CAFO operators to apply waste to frozen or snow-covered ground.[509] Although some of these states have taken steps to reduce the risks associated with winter application, the following evidence makes clear that those steps are insufficient to prevent discharges. As a result, winter application and resulting discharges are common. Indeed, during the early part of 2014, the New York Department of Environmental Conservation investigated at least forty incidents of water pollution following winter land applications.[510] Because New York continues to allow winter application,[511] numerous incidents like those that took place in 2014 almost certainly have continued to occur.[512]

Similar incidents are also common in other states. In November 2019 in Wisconsin, a CAFO operator applied manure to cold, stiff soil, and the manure ran off into a nearby creek, causing a fish kill.[513] In March 2019 in Michigan, a CAFO operator applied manure to frozen, snow-covered ground, and the manure ran off into Coldwater River, turning the prized trout

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[507] *See* Erin C. Seybold et al., *Winter Runoff Events Pose an Unquantified Continental-Scale Risk of High Wintertime Nutrient Export*, 17 Env't Rsch. Letters 1 (2022).
[508] *Id.* at 10.
[509] *See, e.g.*, Idaho Dairy Nutrient Management Standard 3 (providing exceptions to prohibition on applying waste to frozen or snow-covered ground); 510 Ill. Comp. Stat. 77/20(f)(9) (allowing application on frozen and snow-covered ground under certain circumstances); Iowa Admin. Code r.567-65.3(4) (same); N.Y. Dep't of Env't Conservation, ECL SPDES General Permit for Concentrated Animal Feeding Operations § III.A.8.c. (July 22, 2022) (same); Ohio Admin. Code 901:10-2-14(G)(1)(same).
[510] *See* N.Y. Dep't of Env't Conservation, Partial Response to FOIL Requests 14-1526 and 14-1658 (July 8, 2014), Summary of New York State Contamination Incidents Related to CAFOs in Winter and Spring of 2014, attached as Exhibit 25. In one 2014 incident in New York, snowmelt caused manure to run off fields and into Owasco Lake, creating a 75-by-25-foot plume of liquid manure. *See* Carrie Chantler, *Owasco Lake Advocates Decry Runoff of Manure into Water*, Auburn Citizen (Apr. 6, 2014), https://auburnpub.com/news/local/owasco-lake-advocates-decry-runoff-of-manure-into-water/article_498bd2fe-a7ec-5994-b4ed-005111da2e89.html.
[511] *See* N.Y. Dep't of Env't Conservation, ECL SPDES General Permit for Concentrated Animal Feeding Operations § III.A.8.c. (July 22, 2022).
[512] For example, in February 2017 in New York, a structural issue with a waste pit required a CAFO operator to land apply waste, and snowmelt then caused the waste to run off the field and into nearby waterbodies. *See* Kelsey O'Connor, *Manure Spill Impacts Salmon Creek and Cayuga Lake; Municipal Water Supplies Not Affected*, The Ithaca Voice (Feb. 20, 2017), https://ithacavoice.com/2017/02/manure-spill-impacts-salmon-creek-cayuga-lake-municipal-water-supplies-not-affected/.
[513] *See* Greg Seitz, *Factory Farm Runoff Contaminates Creek in St. Croix River Watershed, Killing Fish*, St. Croix 360 (Jan. 9, 2020), https://www.stcroix360.com/2020/01/factory-farm-runoff-contaminates-creek-in-st-croix-river-watershed-killing-fish/.

stream murky and black.[514] And in February 2011 in Illinois, thawing caused manure to run off a field and into tributaries of Panther Creek.[515] Community members also report that they have witnessed CAFOs applying waste during the winter.[516] The Dodge County, Minnesota resident describes seeing "pooled manure sit[ting] on top of the frozen ground, while dozens of birds pick at dead and decomposing pig body parts mixed in with the manure."[517] In the many states that allow winter application, CAFOs very likely cause discharges.

c. Wet Weather Land Application Causes Discharges.

Like land application during the winter, land application during wet weather also causes discharges. The CWA exempts "agricultural stormwater discharges,"[518] which EPA has defined as "precipitation-related discharge[s] . . . where the manure, litter, or process wastewater has been land applied in accordance with site-specific nutrient management practices that *ensure appropriate agricultural utilization of the nutrients*."[519] However, as the Second Circuit has explained, "there can be no escape from liability for agricultural pollution simply because it occurs on rainy days."[520] Thus, "the real issue [with respect to liability] is not whether the discharges occurred during rainfall or were mixed with rain water run-off, but rather, whether the discharges were the *result* of precipitation."[521]

To fall within the regulatory agricultural stormwater exemption, a release of pollutants must be the result of precipitation and must follow land application carried out in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of nutrients—that is, practices that ensure nutrients are utilized by crops, not discharged.[522] But CAFOs routinely cause precipitation-related discharges following land application at rates that *exceed* those set out in their nutrient management plans and, therefore, fail to ensure appropriate agricultural utilization of the nutrients.[523] Those precipitation-related discharges are subject to the CWA.

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[514] *See* Michael Kransz, *Manure Spill Turns Portions of West Michigan Stream 'Ink Black,'* M Live (Mar. 21, 2019), https://www.mlive.com/news/grand-rapids/2019/03/manure-spill-turns-portions-of-west-michigan-trout-stream-ink-black.html.
[515] Jackson & Marx, *supra* note 90.
[516] *See* Exhibit 9 ¶ 10; Exhibit 3 ¶ 6; Exhibit 15 ¶ 5; Exhibit 12 ¶5.
[517] Exhibit 2 ¶ 7.
[518] 33 U.S.C. § 1362(14).
[519] 40 C.F.R. § 122.23(e)(1) (emphasis added).
[520] *Concerned Area Residents for the Env't v. Southview Farm*, 34 F.3d 114, 120 (2d Cir. 1994).
[521] *Id.* at 120–21 (emphasis added); *see also CARE I*, 54 F. Supp. 2d at 981 ("The agricultural stormwater . . . exemption . . . does not act to relieve CAFO farmers from responsibility for over applications and misapplications of CAFO animal wastes to fields in amounts or locations which will then discharge into the waters of the United States.").
[522] *Id.*; *see also* 40 C.F.R. § 122.23(e)(1).
[523] *See infra* Section IV.B.5.

CAFOs commonly apply manure at rates that exceed those set out in their nutrient management plans. As detailed below, most Large CAFOs generate more manure nutrients than they can feasibly apply at recommended rates,[524] meaning that their most convenient, affordable strategy for waste disposal likely involves land application in excess of those rates. In addition, studies show that CAFOs routinely apply manure above recommended rates. A study of 13 CAFOs in Michigan over a three-year period found 256 applications that exceeded recommended rates for nitrogen and 111 applications that exceeded recommended rates for phosphorus.[525] Four of the CAFOs averaged six or seven nitrogen overapplications per year, three averaged 11 or 12 per year, and one averaged 20 per year.[526] People living near CAFOs also report numerous instances of CAFOs applying excess manure, occasionally resulting in manure left to pool on fields.[527] Even if this over-applied manure reaches surface waters "during rainfall or . . . mixed with rainwater runoff," those discharges are subject to the CWA because they result from excessive application, not precipitation alone.

In addition, CAFOs routinely cause precipitation-related discharges following land application before or during wet weather—which also does not ensure appropriate agricultural utilization of nutrients[528]—and those discharges are subject to the CWA. In states that prohibit land application during wet weather, any such applications necessarily are not in accordance with site-specific practices that ensure appropriate agricultural utilization of nutrients, and thus, precipitation-related discharges following those applications are subject to the CWA. For example, North Carolina's state permit—under which nearly all Large CAFOs in North Carolina operate[529]—prohibits land application during precipitation and requires CAFO operators to stop land application within 12 hours after the National Weather Service issues a Hurricane Warning, Tropical Storm Warning, Flood Warning, or Flash Flood Watch.[530] Yet community members in

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[524] *See infra* Section IV.B.5.
[525] *See* Colleen M. Long et al., *Use of Manure Nutrients from Concentrated Animal Feeding Operations*, 44 J. Great Lakes Rsch. 245, 248 (2018).
[526] *Id.*
[527] *See, e.g.*, Exhibit 2 ¶¶ 7–8.
[528] *See, e.g.*, Pierre Gérard-Marchant et al., *Simple Models for Phosphorus Loss from Manure during Rainfall*, 34 J. Env't Quality 872 (2005) (noting that phosphorus losses are greatest when precipitation occurs shortly after land application); Seth Laurenson & D.J. Houlbrooke, *Nutrient and Microbial Loss in Relation to Timing of Rainfall Following Surface Application of Dairy Farm Manure Slurries to Pasture*, 52 Soil Rsch. 513 (2014) (finding that the "[g]reatest risk to water quality occurred when rainfall was received within 2 days of manure slurry application"); Philip Wayne Westerman et al., *Swine Manure and Lagoon Effluent Applied to a Temperate Forage Mixture: II. Rainfall Runoff and Soil Chemical Properties*, 16 J. Env't Quality 106, 106 (1987) ("Pollution by runoff was more likely when rainfall occurred soon after manure or fertilizer application.").
[529] *See* EPA, *NPDES CAFO Permitting Status Report: National Summary, Endyear 2021, completed 07/20/22*, *supra* note 5.
[530] *See* N.C. Dep't of Env't Quality, Swine Waste Management System General Permit § II(23) (April 12, 2019). Illinois also prohibits land application during rainfall events. Ill. Admin. Code tit. 8, § 900.803(u).

North Carolina report that CAFOs routinely apply waste during wet weather and before hurricanes and tropical storms,[531] which cause waste pits and land application areas to flood, releasing massive amounts of waste into waterways.[532] Indeed, in 2018, the North Carolina Pork Council admitted that CAFO operators "*prepared* for [Hurricane Florence] by lowering the levels of the[ir] lagoons to accommodate more rainwater [and] using the manure as fertilizer in nearby fields."[533] Because North Carolina prohibits land application during precipitation or more than 12 hours after the state has issued a storm or flood warning, applying waste under those conditions cannot constitute a site-specific practice that ensures appropriate agricultural utilization of nutrients. Thus, precipitation-related discharges following applications under those conditions are subject to the CWA.

Even in states that allow land application before and during wet weather, this practice fails to ensure appropriate agricultural utilization of nutrients, so precipitation-related discharges following this practice are subject to the CWA. Ample scientific and anecdotal evidence makes clear that application before and during wet weather leads to discharges.[534] For example, researchers studying runoff following land applications of dairy manure found that the amount of nutrients and E. coli in the runoff was highest when rainfall occurred within two days after application.[535] Reports from community members confirm that wet weather land application causes discharges. A resident of Henry County, Iowa—who used to live just 2,200 feet from a swine CAFO—recalls that the CAFO operator once applied waste before heavy rains, which caused "green and foamy" liquid to run off the field and spill into a creek on the resident's property.[536] Water samples from the creek showed levels of E. coli and nitrates that were just under the state's maximum acceptable level.[537] Yet, in Indiana, Iowa, and New York, CAFOs may apply waste before and during wet weather.[538] Because wet-weather application—which causes discharges and, thus, does not ensure appropriate agricultural utilization of nutrients—is

[531] *See* Exhibit 11 ¶ 8.
[532] *See* Pierre-Louis, *supra* note 466.
[533] *See* Chris Megerian, *Environmentalists Worry that Florence Will Leave Behind a Toxic Mess in North Carolina*, L.A. Times (Sept. 18, 2018), https://www.latimes.com/nation/la-na-florence-environment-20180918-story.html (emphasis added).
[534] *See supra* note 8.
[535] Laurenson & Houlbrooke, *supra* note 528, at 513.
[536] Exhibit 17 ¶ 3; *see also* Exhibit 15 ¶ 5 (describing runoff following rainfall, which "formed a froth on top of the water").
[537] *See id.*
[538] *See* 327 Ind. Admin. Code Rule 14 (allowing wet weather application so long as it will not "likely result in runoff"); *see also* Iowa Admin. Code 567-65.3(2)(b) (allowing wet weather application so long as the CAFO operator uses practices to "minimize" groundwater or surface water pollution); N.Y Dep't of Env't Conservation, ECL SPDES General Permit for Concentrated Animal Feeding Operations § III.A.8.c. (July 22, 2022) (allowing wet weather application so long as the CAFO operator follows certain recommendations).

allowed in these states, CAFOs there are almost certainly causing discharges that are subject to the CWA.

d. Land Application to Fields with Tile Drains Causes Discharges.

Land application to fields with tile drains—perforated pipes that run under fields to transport water and other liquids out of the soil and into surrounding ditches, streams, and rivers—is a significant source of discharges. As discussed below, ample evidence shows that when CAFO operators apply liquid waste to fields with tile drains, the waste often moves rapidly into the drains, which transport it to ditches that flow into surface water. And industry-standard, government-authorized waste disposal practices exacerbate discharges from tile drains. Numerous instances of discharges from tile drains to surface water confirm that they are a common source of discharges.

A robust body of evidence shows that liquid waste often moves rapidly into tile drains, which carry it to surface water, causing discharges. Indeed, the Natural Resources Conservation Service's Conservation Practice Standard for nutrient management—on which many states rely to develop guidelines for CAFO nutrient management plans[539]—states that "[w]hen applied to fields with subsurface drains, the liquid can follow soil macropores directly to the tile drains[,] creating a surface water pollution hazard from direct tile discharge."[540] In other words, rather than remaining in the soil or being taken up by plants, the liquid waste follows pathways through the soil directly to the tile drains. As a result, "even a field with one subsurface drainage line may present a risk of manure/wastewater movement to subsurface drains and cause a direct discharge."[541] Scientific studies support this conclusion. For instance, a study of a tile-drained field at a swine CAFO in Ohio found that earthworm burrows created pathways through the soil, which rapidly transported liquid to the tile drain.[542] After applying dyed water to the field, researchers observed the water emerging from the tile drain outlet after only 14 minutes.[543] They concluded that "a substantial portion of the dyed water must have entered the tile."[544] Additional

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[539] *See, e.g.*, N.Y. Dep't of Env't Conservation, ECL SPDES General Permit for Concentrated Animal Feeding Operations § III.A.4.a. (July 22, 2022).
[540] Nat. Res. Conservation Serv., Conservation Practice Standard, Nutrient Management, Code 590, at 590-CPS-6 (2020), https://agri.ohio.gov/wps/wcm/connect/gov/3dd2869c-32d2-4dd7-84d7-5c21f2f3b74b/Ohio_590_Standard_November_2012.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_M1HGGIK0N0JO00QO9DDDDM3000-3dd2869c-32d2-4dd7-84d7-5c21f2f3b74b-n4cuBr3.
[541] *Id.*
[542] *See* Martin J. Shipitalo & Frank Gibbs, *Potential for Earthworm Burrows to Transmit Injected Animal Wastes to Tile Drains*, 64 Soil Sci. Soc. Am. J. 2103, 2107 (2000).
[543] *Id.* at 2105.
[544] *Id.*

studies demonstrate that tile-drained fields around the country pose similar threats of discharge.[545]

Industry-standard, government-authorized waste disposal practices can exacerbate discharges from tile drains. For example, some states allow CAFO operators to apply waste to fields that are not tilled.[546] Studies show that no-till fields tend to have more pathways through the soil because they are not disturbed through soil turning.[547] Thus, applying waste to no-till fields with tile drains is particularly likely to cause discharges.

Numerous instances of discharges confirm that applying liquid waste to fields with tile drains commonly causes discharges. For example, reports from agencies in Ohio show that from January 2000 to December 2003, animal waste entered tile drains and contaminated surface waters at least 98 times.[548] Most of the violations occurred on swine and dairy CAFOs, which was attributed to their use of wet manure management systems.[549]

e. <u>Ample Evidence of CAFO Pollutants in Waterbodies Near Land Application Sites Indicates that Land Application Causes Discharges.</u>

Extensive scientific evidence of CAFO pollutants—including ions, nutrients, bacteria, antibiotic residue, and pathogens—in waterbodies near CAFO land application sites confirms that land application causes discharges. For example, a study of a stream in a North Carolina watershed that, at the time of the study, contained 13 swine CAFOs and 11 poultry CAFOs found fecal coliform bacteria, ammonium, and nitrate in the stream and concluded that "the stream pollution is chronic and a result of normal CAFO operations and presently accepted waste disposal techniques."[550] Similarly, a study of multiple North Carolina watersheds found higher median values of ions and nutrients in watersheds that contain CAFOs than in those without CAFOs; the study concluded that "land applications of waste manure at swine CAFOs influenced ion and nutrient chemistry in many of the . . . streams that were studied."[551] Another

[545] *See, e.g.*, Laurent Ahiablame et al., *Nutrient Content at the Sediment-Water Interface of Tile-Fed Agricultural Drainage Ditches*, 2 Water 411 (2010).
[546] *See* Generally Accepted Agricultural and Management Practices for Manure Management and Utilization, Mich. Comm'n on Agric. & Rural Dev. 41 – 42 (Jan. 2021) (including no-till among recommended conservation practices on Michigan fields) and *Nutrient Management Basics*, Wisc. Dep't of Ag. And Consumer Prot. (detailing no-till as a method of managing nutrient loss).
[547] *See* N.K. Patni et al., *Tile Effluent Quality and Chemical Losses Under Conventional and no Tillage–Part 1: Flow and Nitrate*, 39 Transactions of Am. Soc'y Agric. & Biological Eng'rs 1665 (1996).
[548] *See* James J. Hoorman & Martin J. Shipitalo, *Subsurface Drainage and Liquid Manure*, 61 J. Soil & Water Conservation 94A, 95A (2006).
[549] *Id.*
[550] Michael A. Mallin et al., *Industrial Swine and Poultry Production Causes Chronic Nutrient and Fecal Microbial Stream Pollution*, 226 Water, Air, and Soil Pollution 407 (2015).
[551] Stephen L. Harden, *supra* note 378 at 1, 50 (2015).

study of water samples taken near swine and poultry CAFOs found high levels of antimicrobial compounds in the samples, which "suggests that animal waste applied to agricultural fields as fertilizer may act as a . . . source of antimicrobial residues in water resources."[552] And two studies of waterways in Wisconsin also link CAFOs with discharges. One study found that found that total phosphorus concentrations in waterways increased with proximity to dairy operations, and concentrations downstream from CAFOs were 19 percent higher than upstream concentrations.[553] The second study concluded that increasing the number of CAFOs in an area also increases the levels of total phosphorus and ammonia in surface water in the area.[554] Similar results have been found in studies of antibiotic-resistant bacteria and viruses in waterbodies near land application sites.[555]

4. Discharges from Land Application and Waste Storage Structures Are Likely to Occur with Increasing Frequency Due to Climate Change.

As a result of climate change, many areas of the country where CAFOs are concentrated are experiencing, or are predicted to experience, increased precipitation and stronger, more frequent storms. For example, since 1999, Eastern North Carolina has experienced at least four 100-year storms—that is, storms once determined to have a one percent chance of occurring in a given year.[556] In the Midwest, the average annual amount of precipitation has increased by five to 10 percent over the last half century, with rainfall during the four wettest days of the year increasing by about 35 percent.[557] And in California's Central Valley, intense storms known as "atmospheric rivers," which have contributed to most of the state's largest floods, are expected to become more frequent due to climate change.[558]

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[552] Enzo R. Campagnolo et al., *Antimicrobial Residues in Animal Waste and Water Resources Proximal to Large-Scale Swine and Poultry Feeding Operation*, 299 Sci. Total Env't 89, 94 (2002).
[553] *See* Donald M. Waller et al., *Shifts in Precipitation and Agricultural Intensity Increase Phosphorus Concentrations and Loads in an Agricultural Watershed*, 284 J. Env't Mgmt. 112019 (2021).
[554] *See* Zach Raff & Andrew Meyer, *CAFOs and Surface Water Quality: Evidence from Wisconsin*, 104 Am J. Agric. Econ. 161 (2022).
[555] *See* Elizabeth Christenson et al., *A Watershed Study Assessing Effects of Commercial Hog Operations on Microbial Water Quality in North Carolina, USA*, 838 Sci. Total Env't 1 (2022); *see also* Jennifer Gentry-Shields et al., *Hepatitis E Virus and Coliphages in Waters Proximal to Swine Concentrated Animal Feeding Operations*, 505 Sci. Total Env't 487, 487 (2015); Sarah M. Hatcher et al., *Occurrence of Methicillin-Resistant Staphylococcus Aureus in Surface Waters Near Industrial Hog Operation Spray Fields*, 565 Sci. Total Env't 1028, 1033 (2016); Amy R. Sapkota et al., *Antibiotic-Resistant Enterococci and Fecal Indicators in Surface Water and Groundwater Impacted by a Concentrated Swine Feeding Operation*, 115 Env't Health Persps. 1040, 1040–41, 1045 (2007).
[556] *See* Surrusco, *supra* note 467.
[557] *See* EPA, *What Climate Change Means for Iowa* (2016), https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-ia.pdf.
[558] Central Valley Regional Water Quality Control Bd., *Central Valley Region Climate Change Work Plan* 10 (2017).

Stronger and more frequent storms will exacerbate discharges from waste storage structures and land application. These storms increase the likelihood that waste pits will overflow or breach. In addition, storm-related precipitation will cause waste pits to fill more quickly than anticipated, requiring CAFO operators to land apply waste more frequently or in larger amounts to lower the waste level in the pits and, thereby, reduce the likelihood of overflows and breaches.[559] As explained above, the North Carolina Pork Council acknowledged that CAFO operators prepared for Hurricane Florence by land applying waste so that storage pits could accommodate more rainwater.[560] But, as one resident who lives near at least 30 CAFOs in North Carolina explains, "[b]ecause the workers' main concern is reducing the waste in the lagoons, . . . it's likely that they overapply it on the fields,"[561] creating a certain or near certain risk of discharges.

5. Large CAFOs Using Wet Manure Management Systems Are Especially Significant Sources of Discharges.

For over 20 years, EPA has recognized that Large CAFOs "produce quantities of manure that can be a risk to water quality and public health" and, thus, "are a priority for permit issuance."[562] Given the massive amount of urine and feces that Large CAFOs generate,[563] it is not surprising that Large CAFOs using wet manure management systems are especially significant sources of discharges through waste storage, transport, and disposal practices. Thus, there is a sound and rational connection between Large CAFOs using wet manure management systems and discharges.

Large CAFOs using wet manure management systems are especially likely to discharge from land application. According to USDA, in 2012, the majority of Large CAFOs generated more manure nutrients than they could feasibly apply at USDA-recommended rates.[564] In fact, USDA found that at least 64 percent of Large CAFOs produced "farm-level" excess manure

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[559] *See* Mo. Code Regs. Ann. tit. 10, § 20-6.300(4)(A)(5) ("When wastewater storage structures are in danger of an overflow due to a chronic weather event, CAFO owners shall take reasonable steps to lower the liquid level in the structure through land application[.]"); *see also* N.C. Dep't of Env't Quality, Swine Waste Management System General Permit § II(29) ("[A]n operator may temporarily lower lagoon levels . . . to provide additional temporary storage for excessive rainfall during the hurricane season[.]"); *see also* Barry Yeoman, *'It Smells Like a Decomposing Body': North Carolina's Polluting Pig Farms*, The Guardian (Aug. 27, 2019), https://www.theguardian.com/environment/2019/aug/27/it-smells-like-a-decomposing-body-north-carolinas-polluting-pig-farms (reporting that at least 35 CAFOs in North Carolina were seen land applying waste shortly before Tropical Storm Hermine hit the state).

[560] *See* Megerian, *supra* note 533.

[561] Exhibit 11 ¶ 8.

[562] U.S. Dep't Agric. & EPA, *Unified National Strategy for Animal Feeding Operations* (1999), https://www3.epa.gov/npdes/pubs/finafost.pdf.

[563] *See supra* Section I.C.

[564] *See* Gollehon et al., *supra* note 18, at 19, Tbl. 7. USDA's calculations include Large swine, dairy, poultry, and beef CAFOs.

nutrients—that is, more manure nutrients than they could possibly apply at recommended rates on the cropland and pastureland available at each CAFO.[565] USDA estimated that, in total, Large CAFOs generated 1,365 million pounds of farm-level excess manure nitrogen and 594 million pounds of farm-level excess manure phosphorus in 2012.[566] This excess manure nitrogen *alone* exceeds the amount of nitrogen used to fertilize over nine million acres of corn fields, and it is nearly equivalent to the amount used to fertilize all 80 million acres of soybean fields in the United States.[567] By contrast, Large CAFOs reported applying manure to only 2.4 million acres in the 2012 Census of Agriculture.[568]

Large CAFOs with farm-level excess manure nutrients—that is, at least 64 percent of Large CAFOs, according to USDA's study—are almost certain to cause discharges. These CAFOs are unlikely to apply their excess manure nutrients *off-farm*, because it is costly and inconvenient to do so.[569] As Dr. John Ikerd, Professor Emeritus of Agricultural Economics at the University of Missouri, explains, when the cost of transporting manure exceeds its value as a fertilizer, it is more economical for a CAFO operator to overapply the waste closer to the CAFO than to transport it.[570] According to figures from Iowa State University, the cost of transporting manure exceeds its value as a fertilizer at [an average] transportation distance of just one mile.[571] In addition, USDA notes that "[o]ff-farm application[] . . . is not a universally accepted practice because of the potential for the spread of diseases between farms."[572] Given the cost, inconvenience, and risk of spreading diseases associated with transporting manure, Large CAFOs with farm-level excess manure nutrients are likely applying the excess manure on-farm and causing discharges as a result.[573]

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[565] *Id.*
[566] *Id.*
[567] On average, farmers apply 149 pounds of nitrogen per acre of corn, and 17 pounds of nitrogen per acre of soybeans. There are 83.1 million acres of soybeans in the United States. *See* USDA Nat'l Agric. Statistics Serv., *Agricultural Chemical Use Survey: Corn*, https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Chemical_Use/2018_Peanuts_Soybeans_Corn/ChemUseHighlights_Corn_2018.pdf; *see also* USDA Nat'l Agric. Statistics Serv., *Agricultural Chemical Use Survey: Soybeans*, https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Chemical_Use/2020_Soybeans/soybean-chem-highlights.pdf.
[568] *See* Gollehon et al., *supra* note 18, at 33, Tbl. B1.
[569] *See* April B. Leytem et al., *Cycling Phosphorus and Nitrogen through Cropping Systems in an Intensive Dairy Production Region*, 11 Agronomy 1, 15 (2021) ("[Nitrogen], as well as [phosphorus], are concentrated around dairies due to the cost and inconvenience of transporting manures away from the facility.").
[570] *See* Interview by Kara Goad, Associate Attorney, Earthjustice with Dr. John Ikerd, Professor Emeritus of Agric. Economics at the Univ. of Missouri (July 15, 2022).
[571] *See* Greg Brenneman, *You Can't Afford* Not *to Haul Manure* (1995), https://store.extension.iastate.edu/Product/You-Cant-Afford-Not-to-Haul-Manure-Livestock-Industry-Facilities-and-Environment-PDF.
[572] Gollehon et al., *supra* note 18 at 18 n.10.
[573] *See supra* Section IV.B.3.a.

Large CAFOs were responsible for a significant majority of all farm-level excess manure nutrients. As of 2012, Large CAFOs were responsible for 71 percent of farm-level excess manure nitrogen and 70 percent of farm-level excess manure phosphorus.[574] In other words, Large CAFOs were responsible for a significant majority of manure nutrients that almost certainly cause water pollution.

Not only do most Large CAFOs lack sufficient *on-farm* land application areas, but they also frequently lack adequate *off-farm* alternatives, because together with other CAFOs, they often generate more manure than can be applied at recommended rates to all the cropland and pastureland available in their county or, in some cases, in their shared hydrologic basins. According to USDA, in 2012, there were 205 counties with county-level excess manure, meaning that CAFOs in those counties together produced more manure than could be applied at recommended rates to all the cropland in the counties.[575] In addition, there were at least twelve hydrologic basins with basin-level excess manure, meaning that CAFOs in those hydrologic basins together produced more manure than could be applied at recommended rates to all the cropland in the basins.[576] A number of the counties with county-level excess manure were in North Carolina and California's Central Valley,[577] and one of the hydrologic basins with basin-level excess manure was in North Carolina,[578] where pollution disproportionately harms communities of color and low-income communities.

In the many areas with excess manure nutrients at the county or hydrologic basin level, Large CAFOs with farm-level excess manure are especially likely to cause discharges. Not only do they lack adequate on-farm cropland, but they are also more likely to lack adequate off-farm cropland. This is because, together with other CAFOs in the county or basin, they generate more manure than can be applied at recommended rates across all the cropland in the area.

The actual amount of excess manure nutrients generated at Large CAFOs, across counties, and across hydrologic basins is likely even higher than USDA's estimates. USDA assumed that land application areas did not receive any additional nutrients from applications of synthetic fertilizer, which also contains nitrogen and phosphorus.[579] However, that is often not the case. Rather, cropland that receives CAFO manure also commonly receives synthetic

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[574] *See* Gollehon et al., *supra* note 18 at 18.
[575] *See* Gollehon et al., *supra* note 18, at 25, Tbl. 8.
[576] *See* Robert L. Kellogg et al., *Database of Estimates by 6-Digit HUC of Animal Units and Recoverable and Non-Recoverable Manure Nutrients Based on the Census of Agriculture* 36, Tbl. S7, https://www.nrcs.usda.gov/wps/PA_NRCSConsumption/download?cid=nrcseprd1360816&ext=pdf. "Basins" correspond to 6-digit Hydrologic Unit Codes.
[577] *See* Gollehon et al., *supra* note 18, at 27, Map 8.
[578] *See* Kellogg et al., *supra* note 576, at 36, Tbl. S7.
[579] *See* Gollehon et al., *supra* note 18, at 33.

fertilizer,[580] often in excess of crop needs and without accounting for manure application.[581] Application of synthetic fertilizer likely leads to excess nutrients when manure is applied to the land, as the crops and soil may already be saturated with nutrients from the synthetic fertilizer. For example, a 2020 study found that, "[i]n almost all of Minnesota's farm counties, the combination of manure plus commercial fertilizer is likely to load too much nitrogen or phosphorus or both onto crop fields, threatening drinking water and fouling the state's iconic lakes and rivers[.]"[582]

USDA likewise did not account for other CAFO practices that likely lead to excess nutrients. For example, North Carolina's state permit allows CAFO operators to leave hay harvested from land application fields on the fields for up to two years.[583] An individual who has nearly 20 years of experience monitoring CAFOs in North Carolina reports seeing baled hay left on fields or even "dumped in wetlands."[584] When hay remains on application fields, the nutrients taken up by the hay remain as well, and as the hay decomposes over time, those nutrients can return to the soil. Thus, crops allowed to decompose on fields increase the likelihood that land applying manure will result in excess nutrients. For all these reasons, Large CAFOs likely generate even more excess nutrients than USDA has estimated.

A new study of the Western Lake Erie Basin demonstrates that the problem of excess manure nutrients across entire watersheds has persisted. The study found that in nine watersheds within the basin, more than 90 percent of the cropland is required to avoid applying excess nutrients.[585] In those nine watersheds, there is a high risk that CAFOs will overapply nutrients—

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[580] *See* Sarah Porter & Craig Cox, Env't Working Grp., *MANURE OVERLOAD: Manure Plus Fertilizer Overwhelms Minnesota's Land and Water* (2020), https://www.ewg.org/interactive-maps/2020-manure-overload/#:~:text=In%20almost%20all%20of%20Minnesota's,an%20Environmental%20Working%20Group%20investigation; *see also* Kenneth C. Stone et al., *Water Quality Status of a USDA Water Quality Demonstration Project in the Eastern Coastal Plain,* 50 J. Soil & Water Conservation 567 (1995) ("Although swine and poultry operations produce sufficient quantities of waste to supply more than half of the needed nutrients, 90% of the nutrients applied to cropland are supplied by commercial fertilizers.").

[581] *See* Yushu Xia et al., *Developing County-Level Data of Nitrogen Fertilizer and Manure Inputs for Corn Production in the United States,* 309 J. Cleaner Production 1, 11 (2021); *see also* Long et al., *supra* note 525, at 249.

[582] Porter & Cox, *supra* note 580.

[583] *See* N.C. Dep't of Env't Quality, Swine Waste Management System General Permit § II(28) (April 12, 2019).

[584] Exhibit 6 ¶ 8.

[585] *See* Ethan Bahe et al., Env't Working Grp., *EWG Analysis: In the Western Lake Erie Basin, Newly Identified Animal Feeding Operation Hot Spots Produce Excess Manure, Threatening Waterways and Human Health* (2022), https://www.ewg.org/research/ewg-analysis-western-lake-erie-basin-newly-identified-animal-feeding-operation-hot-spots. A study of excess nutrients in Wisconsin adds to the evidence that excess nutrients remain a problem. The study found that in nine Wisconsin counties, "commercial fertilizer and animal manure are overapplied to farmland at rates that are causing a water pollution crisis." Sarah Porter et al., *Double Trouble: Wisconsin's Land and Water are Inundated with Pollution from Animal Manure and Excess Farm Fertilizer* (Feb 2, 2022),

and, thus, very likely cause discharges—because so much of the cropland is at its capacity for nutrients. The study also found that 116 animal feeding operations in the basin would need to use cropland farther than three miles from the operations to avoid overapplying phosphorus, and 55 operations would need to use cropland farther than five miles from the operations to avoid overapplying phosphorus.[586] Given the cost and inconvenience of transporting liquid manure,[587] waste disposal at these CAFOs likely involves overapplication on fields closer to the operations.

Since 2012, the problem of excess nutrients generated at Large CAFOs has likely worsened. Indeed, USDA found that, in 2012, the amount of excess nutrients generated by Large CAFOs was trending upward, and Large CAFOs were the driving force behind an increase in excess manure nutrients generated by all CAFOs. USDA found that the total amount of farm-level excess manure nitrogen generated at Large CAFOs was nearly 5 times greater in 2012 than it was in 1982, and the total amount of farm-level excess manure phosphorus generated at Large CAFOs more than tripled over the same time period.[588] In 1982, Large CAFOs accounted for 45 percent of total excess manure nitrogen; by 2012, they accounted for over 71 percent of it.[589]

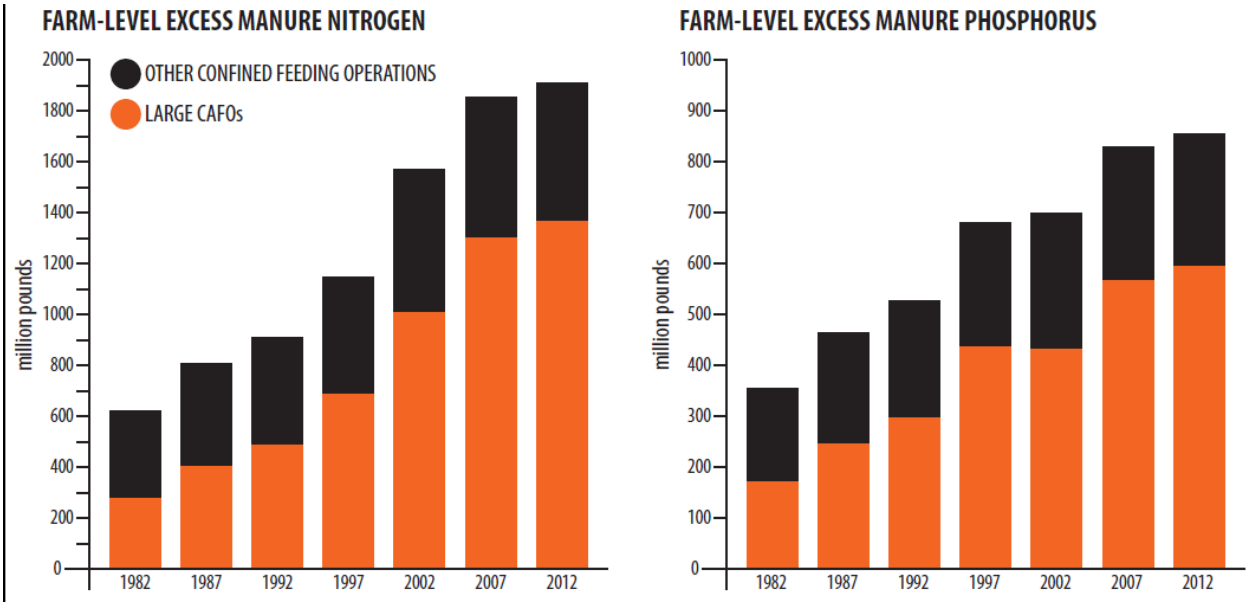

Figure Eleven. Farm-level excess manure nitrogen and farm-level excess manure phosphorus generated by Large CAFOs between 1982 and 2012.[590]

https://www.ewg.org/research/double-trouble-wisconsins-land-and-water-are-inundated-pollution-animal-manure-and-excess.

[586] *Id.*

[587] *See* Long et al., *supra* note 525, at 247 ("In many cases, cost remains a barrier to [manure] redistribution because it is expensive to haul manure long distances.").

[588] *See* Gollehon et al., *supra* note 18, at 31, Tbl. A-4.

[589] *Id.*

[590] *Id.* at 20, Fig.11 & Fig.12.

Because the number of animals confined in Large CAFOs has continued to increase, these trends in excess manure nutrients have almost certainly continued. As a result, the connection between Large CAFOs using wet manure management systems and discharges has also almost certainly grown stronger.

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Taken together, the evidence presented above makes clear that there is a sound and rational connection between Large CAFOs using wet manure management systems and actual discharges from, at a minimum, waste storage structures, waste transport pipes, and land application. As an official with the Michigan Department of Environmental Quality reported to EPA more than a decade ago in 2008, "virtually all CAFOs with lagoons and/or land application have discharges."[591] And EPA itself has acknowledged that, "based on EPA's and the States' own experience in the field . . . all or virtually all large CAFOs have had a discharge in the past, [or] have a current discharge."[592] The evidence presented above provides ample support for a rebuttable presumption that Large CAFOs using wet manure management systems actually discharge pollutants.

C. <u>The Presumption Is a Sensible and Timesaving Device.</u>

A presumption that Large CAFOs using wet manure management systems actually discharge water pollution is a sensible and timesaving device because proving discharges on a CAFO-by-CAFO basis is a difficult and time-consuming endeavor, and Large CAFO operators are well-positioned to rebut the presumption in the rare instances in which no discharges occur.[593] As discussed below, at least five factors make it difficult for EPA to prove discharges on a CAFO-by-CAFO basis. *First*, EPA and state agencies lack facility-specific information about CAFOs. *Second*, CAFO discharges are generally unplanned and intermittent. *Third*, EPA and state agencies lack the resources necessary to prove discharges on a CAFO-by-CAFO basis. *Fourth*, EPA should not place the burden on community members or researchers to investigate and prove discharges. And *fifth*, EPA cannot rely on CAFO self-reporting to prove discharges. In contrast, however, these factors will not prevent Large CAFO operators from rebutting the presumption of discharge, if appropriate.

First, EPA and state agencies lack facility-specific information about CAFO locations, sizes, animal types, manure storage structures, and land application areas. EPA has recognized the importance of this information for proving CAFO discharges.[594] For instance, EPA has

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[591] Letter from Richard A. Powers, Chief, Water Bureau, Mich. Dep't Env't Quality to U.S. EPA Docket Center 2 (Apr. 4, 2008), attached as Exhibit 26.
[592] 66 Fed. Reg. at 3,007.
[593] *See USX Corp.*, 395 F.3d at 172.
[594] *See* National Pollutant Discharge Elimination System (NPDES) Concentrated Animal Feeding Operation (CAFO) Reporting Rule, 76 Fed. Reg. 65,431, 65,436–38 (Oct. 21, 2011).

acknowledged that "knowing the location of the CAFO's production area . . . is essential for determining sources of water quality impairments."[595] And knowing "the number and type of animals provides an indication of the quantity and characteristics of the CAFOs' manure . . . which then informs EPA as to the possible environmental effects of that manure."[596]

Despite recognizing the importance of this information, however, EPA frequently does not have it. Indeed, a 2019 report found that EPA lacked facility-specific information for the majority of U.S. CAFOs.[597] Because CAFOs frequently operate under state laws and permits, rather than NPDES permits, the availability of information about the locations of these facilities and their application fields varies significantly by state.[598] Many state agencies do not collect facility-specific information, making it more difficult for the agencies and the public to prove discharges.[599] The difficulty of obtaining facility-specific information about land application is made worse by the fact that CAFOs are often allowed to transfer their waste to third parties for disposal,[600] and even less information is collected from these third parties. Moreover, the meat and dairy industries compound the difficulty of obtaining facility-specific information by aggressively pursuing and defending privacy protections rarely afforded to other industrial polluters.[601]

Second, the nature of CAFO discharges makes it difficult to prove discharges on a CAFO-by-CAFO basis. As EPA has explained, "[o]perations in other industries are typically designed to routinely discharge after appropriate treatment; this is not the case at CAFOs, where discharges are largely unplanned and intermittent."[602] In addition, CAFO discharges often occur in remote locations or adjacent to private land. Moreover, in areas where CAFOs are highly

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[595] *Id.* at 65,438.
[596] *Id.*
[597] *See* Devine & Baron, *supra* note 418; *see also* U.S. Gov't Accountability Off., *Concentrated Animal Feeding Operations: EPA Needs More Information and a Clearly Defined Strategy to Protect Air and Water Quality from Pollutants of Concern* (2008), https://www.gao.gov/assets/gao-08-944.pdf (finding that "EPA does not have data on the number and location of CAFOs nationwide and the amount of discharges from these operations" and that "[w]ithout this information and data . . . , it is difficult to estimate the actual discharges occurring and to assess the extent to which CAFOs may be contributing to water pollution").
[598] *Id.* at 5, 12.
[599] *See id.* at 12; *see also* David Jackson & Gary Marx, *State Officials Defend Hog Confinement Regulations*, Chicago Tribune (Nov. 7, 2017), https://www.chicagotribune.com/investigations/ct-pork-met-20171107-story.html (noting that an official with the Illinois Environmental Protection Agency "acknowledged his agency does not know how many large hog confinements exist in the state, or where many of them are located").
[600] *See* Minn. R. 7020.2225(D) (allowing CAFOs to transfer ownership of manure or process wastewater).
[601] *See* Ohio Rev. Code Ann § 940.42(A) (generally excluding "[d]ata or records of a person's agricultural operations" from disclosure to the public).
[602] 68 Fed. Reg. at 7,201; *see also* Exhibit 6 ¶ 6 (explaining that identifying discharges from CAFOs "is challenging, in part, because discharges from land application sites to surface water are often intermittent").

concentrated—such as Duplin County, North Carolina, where there are over 520 swine CAFOs[603]—it may be difficult to identify the CAFO responsible for a particular discharge based on water samples alone, because there frequently are multiple CAFOs discharging to a river or stream.[604] These aspects of CAFO discharges mean that, even if EPA knew the location of every CAFO, it would remain difficult for EPA to prove discharges on a CAFO-by-CAFO basis.

Third, EPA and state agencies lack the resources and, often, the political will necessary to identify discharges on a CAFO-by-CAFO basis. Indeed, EPA recently acknowledged that "EPA and state permitting agencies lack the resources to regularly inspect [CAFOs] to assess [CAFO operators' claims that they do not discharge], particularly since discharges often only occur during certain weather conditions."[605] State agencies also are unable to dedicate the resources necessary to identify discharges. In Washington, for example, CAFO inspections occur approximately once every 22 months, and they typically last only a few hours.[606] In Indiana, there were only seven inspectors available to visit the state's 796 CAFOs as of 2017, and CAFOs are only inspected once every five years.[607] Illinois likewise aims to inspect Large CAFOs only once every five years.[608]

Fourth, EPA cannot and should not place the burden on community members or scientists to investigate and prove discharges. Many people who have made complaints about CAFOs in their communities have experienced intimidation or harassment from government employees, industry representatives, and neighbors with financial ties to CAFOs. For example, the Dodge County, Minnesota resident has experienced harassment and intimidation that she perceives as "signs of the power imbalance" between community members and CAFO operators.[609] And the Duplin County, North Carolina resident explains that he was contacted by a CAFO operator after anonymously reporting the operator's permit violation to the North Carolina Department of Environmental Quality ("NC DEQ"), leading the resident to conclude that NC DEQ had not kept his report anonymous. As he explains, "[i]f complaints aren't kept anonymous, it deters people from reporting permit violations."[610] In light of experiences like

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[603] *See* Exhibit 11 ¶ 3.
[604] *See, e.g.*, Christopher D. Heaney et al., *Source Tracking Swine Fecal Waste in Surface Water Proximal to Swine Concentrated Animal Feeding Operations*, 511 Sci. of the Total Env't 676, 680 (2015) (reporting "overall diffuse and poor microbial quality of surface waters proximal to swine CAFO liquid waste land application sites in [North Carolina]," including the presence of fecal bacteria both upstream and downstream of land application sites, and concluding that upstream sampling locations were potentially contaminated by "numerous upstream swine CAFO liquid waste land application sites as well as poultry CAFO dry litter land application sites").
[605] *See* EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.
[606] *See* Exhibit 20.
[607] *See* Ind. Dep't of Env't Mgmt., *Indiana Confined Feeding Program* 25 (2017), https://www.in.gov/idem/cfo/files/about_cfo_presentation.pdf.
[608] *See* Danielle J. Diamond, *Illinois' Failure to Regulate Concentrated Animal Feeding Operations in Accordance with the Federal Clean Water Act*, 11 Drake J. Agric L. 185, 209 (2006).
[609] Exhibit 2 ¶ 16.
[610] Exhibit 11 ¶ 19.

this, EPA has expressed "grave concerns about . . . a potential hostile and intimidating environment for anyone seeking to provide relevant information to [NC DEQ] or EPA."[611]

CAFO industry representatives also have sought to intimidate scientists by publicly impugning their motives, threatening aggressive legal action, and attempting to undermine employment and research funding. For example, in response to research by Dr. Steve Wing of the University of North Carolina ("UNC") at Chapel Hill, finding that swine CAFOs in North Carolina are "differentially sited in areas populated by poor African-Americans" and CAFO neighbors reported more respiratory and gastrointestinal complaints than residents of agricultural communities without CAFOs, the North Carolina Pork Council issued news releases accusing Dr. Wing of engaging in biased, "irresponsible," and "immoral" "pseudo-science."[612] Even though Dr. Wing was a "respected scientist at a high-status institution, someone who had won state and federal funding for his work," the North Carolina pork industry and allied state legislators nonetheless "expressed concerns about [Dr. Wing's] research through every level of his institutional superiors, from his dean to the Chapel Hill chancellor's office, the UNC-system president's staff, and the Board of Trustees (where the pork industry was prominently represented)."[613] Dr. Wing understood these actions to be efforts at "harassment and intimidation."[614]

Similarly, Dr. JoAnn Burkholder of North Carolina State University has reported that she experienced harassment after discovering a toxic organism linked to water pollution from CAFOs. According to Dr. Burkholder, on the day her research was released, her employer received over "160 messages sent in by various representatives of the concentrated swine industry demanding that [she] be fired."[615] In addition, Dr. Burkholder received multiple death threats.[616] She has expressed concern that "the backlash that resulted from her research on swine pollution has damaged her reputation and hurt her ability to receive grants."[617] As a result of these intimidation and harassment tactics, scientists who might otherwise study the effects of CAFOs on public health have chosen to pursue different research interests,[618] and "[i]n some

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[611] EPA Letter of Concern, *supra* note 354, at 8.
[612] *See* S. Holly Stocking & Lisa W. Holstein, *Manufacturing Doubt: Journalists' Roles and the Construction of Ignorance in a Scientific Controversy*, 18 Pub. Understand. Sci. 23, 30, Fig. 2 (2009).
[613] *Id*. at 27, 36.
[614] Steve Wing, *Social Responsibility and Research Ethics in Community-Driven Studies of Industrial Hog Production*, 110 Env't Health Persp. 437, 441 (2002).
[615] Alicia Allen, *ISU Graduate Claims Backlash Hurt Career*, Iowa State Daily (Dec. 4, 2002), https://iowastatedaily.com/198794/news/isu-graduate-claims-backlash-hurt-career/.
[616] *See* Perry Beeman, *Ag Scientists Feel the Heat*, Inst. Agric. & Trade Pol'y (Feb. 2, 2003), https://www.iatp.org/news/ag-scientists-feel-the-heat.
[617] Allen, *supra* note 615.
[618] *See* Wing et al., *supra* note 349, at 443.

areas, community members have been fearful of participating in the research because of the influence of the hog industry in local affairs."[619]

Fifth, EPA cannot rely on CAFO self-reporting to prove discharges. Multiple courts have recognized that self-reporting schemes allow regulated entities, or entities that should be regulated, to escape oversight.[620] And EPA has acknowledged that self-reporting has failed to ensure that CAFO operators obtain appropriate permits. Indeed, according to EPA, "[m]any CAFOs are not regulated and continue to discharge without NPDES permits" and "many waters are affected by pollutants from CAFOs," but nonetheless, "many CAFOs often claim that they do not discharge."[621] Similarly, Jim Werntz, EPA's former director in Idaho, has recognized that "[w]e know we have large CAFO . . . facilities, but they have made the business decision to not participate" in NPDES permitting.[622] As advocates have long recognized, "[g]iven the costs of permitting and the relatively low likelihood of an enforcement action, it is not surprising that many CAFOs [opt not to report their discharges]."[623] For these reasons, EPA stated *over 20 years ago* that "[w]ithout [a] rebuttable presumption, EPA believes it could not effectuate proper permitting of CAFOs because of operations that would claim to be excluded from the CWA because they do not discharge."[624] The intervening decades have borne out EPA's conclusion. As discussed above, in four of the top five swine-producing states and two of the top five dairy cow-confining states, less than ten percent of CAFOs have CWA permits.[625] Yet, ample evidence shows that CAFOs in these states are discharging.[626] As the resident of Jefferson County, Iowa puts it, "This self-policing policy is like allowing the fox to guard the hen house, with serious consequences for our waterways."[627]

In contrast to the difficulties EPA faces in proving discharges on a CAFO-by-CAFO basis, CAFO operators are well-positioned to rebut the presumption of discharge, if they truly do

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[619] *See id*. at 441–42.
[620] *See U.S. v. EME Homer City Generation L.P.*, 823 F. Supp. 2d 274, 283–85 (W.D. Pa. 2011), *aff'd*, 727 F.3d 274 (3d Cir. 2013) (explaining that CAA regulations that impose a permitting requirement only after the regulated entity self-reports are "reliant on the proverbial fox to guard the henhouse" and give rise to "efforts to evade the [permitting] program"); *see also Lana'ians for Sensible Growth v. Land Use Comm'n*, 463 P.3d 1153, 1164 (Haw. 2020) (noting that there is a "conflict of interest inherent in self-reporting"); *Riverkeeper, Inc. v. Seggos*, 75 N.Y.S.3d 854 (N.Y. Sup. Ct. 2018) (concluding that a state's general permit for CAFOs failed to provide for sufficient agency oversight because it made CAFO operators and third-parties hired by CAFO operators solely responsible for certifying nutrient management plans).
[621] *See* EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.
[622] Richard Manning, *Idaho's Sewer System is the Snake River*, High Country News (Aug. 11, 2014), https://www.hcn.org/issues/46.13/idahos-sewer-system-is-the-snake-river?b_start:int=2#body.
[623] *See* Devine & Baron, *supra* note 418, at 10.
[624] 66 Fed. Reg. at 3,009.
[625] *See supra* Section III.A.1.
[626] *See supra* Section III.A.3.
[627] Exhibit 15 ¶ 12.

not discharge. CAFO operators possess all of the facility-specific information—such as the CAFO's location, design, and operating practices—necessary to show that they do not discharge. And because CAFO operators have this information, as well as access to discharge locations, the unplanned and intermittent nature of CAFO discharges does not prevent operators from assessing whether they discharge. For the same reason, CAFO operators do not suffer from a lack of resources necessary to assess whether they discharge. And CAFO operators certainly will not experience intimidation that would prevent them from proving that they do not discharge, if that is the case. Similarly, concerns about self-reporting do not apply when CAFO operators are required to present evidence that they do not discharge and, thus, are not required to operate under an NPDES permit.

D. The Presumption Will Help Ensure the Objectives of the CWA and Environmental Justice Executive Orders.

Not only is there a sound and rational connection underlying the presumption, but the presumption also will help ensure the objectives of the CWA and Executive Orders 12,898 and 14,008.[628] For the reasons that follow, the presumption will better allow EPA to ensure that discharging CAFOs obtain NPDES permits, thereby aligning with the CWA's express statement that CAFOs are point sources under the Act , as well as advancing the CWA's goal of restoring and maintaining water quality. The presumption will also improve EPA's compliance with the environmental justice initiatives in Executive Orders 12,898 and 14,008.

1. The Presumption Will Help Ensure the Objectives of the CWA.

The presumption will improve EPA's ability to ensure that discharging CAFOs obtain NPDES permits. As shown above, EPA's approach to CAFO permitting allows many CAFOs to discharge without NPDES permits.[629] EPA's approach undermines the CWA's express statement that CAFOs are point sources and, as such, must have NPDES permits for their discharges. The presumption will help correct this problem by requiring Large CAFOs using wet manure management systems—which are an especially significant source of discharges—to apply for NPDES permits or present evidence showing that they do not actually discharge pollutants.

The presumption will also better support the CWA's goal of restoring and maintaining water quality by subjecting Large CAFOs using wet manure management systems to more stringent permit requirements. Large CAFOs using wet manure management systems "are important contributors to water pollution."[630] Despite their significant contribution to water pollution, however, Large CAFOs have "improperly tried to circumvent the [NPDES] permitting

[628] *See NLRB v. Tahoe Nugget, Inc.*, 584 F.2d at 303–04.
[629] *See supra* Section III.A.1.
[630] *Waterkeeper All., Inc.*, 399 F.3d at 506, n.22.

process."[631] When Large CAFOs fail to obtain NPDES permits, they perpetuate and exacerbate water pollution. As discussed above, Large CAFOs operating without NPDES permits operate instead under state laws or state permits that are generally less protective of water quality than NPDES permits.[632] Adopting a presumption that Large CAFOs using wet manure management systems actually discharge will correct this problem by shifting these CAFOs to more-protective NPDES permits. And EPA's ability to object to inadequate NPDES permits will further ensure that these CAFOs' permits contain the protections that the CWA requires.[633]

Shifting Large CAFOs to more-protective NPDES permits is even more necessary in light of recent efforts by states to undermine local regulations that impose more stringent requirements on CAFOs. In response to community concerns about the threats CAFOs pose to local waterways and public health, local governments across the country have enacted CAFO regulations that are more stringent than state requirements.[634] These local regulations reflect the communities' desire and need for increased protections against CAFO pollution, including in states like Iowa[635] and Missouri,[636] where the vast majority of Large CAFOs operate without more-protective NPDES permits.[637] However, state legislatures have responded to the local regulations by enacting sweeping laws aimed at thwarting all local efforts to increase regulation and oversight of CAFOs.[638] In several cases, state courts have held that the state laws override the more stringent local rules.[639] As additional states consider adopting expansive laws that

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[631] *Id.*; *see also* 68 Fed. Reg. at 7,201 ("[S]ince the inception of the NPDES permitting program in the 1970s, only a small number of Large CAFOs have actually sought permits.")
[632] *See supra* Section III.A.3.
[633] *See* 33 U.S.C. § 1342(d).
[634] *See, e.g.*, Cooper Cnty., Missouri Health Ctr. Reg. 2019-6 (prohibiting land application in areas with karst formations under certain circumstances, setting limitations on where CAFOs can construct subsurface manure confinement structures, and providing for inspections by county officials upon receipt of a community member's complaint); Austin Huguelet, *Judge Halts New Missouri Law Blocking Local Regulations on CAFOs*, Springfield News-Leader (Aug. 20, 2019), https://www.news-leader.com/story/news/local/ozarks/2019/08/20/judge-cole-county-blocks-missouri-cafos-law/2065806001/.
[635] *See Worth Cnty. Friends of Agric. v. Worth Cnty.*, 688 N.W.2d 257 (2004) (discussing a Worth County, Iowa ordinance that set limits on CAFO air pollution and required CAFOs to install systems for water quality monitoring).
[636] *See* Cooper Cnty., Missouri Health Ctr. Reg. 2019-6.
[637] *See* EPA, *NPDES CAFO Permitting Status Report: National Summary, Endyear 2021, completed 07/20/22*, *supra* note 5.
[638] *See, e.g.*, Mo. Ann. Stat. § 192.300 (providing that local governments may not "[i]mpose standards or requirements on [CAFOs] . . . that are inconsistent with, in addition to, different from, or more stringent than" state law); 3 Pa. Con. Stat. Ann. § 519(a) (providing that state law "occup[ies] the whole field of regulation regarding nutrient management . . . to the exclusion of all local regulations"); Iowa Code Ann. § 331.304A (similar); Wis. Stat. Ann. § 93.90 (similar).
[639] *See, e.g.*, *Cedar Cnty. Comm. v. Parson*, Case No. 19AC-CC00373 (Mo. Cir. Ct. Dec. 23, 2021) (holding local ordinance preempted by Missouri state law); *Com., Off. of Atty. Gen. ex rel. Corbett v. Locust Twp.*, 49 A.3d 502 (Pa. Commw. Ct. 2012) (similar, Pennsylvania); *Adams v. State Livestock*

would stifle local attempts to increase protections against CAFO pollution,[640] EPA must ensure that discharging CAFOs are operating under the more protective requirements in NPDES permits.

The presumption will also restore water quality by subjecting Large CAFOs using wet manure management systems to increased public participation and transparency, as well as to citizen suits. Allowing the public to review and comment on a CAFO's application for coverage under a NPDES permit, including its nutrient management plan, will help restore water quality. The public can identify aspects of the nutrient management plan that are insufficient to protect water quality, and it can draw attention to the plan's potential impact on local waterways. For example, the Cape Fear Riverkeeper explains: "[I]f I had the opportunity to comment on nutrient management plans, I would encourage [NC DEQ] to include numeric limitations on the amount of nutrients that CAFOs can discharge, which could help reduce algal blooms in waterways."[641]

In addition, increasing transparency regarding nutrient management plans will facilitate enforcement, as it will allow the public to identify violations of the plans and pursue citizen suits.[642] The Grant County, South Dakota resident explains, "I've looked at the state's online record of complaints against CAFOs, and I've seen complaints that they applied manure on the same field two years in a row or that they applied too much manure on a field. Without seeing the nutrient management plans, I can't make sure that those things aren't happening on the fields near our home and our drinking well."[643] Similarly, the Executive Director of Snake River Waterkeeper explains that "[w]ithout access to information on where a CAFO is land applying its waste, the amount of waste it is applying, and the guidelines it should be following to prevent discharges, it is difficult for the public to monitor CAFOs and hold them accountable for causing discharges."[644] Increasing the public's ability to bring citizen suits will, in turn, help address and deter permit violations that cause water pollution.

Facilities Siting Rev. Bd., 820 N.W.2d 404 (2012) (similar, Wisconsin); *Worth Cnty. Friends of Agric. v. Worth Cnty.*, 688 N.W.2d 257 (2004) (similar, Iowa); *David v. Bd. of Comm'rs of Norton Cnty.*, 89 P.3d 893 (2004) (similar, Kansas).

[640] *See, e.g.*, Animal Enterprise and Working Animal Regulation, Utah H.B. 746 (2022) (proposed Utah legislation that would prohibit political subdivisions from regulating CAFOs).

[641] Exhibit 14 ¶ 17.

[642] *See* Terence J. Centner, *Challenging NPDES Permits Granted Without Public Participation*, 38 B.C. Env't Affs. L. Rev. 1, 20 (2011) (explaining that "citizen suits can only be successful if people have sufficient information to learn about violations"); *see also* Exhibit 2 ¶ 20 ("As a result of self-reporting and lack of oversight, no one in our community knows where or how much manure is applied to the land. This lack of information makes it very difficult for our community to understand—let alone fight back against—pollution near our homes.").

[643] Exhibit 4 ¶ 10.

[644] Exhibit 21 ¶ 13; *see also* Exhibit 14 ¶ 17 ("If community members had access to nutrient management plans, they would know whether certain risky practices are allowed, which would help them identify and report permit violations.").

Shifting CAFOs to permits that allow for citizen suits is especially important in light of recent state legislation and judicial decisions that limit citizens' ability to bring nuisance suits against CAFOs. For example, shortly after CAFO neighbors in North Carolina brought nuisance suits alleging that odors, pests, and noises from nearby CAFOs interfered with their use and enjoyment of their homes, the North Carolina legislature enacted bills that capped the amount of damages that plaintiffs can receive from nuisance suits against CAFOs and restricted the conditions under which neighbors can bring nuisance suits against a CAFO.[645] Following North Carolina's lead, other states have also proposed or enacted legislation restricting citizens' ability to sue CAFOs for causing nuisances.[646] And a recent decision by the Iowa Supreme Court similarly makes it more difficult for CAFO neighbors in Iowa to bring nuisance suits against CAFOs.[647] As a recent article explains, limiting the availability of nuisance suits "enabl[es] industrial agribusiness entities to pollute and escape accountability at the expense of rural people and the environment."[648] Given these restrictions on nuisance suits and the lack of accountability they entail, it is all the more important for citizens to have the ability to use citizen suits to hold CAFOs accountable for the water pollution they cause.

2. The Presumption Will Help Ensure the Objectives of Executive Order 12,898.

The presumption will improve EPA's compliance with Executive Order 12,898, which requires EPA to collect data on and address environmental justice issues and ensure that environmental justice communities are able to participate in EPA's activities.[649] The presumption will better allow EPA to collect the data necessary to show that CAFOs disproportionately harm environmental justice communities—and, thereby, enable EPA to act to protect human health in those communities—because NPDES permits require CAFO operators to submit uniform, facility-specific information to EPA.[650] The presumption will also help address the disproportionate harms CAFOs impose, as it will shift CAFOs that are an especially significant source of discharges to more protective permits. And the presumption will help ensure that environmental justice communities are able to participate in EPA's CAFO permitting process, because it will move CAFOs to a permitting scheme that allows the public to review and comment on permit applications. Although "public participation by itself is not the solution to

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[645] *See* Leah Douglas, *Big Ag is Pushing Laws to Restrict Neighbors' Ability to Sue Farms*, NPR (Apr.12, 2019), https://www.npr.org/sections/thesalt/2019/04/12/712227537/big-ag-is-pushing-laws-to-restrict-neighbors-ability-to-sue-farms.
[646] *Id.*
[647] *See* David Pitt, *Iowa Court Reverses Precedent on Iowa Pig Farm Lawsuits*, AP News (June 30, 2022), https://apnews.com/article/lawsuits-iowa-pollution-water-718f84c3cce75fdf0bb2ed16daf27df8.
[648] Danielle Diamond et al., *Agricultural Exceptionalism, Environmental Injustice, and U.S. Right-to-Farm Laws* 52 ELR 10727, 10747 (2022).
[649] *See* Exec. Order 12,898.
[650] *See* 40 C.F.R. § 122.21(h)(8)(i) (requiring CAFO operators to submit information on their facility's location, size, animal type, manure storage structures, and land application areas).

environmental justice problems, . . . such problems cannot be resolved without improved public participation."[651]

3. The Presumption Will Help Ensure the Objectives of Executive Order 14,008.

Lastly, the presumption will improve EPA's compliance with Executive Order 14,008, which requires EPA to strengthen enforcement of environmental violations that disproportionately harm environmental justice communities.[652] Shifting Large CAFOs using wet manure management systems to NPDES permits will make those CAFOs subject to citizen suits. Citizen suits will, in turn, allow members of environmental justice communities to "both spur and supplement government enforcement actions"[653] against CAFOs that violate their permits.

E. Non-Discharging CAFOs Can Rebut the Presumption.

In general, a presumption may be rebutted by evidence indicating that the presumption does not apply in a specific instance.[654] Here, an operator of a Large CAFO using a wet manure management system can rebut the presumption by presenting evidence showing that the CAFO does not discharge. In light of the sound and rational connection between discharges and waste storage, transport, and land application, EPA should require the CAFO operator to present evidence showing that the CAFO does not discharge from its waste storage structures, its waste transport pipes, or its land application areas, including any tile drains and ditches. Evidence sufficient to show that a CAFO does not discharge might include evidence that the CAFO's waste pit is synthetically lined and designed, constructed, operated, and maintained to prevent discharges and contain all process-generated wastewater plus the runoff from a 100-year, 24-hour rain event; the CAFO has access to enough land application areas to apply its waste at rates that ensure that no more nutrients are applied than are necessary for the crops to achieve

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[651] EPA, Nat'l Acad. of Pub. Admin., *Environmental Justice in EPA Permitting: Reducing Pollution in High-Risk Communities is Integral to the Agency's Mission*, at 63 (2001).
[652] *See* Exec. Order No. 14,008.
[653] *Waterkeeper All., Inc.*, 399 F.3d at 503 (quoting S. Rep. No. 50, 99th Cong., 1st Sess. 28 (1985)).
[654] *See* 40 C.F.R. § 279.10(b)(1)(ii) ("Used oil containing more than 1,000 ppm total halogens is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in subpart D of part 261 of this chapter. Persons may rebut this presumption by demonstrating that the used oil does not contain hazardous waste (for example, by showing that the used oil does not contain significant concentrations of halogenated hazardous constituents listed in appendix VIII of part 261 of this chapter)."); 49 C.F.R. § 173.31(d)(2) ("ln any action brought to enforce this section, the lack of securement of any closure to a tool-tight condition, detected at any point, will establish a rebuttable presumption that a proper inspection was not performed by the offeror of the car. That presumption may be rebutted by any evidence indicating that the lack of securement resulted from a specific cause not within the control of the offeror.") (underline added).

reasonable yield goals;[655] the CAFO relies on off-farm land application areas to apply its waste at those rates; the CAFO has implemented all necessary best management practices; the CAFO conducts upstream, downstream, and groundwater water monitoring; any water pollution caused by the CAFO will not reach navigable waters; and any groundwater pollution caused by the CAFO is not a functional equivalent of a direct discharge to navigable waters.[656]

F. The Presumption Comports with Relevant Caselaw.

EPA has repeatedly concluded that CAFOs discharge and, thus, must obtain NPDES permits. As a result, EPA has made multiple attempts at revising its regulations governing CAFO permitting to increase NPDES permit coverage. As discussed below, EPA's past attempts at revising its regulations have led to two decisions clarifying when EPA may require a CAFO to apply for a NPDES permit. The requested presumption complies with both of those decisions.

1. EPA's Past CAFO Regulations Reflect the Need to Improve CAFO Permitting.

In 2001, EPA proposed to revise its regulations governing CAFO permitting and effluent limitations for the first time since 1976. EPA explained that it had "bec[o]me apparent that the regulation and permitting of CAFOs needed review due to changes in the livestock industry, specifically the consolidation of the industry into fewer, but larger operations."[657] In addition, "[d]espite more than twenty years of regulation, there [were] persistent reports of discharge and

[655] To ensure that no more nutrients are applied than are necessary for crops to achieve a reasonable yield goal, rates should be determined based on land grant university fertility rates, soil testing for available nutrients, manure nutrient analyses, and other planned nutrient applications.

[656] The evidence sufficient to rebut the presumption may be more stringent than the requirements that a CAFO would have to satisfy under a NPDES permit. For example, CAFOs operating under NPDES permits need only have a production area designed to withstand a 25-year, 24-hour rain event, *see* 40 C.F.R. § 412.31(a)(1)(i), while EPA may require a CAFO seeking to rebut the presumption to have a production area designed to withstand a 100-year, 24-hour rain event. In the case of this storm standard, EPA should require CAFOs seeking to rebut the presumption to meet the more stringent standard because NPDES permits contemplate and, indeed, allow discharges due to storms that exceed the 25-year, 24-hour standard. *Id.* However, CAFOs operating without NPDES permits may not discharge at all. Thus, the more stringent storm standard is necessary to ensure that those CAFOs do not discharge. And, more generally, because CAFOs operating without NPDES permits are often not subject to agency and public oversight meant to ensure that they do not discharge, *see supra* Section III.A.3., it is appropriate and necessary for EPA require CAFOs seeking to rebut the presumption and avoid operating under NPDES permits to show that they have adopted more stringent operating standards and, thus, do not need that oversight.

[657] 66 Fed. Reg. at 2,965.

runoff of manure and manure nutrients from livestock and poultry operations."[658] Yet, "[u]nder the existing regulations, few operations [had] obtained NPDES permits."[659]

To remedy the problem of CAFOs discharging without NPDES permits, in 2003, EPA promulgated revised CAFO permitting regulations. As relevant here, EPA's 2003 regulations required all CAFO owners or operators to apply for a NPDES permit, except "in very limited situations where they make an affirmative demonstration of 'no potential to discharge.'"[660] EPA explained that there was a "sound basis in the administrative record for the presumption that all CAFOs have a *potential* to discharge to the waters of the United States such that they should be required to apply for a permit, unless they can show no potential to discharge."[661]

A court found that requiring all CAFO owners or operators to apply for a NPDES permit violated the CWA. In *Waterkeeper Alliance, Inc. v. EPA*, the court explained that "unless there is a 'discharge of any pollutant,' there is no violation of the Act, and point sources are, accordingly, neither statutorily obligated to comply with EPA regulations for point source discharges, nor are they statutorily obligated to seek or obtain an NPDES permit."[662] This is because "the [CWA] gives the EPA jurisdiction to regulate and control only *actual* discharges—not potential discharges, and certainly not point sources themselves."[663] Because the 2003 regulations imposed obligations on CAFOs regardless of whether they actually discharge, the court found that the regulations violated the Act's statutory scheme.[664]

In response to the *Waterkeeper* decision, EPA promulgated revised regulations aimed at "continu[ing] to maintain the focus on regulating discharges" from CAFOs.[665] EPA's 2008 regulations required CAFOs that "discharge or propose to discharge" to apply for NPDES permits.[666] A CAFO proposed to discharge if it was "designed, constructed, operated, or maintained such that a discharge will occur, not simply such that it might occur."[667] Whether a CAFO proposed to discharge was based on the CAFO operator's objective assessment of the

[658] *Id.* at 2,972.
[659] *Id.* at 2,976.
[660] 68 Fed. Reg. at 7,200.
[661] *Id.* at 7,201 (emphasis added).
[662] *Waterkeeper All., Inc.*, 399 F.3d at 504.
[663] *Id.* at 505.
[664] *Id.*
[665] Revised National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines for Concentrated Animal Feeding Operations in Response to Waterkeeper Decision, 71 Fed. Reg. 37,744-01, 37,746 (June 30, 2006).
[666] Revised National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations in Response to the Waterkeeper Decision, 73 Fed. Reg. 70,418, 70,423 (Nov. 20, 2008).
[667] *Id.*

manmade aspects of the CAFO, along with the climatic, hydrological, and topographical characteristics of the area where the CAFO was located.[668]

A court again found that EPA's regulation violated the CWA. In *National Pork Producers Council v. EPA*, the court held that EPA's definition of CAFOs that "propose to discharge" ran afoul of the rule that "there must be an actual discharge into navigable waters to trigger the CWA's requirements and the EPA's authority."[669] The court explained that, rather than applying to CAFOs that "form or declare a plan or intention" to discharge, the 2008 regulation applied to CAFOs "regardless of whether the operator wants to discharge or is presently discharging."[670] Because the 2008 regulation imposed an obligation to obtain a permit in the absence of an actual discharge, EPA had exceeded its authority under the Act.[671]

Following the decision in *National Pork Producers*, EPA's CAFO permitting regulations returned to their reliance on self-reporting. CAFO operators determine whether they discharge or plan to discharge and, thus, whether they must apply for a NPDES permit. As detailed above, the problems that EPA identified in its past CAFO regulations—persistent reports of discharges from CAFOs, yet few CAFOs operating under NPDES permits—have not been resolved.[672]

2. The Presumption Comports with *Waterkeeper* and *National Pork Producers*.

The requested presumption does not suffer from the same flaws as the rules at issue in *Waterkeeper* and *National Pork Producers*. Whereas those rules applied to CAFOs that had not yet discharged—including CAFOs that had a *potential* to discharge[673] and those that *proposed* to discharge[674]—the requested presumption applies to CAFOs that *actually* discharge. And, because the presumption is properly supported by a proven sound and rational connection between Large CAFOs using wet manure management systems and actual discharges, it operates as a stand-in for the inferred fact: actual discharge.[675] Therefore, the presumption regulates

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[668] *Id.* at 70, 424.
[669] *Nat'l Pork Producers Council v. EPA*, 635 F.3d 738, 751 (5th Cir. 2011).
[670] *Id.* at 750.
[671] *Id.* at 751.
[672] *See supra* Section III.A.1.
[673] *Waterkeeper All., Inc.*, 399 F.3d at 505 (noting that in the rule at issue, "[t]he 'duty to apply' provision is based on the presumption that every CAFO has a potential to discharge" (emphasis added)).
[674] *Nat'l Pork Producers Council*, 635 F.3d at 750 (noting that the rule at issue defined CAFOs that propose to discharge as CAFOs that are "designed, constructed, operated, and maintained in a manner such that the CAFO *will* discharge" (emphasis added)).
[675] *See Cole v. U.S. Dep't of Agric.*, 33 F.3d 1263, 1268 (11th Cir. 1994) (explaining that "[t]o the extent that the fact to be presumed (event A) is properly inferred from proof of the predicate fact (event B)," the agency "is *not*, in fact, imposing a penalty on event B"; rather, it is imposing a penalty on event A); *see also Ortiz v. McDonough*, 6 F.4th 1267, 1281 (Fed. Cir. 2021) ("A presumption itself . . . effectively

discharges, not CAFOs. Each CAFO subject to the presumption is deemed to discharge and, as a result, the presumption imposes the obligation to apply for a NPDES permit or present evidence to rebut the presumption only on CAFOs that actually discharge.[676] For all these reasons, the presumption comports with the CWA, *Waterkeeper*, and *National Pork Producers*.[677]

The *Waterkeeper* court, in fact, expressly raised the prospect of the requested presumption, leaving open the possibility that EPA "might properly presume that Large CAFOs—or some subset thereof—actually discharge."[678] The requested presumption fits squarely in this opening. The *Waterkeeper* court observed that "EPA ha[d] marshaled evidence suggesting that such a prophylactic measure may be necessary to effectively regulate water pollution from Large CAFOs."[679] In the nearly 20 years since EPA's 2003 regulations, there has only been an increase in evidence showing that Large CAFOs using wet manure management systems actually discharge and a presumption of discharge is necessary to regulate their

'supplies the required evidence' when specified 'preconditions are satisfied.'" (quoting *Snyder v. McDonough*, 1 F.4th 996, 1004 (Fed. Cir. 2021))).

[676] Even if the requested presumption were understood to impose an obligation on Large CAFOs using wet manure management systems that do not discharge water pollution, that obligation is neither unreasonable nor unprecedented. *First*, given the sound and rational connection between Large CAFOs using wet manure management systems and actual discharge, any CAFO meeting this description that does *not* discharge plainly has avoided discharge through careful planning and responsible oversight. The owner or operator of such a CAFO could rebut the presumption simply by providing EPA with evidence of the measures they already have implemented to avoid discharge. *Second*, EPA and other federal agencies already require certain entities to establish that they are *not* subject to legal requirements. For instance, under the Clean Air Act, facilities with the potential to emit regulated pollutants at or above certain thresholds can avoid stringent requirements only by agreeing to adhere to enforceable restrictions. *See* EPA, *True Minor Source and Synthetic Minor Source Permits*, https://www.epa.gov/tribal-air/true-minor-source-and-synthetic-minor-source-permits.

[677] In addition, the requested presumption does not implicate the major questions doctrine because it does not reflect an extravagant assertion of regulatory power. Instead, the presumption applies narrowly; it applies only to Large CAFOs using wet manure management systems, and as noted above, all Large CAFOs make up just 0.6 percent of all farms and seven percent of all concentrated feeding operations. *See supra* Section I.C. Nor is the presumption unprecedented. EPA has long required discharging CAFOs to obtain NPDES permits, as the CWA requires, and it has attempted at least twice to ensure that all discharging CAFOs obtain NPDES permits. In addition, the presumption does not reflect a fundamental revision of the CWA. To the contrary, the CWA expressly prohibits CAFOs from discharging to the nation's waters unless authorized to do so subject to NPDES permits. Moreover, even if the presumption triggered the major questions doctrine, EPA can overcome any skepticism as to its regulatory authority because the CWA contains clear congressional authorization to regulate in this manner. As explained above, the CWA *requires* EPA to either ensure that discharging CAFOs obtain NPDES permits or enforce the Act's prohibition on unpermitted discharges from CAFOs. *See supra* Section III.A. The presumption is a tool that will help EPA meet Congress's requirement.

[678] *Waterkeeper All., Inc.*, 399 F.3d at 506, n.22.399 F.3d at 506, n.22.

[679] *Id.*

discharges. As described above, extensive evidence shows that Large CAFOs discharge from waste storage, transport, and disposal, and that CAFOs continue to be under-permitted.

PROPOSED REGULATORY LANGUAGE

All Large CAFOs using wet manure management systems are presumed to actually discharge pollutants and, thus, must apply for an individual NPDES permit or submit a notice of intent for coverage under a general NPDES permit, unless the CAFO presents evidence showing that it does not actually discharge pollutants.

CONCLUSION

EPA has long known that "[d]espite more than [forty] years of regulation, there are persistent reports of discharge[s]"[680] from CAFOs and that "a growing body of literature suggest[s] that the communities disproportionately impacted by CAFOs are communities of color and economically disadvantaged communities."[681] Yet, as this petition shows, EPA's approach to permitting Large CAFOs using wet manure management systems—which are an especially significant source of discharges—*exacerbates*, rather than addresses, these problems. EPA's failure to adequately regulate these industrial operations violates the CWA and perpetuates environmental injustice. To help correct this failure, Petitioners ask EPA to adopt a rebuttable presumption that Large CAFOs using wet manure management systems actually discharge water pollution and, thus, must apply for NPDES permits.

[680] 66 Fed. Reg. at 2,972.
[681] EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 2, at 75.