BEFORE THE UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

FOOD & WATER WATCH, ARKANSAS RIGHTS KOALITION, ASSATEAGUE COASTAL TRUST (MARYLAND), ASSOCIATION OF IRRITATED RESIDENTS (CALIFORNIA), BUFFALO RIVER WATERSHED ALLIANCE (ARKANSAS), CENTER FOR BIOLOGICAL DIVERSITY, CENTER FOR FOOD SAFETY, CONCERNED CITIZENS AGAINST INDUSTRIAL CAFOS (MARYLAND), DAKOTA RURAL ACTION (SOUTH DAKOTA), DALLAS COUNTY FARMERS AND NEIGHBORS (IOWA), DES MOINES WATER WORKS (IOWA), DODGE COUNTY CONCERNED CITIZENS (MINNESOTA), DON'T WASTE ARIZONA, THE ENVIRONMENTAL INTEGRITY PROJECT, GRAND RIVERKEEPER (OKLAHOMA), HELPING OTHERS MAINTAIN ENVIRONMENTAL STANDARDS (ILLINOIS), ILLINOIS CITIZENS FOR CLEAN AIR & WATER, INSTITUTE FOR AGRICULTURE AND TRADE POLICY, INTERFAITH WORKER JUSTICE (NEW MEXICO), IOWA CITIZENS FOR COMMUNITY IMPROVEMENT, JEFFERSON COUNTY FARMERS & NEIGHBORS (IOWA), JOHNS HOPKINS CENTER FOR A LIVABLE FUTURE, KEWAUNEE CITIZENS ADVOCATING RESPONSIBLE ENVIRONMENTAL STEWARDSHIP (WISCONSIN), LAND STEWARDSHIP PROJECT (MINNESOTA), MIDWEST ENVIRONMENTAL ADVOCATES (WISCONSIN), MISSOURI RURAL CRISIS CENTER, MOMS ACROSS AMERICA EASTERN SHORE CHAPTER (MARYLAND), MONTGOMERY TOWNSHIP FRIENDS OF FAMILY FARMS (PENNSYLVANIA), NORTH CAROLINA ENVIRONMENTAL JUSTICE NETWORK, OZARK RIVER STEWARDS (ARKANSAS), PATUXENT RIVERKEEPER (MARYLAND), POWESHIEK COMMUNITY ACTION TO RESTORE ENVIRONMENTAL STEWARDSHIP (IOWA), PRESERVE OUR SHORE ACCOMACK COUNTY (VIRGINIA), AND RIO VALLE CONCERNED CITIZENS (NEW MEXICO),

Petitioners,

v.

SCOTT PRUITT, ADMINISTRATOR,
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,

Respondent.

PETITION TO REVISE THE CLEAN WATER ACT REGULATIONS FOR CONCENTRATED ANIMAL FEEDING OPERATIONS

TABLE OF CONTENTS

I. INTRODUCTION

The goal of the Clean Water Act (CWA or Act) is to eliminate the discharge of pollutants into waterways.[1] As one way of making progress toward that goal, the Act generally instructs the Environmental Protection Agency (EPA) to regulate polluters by identifying, and requiring the use of, state-of-the-art pollution-control technology for each industry. EPA has made significant strides in meeting its CWA mandate to regulate point source pollution from most industrial and municipal sources. However, the Agency has made very little progress in its efforts to regulate pollution from concentrated animal feeding operations (CAFOs). As a result, the agricultural sector, including CAFOs, remains largely unregulated and is now the nation's leading source of water quality impairments.[2] The Agency's current CAFO regulations are plainly not up to the task of protecting our waterways from industrial livestock operations.

EPA has attempted to improve its CAFO regulatory scheme over the past fifteen years, but has been largely unsuccessful, in part due to adverse judicial decisions, and in part due to the Agency's failure to craft strong regulations. Court challenges to EPA's rules are responsible for some of EPA's setbacks; the *Waterkeeper Alliance* and *National Pork Producers Council* decisions limited the universe of CAFOs required to obtain CWA permits under EPA's current regulatory approach. Yet the core elements of CAFO permits established in EPA's 2003 CAFO rule are also inadequate, and are still in effect. The current regulations fail to require water monitoring, do not prohibit practices known to harm water quality, generally ignore numerous pollutants of concern, place critical decisions about waste management in the hands of state agencies, and exempt most chronic CAFO discharges from permit requirements through an unreasonably broad reading of the agricultural stormwater exemption.[3] In short, the existing regulations are far too weak, and do not apply to enough of the industry, to protect water quality.

EPA must take further action to fulfill its CWA obligations, and the Agency's 2003 and 2008 rulemaking attempts do not in any way lessen this duty. EPA maintains clear authority to strengthen its approach to CAFO regulation in numerous ways, and has amassed a large volume of new information about CAFO pollution since it put forth the 2001 proposal that largely shaped the current regulations. This petition lays out a regulatory course of action for EPA to better use its authority to control CAFO pollution and further the objectives of the Act.

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[1] 33 U.S.C. § 1251(a)(1).

[2] National Pollutant Discharge Elimination System Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations, 68 Fed. Reg. 7179, 7237 (Feb. 12, 2003) (codified at 40 C.F.R. pts. 9, 122, 123, 412) [hereinafter 2003 CAFO Rule].

[3] *Id.* § 122.23(e). This exemption excludes "agricultural stormwater discharge" from the definition of "point source" though the former term is not defined in the Act. 42 U.S.C. § 1362(14).

Food & Water Watch, Arkansas Rights Koalition, Assateague Coastal Trust (Maryland), Association of Irritated Residents (California), Buffalo River Watershed Alliance (Arkansas), Center for Biological Diversity, Center for Food Safety, Concerned Citizens Against Industrial CAFOs (Maryland), Dakota Rural Action (South Dakota), Dallas County Farmers and Neighbors (Iowa), Des Moines Water Works (Iowa), Dodge County Concerned Citizens (Minnesota), Don't Waste Arizona, the Environmental Integrity Project, Grand Riverkeeper (Oklahoma), Helping Others Maintain Environmental Standards (Illinois), Illinois Citizens for Clean Air & Water, Institute for Agriculture and Trade Policy, Interfaith Worker Justice (New Mexico), Iowa Citizens for Community Improvement, Jefferson County Farmers & Neighbors (Iowa), Johns Hopkins Center for a Livable Future, Kewaunee Citizens Advocating Responsible Environmental Stewardship (Wisconsin), Land Stewardship Project (Minnesota), Midwest Environmental Advocates (Wisconsin), Missouri Rural Crisis Center, Moms Across America Eastern Shore Chapter (Maryland), Montgomery Township Friends of Family Farms (Pennsylvania), North Carolina Environmental Justice Network, Ozark River Stewards (Arkansas), Patuxent Riverkeeper (Maryland), Poweshiek Community Action to Restore Environmental Stewardship (Iowa), Preserve Our Shore Accomack County (Virginia), and Rio Valle Concerned Citizens (New Mexico) (collectively, Petitioners) hereby petition EPA to promulgate new CAFO regulations pursuant to the Administrative Procedure Act (APA), 5 U.S.C. § 551 et seq., and the CWA, 33 U.S.C. § 1251 et seq. The Petitioners collectively represent millions of citizens from across the United States, including many individuals adversely impacted by CAFO water pollution in their communities.

A. Legal Background

a. Citizens' Right to Petition and EPA's Duty to Respond

The citizen right to petition the government originates in the First Amendment,[4] and is codified and applied to federal agency regulations through the APA's requirement that "[e]ach agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule."[5] The APA also imposes an affirmative obligation on EPA to timely respond to this petition, by requiring that "[w]ith due regard for the convenience and necessity of the parties or their representatives and within a reasonable time, each agency shall proceed to conclude a matter presented to it."[6] In the event EPA seeks to deny the petition in whole or in part, it must provide "[p]rompt notice" to the petitioners.[7]

The APA further grants a right of judicial review to "[a] person suffering legal wrong

[4] U.S. Const. amend. I ("Congress shall make no law . . . abridging . . . the right of the people . . . to petition the Government for a redress of grievances").
[5] 5 U.S.C. § 553(e).
[6] *Id.* § 555(b).
[7] *Id.* § 555(e).

because of agency action, or adversely affected or aggrieved by agency action,"[8] which is defined to include the "failure to act."[9] In the event EPA fails to timely respond or improperly denies the petition in whole or part, courts "shall compel agency action unlawfully withheld or unreasonably delayed,"[10] and "hold unlawful and set aside agency action, findings, and conclusions found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law."[11]

b. EPA's Duty to Regulate CAFOs under the Clean Water Act

The CWA's objective is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters" by eliminating discharges of pollutants into navigable waters.[12] The National Pollutant Discharge Elimination System (NPDES) permitting program is the primary pollution control mechanism available to EPA and the states to regulate point source discharges."[13] When Congress specifically included "concentrated animal feeding operations" in the CWA's definition of "point source,"[14] it demonstrated unambiguous intent to control and continuously reduce discharges of pollution from the CAFO industry through the NPDES program. Developing and implementing effective CAFO NPDES regulations is therefore one of EPA's clearest CWA obligations.

These regulations must ensure that the entire universe of discharging CAFOs is required to obtain NPDES permits, and that those permits will impose adequate conditions to track and restrict the industry's pollution. The CWA requires EPA to meet certain criteria when establishing the permit requirements for a discharging industry. EPA imposes NPDES permit requirements through the development of national Effluent Limitation Guidelines (ELGs) for industrial source categories. ELGs establish the pollution control levels that industries and facilities must achieve for various types of pollutants, and must be based on several technology-based standards for different categories of pollutants.

Existing facilities are subject to: best available technology economically achievable (BAT) for priority and nonconventional pollutants, which include nitrogen, phosphorus, metals, and pharmaceuticals; best conventional pollutant control technology (BCT) for conventional pollutants, which include fecal coliform, biochemical oxygen demand, pH, oil and grease, and total suspended solids; and best practicable control technology currently available (BPT) for all

[8] *Id.* § 702.
[9] *Id.* § 551(13).
[10] *Id.* § 706(1).
[11] *Id.* § 706(2)(A).
[12] 33 U.S.C. § 1251(a).
[13] *Id.* § 1342.
[14] *Id.* § 1362(14).

pollutants. New sources are subject to more stringent new source performance standards (NSPS) for all pollutants, based on the best available demonstrated control technology (BADT).[15]

EPA must consider various criteria when deriving each standard. BAT must take into account, *inter alia*, facility age, cost of achieving pollution reduction, and non-water quality environmental impacts. BCT must also take these factors into account, but in addition to the requirements that technologies be both available and economically achievable, EPA must consider the reasonableness of the relationship between a technology's cost and the pollution reductions achieved.[16] New source performance standards must "reflect[] the greatest degree of effluent reduction which the Administrator determines to be achievable . . . including, where practicable, a standard permitting no discharge of pollutants."[17]

Such technology-based effluent limitations (TBELs) afford the *minimum* level of water quality protection required by the CWA,[18] and permits must establish such limits for all pollutants present in a discharge.[19] EPA has made clear that state permit writers must address pollutants omitted from federal ELGs by including best professional judgment (BPJ) limits on a case-by-case basis,[20] yet state CAFO permits typically do not control metals, pharmaceuticals, or other pollutants of concern with BPJ limits. EPA has authority to remedy this by including controls for the full suite of CAFO pollutants in its CAFO ELGs.

EPA must annually review, and if appropriate, revise, its ELGs for each source category.[21] In its Final 2014 Effluent Guidelines Program Plan, the most recent final plan at the time of filing, EPA excluded the CAFO point source category from review altogether because it

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[15] *Id.* §§ 1311(b)(2)(A), 1314(b)(4)(A), 1314(b)(1)(A), 1316.

[16] *Id.* §§ 1314(b)(2)(B), 1314(b)(4)(B); 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. 70418, 70463 (Nov. 20, 2008) [hereinafter 2008 CAFO Rule].

[17] 33 U.S.C. § 1316(a)(1).

[18] 40 C.F.R. § 122.44 ("[E]ach NPDES permit shall include conditions meeting the following requirements . . . Technology-based effluent limitations and standards based on: effluent limitations and standards promulgated under section 301 of the CWA, or new source performance standards promulgated under section 306 of CWA, on [sic] case-by-case effluent limitations determined under section 402(a)(1) of CWA, or a combination of the three, in accordance with § 125.3 of this chapter"); 40 C.F.R. § 125.3 ("Technology-based treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act").

[19] 40 C.F.R. § 125.3(a)(2), requiring permits to contain technology-based limits for "conventional pollutants," "all toxic pollutants," and "all pollutants which are neither toxic nor conventional pollutants."

[20] *See* 33 U.S.C. § 1311(b)(2)(A); 40 C.F.R. § 125.3(c)-(d); James A. Hanlon, Director, EPA Office of Wastewater Management, *National Pollutant Discharge Elimination System (NPDES) Permitting of Wastewater Discharges from Flue Gas Desulfurization (FGD) and Coal Combustion Residuals (CCR) Impoundments at Steam Electric Power Plants*, Attachment A 1-2 (Jun. 7, 2010) [hereinafter Hanlon BPJ Memo]. Although this Memorandum discussed coal plant discharge limits, the statutory requirement to establish technology-based limits using BPJ is equally applicable across industries.

[21] 33 U.S.C. §§ 1311(e) (requiring that effluent limits be applied to all point sources of discharge of pollutants); 1314(b) (EPA must revise such regulations, at least annually if appropriate). *See also* 33 U.S.C. § 1311(d) (requiring EPA to review, and if appropriate revise, BAT limits every five years). Effluent limitations include "any restriction established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters." 33 U.S.C. § 1362.

had revised the CAFO ELGs within the past seven years.[22] In its 2015 Annual Review, EPA determined that the CAFO category was not an ELG priority and that ELG revisions are not warranted, and consequently did not propose any review of the CAFO ELGs in the 2016 draft Program Plan.[23] Yet the condition of America's waterways undeniably demonstrates that the current ELGs are not adequate. When EPA completes its 2016 Program Plan, the November 20, 2008 rule will have been in effect for more than seven years, and EPA must review and revise its CAFO NPDES regulations and ELGs without further delay.[24]

B. Factual Background

The continued growth, consolidation, and increase in operational scale in the CAFO industry over the past several decades, along with growing evidence of the industry's widespread contamination of waterways, demonstrates that EPA's CAFO regulations are inadequate to control CAFO discharges to the extent required under the CWA. Due to the absence of adequate federal and state oversight, CAFOs have become a significant source of water pollution across the U.S.

a. Growth and Consolidation in Animal Production

Animal production has changed dramatically over the last several decades, with a strong trend toward larger facilities and regional concentration of livestock and poultry operations.[25] A majority of animals are now raised in confinement, and may be transferred between several industrial-scale facilities at different stages of their growth.[26] While the total number of livestock

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[22] EPA, Final 2014 Effluent Guidelines Program Plan Sec. 3.2.1, T. 3-1 ("In general, EPA removed an industrial point source category from further consideration during a review cycle if EPA established, revised, or reviewed the category's ELGs within seven years prior to the annual reviews") (July 2015), https://www.epa.gov/sites/production/files/2015-09/documents/final-2014-effluent-guidelines-program-plan_july-2015.pdf.

[23] EPA, Preliminary 2016 Effluent Guidelines Program Plan Sec. 10-1 (June 2016), https://www.epa.gov/sites/production/files/2016-06/documents/prelim-2016-eg-plan_june-2016.pdf. This determination is hard to reconcile with EPA's continued listing of CAFOs as one of its water "enforcement priorities," with the goals of using innovative monitoring and pollution control technologies to reduce CAFO water pollution impacts. *See* EPA, National Enforcement Initiative: Preventing Animal Waste from Contaminating Surface and Ground Water, https://www.epa.gov/enforcement/national-enforcement-initiative-preventing-animal-waste-contaminating-surface-and-ground (last visited Feb. 10, 2017).

[24] In fact, EPA has not undergone a comprehensive review of the CAFO regulations since 2003, when it proposed substantive changes to the CAFO regulations. Aside from affirmatively finding that the BCT limitations in the 2003 rule represent BCT for fecal coliform, the 2008 rule did not revisit the technology-based effluent limits for CAFO pollutants, nor did the minor amendments published without notice and comment in 2012.

[25] Claudia Copeland, *Animal Waste and Hazardous Substances: Current Laws and Legislative Issues*, CRS Report RL33691 1 (Nov. 8, 2011) [hereinafter *Animal Waste and Hazardous Substances*], https://fas.org/sgp/crs/misc/RL33691.pdf.

[26] EPA, *Literature Review of Contaminants in Livestock and Poultry Manure and Implications for Water Quality*, EPA 820-R-13-002 5 (July 2013) [hereinafter EPA Literature Review],

animals raised has grown, the number of farms has declined substantially.[27] In fact, since the 1950s the production of livestock and poultry in the U.S. has more than doubled, while the number of operations has decreased by 80%.[28] As a result of this growth, factory farm livestock produced an estimated thirteen times as much waste as the entire U.S. population in 2012.[29]

CAFOs and entire livestock sectors are also increasingly concentrated in certain watersheds and areas of the country, which has increased water quality risks as waste production surpasses land available for disposal. The Government Accountability Office has analyzed this trend, finding that EPA's approach to CAFO regulation under the CWA has been under-protective of water quality, and has allowed CAFO manure generation to surpass cropland in some regions, leading to contamination of surface and ground waters in counties with insufficient cropland to agronomically utilize manure nutrients.[30] Reviewing this trend towards consolidation of manure nutrient production nationwide, the U.S. Department of Agriculture similarly found dramatic increases in manure nutrients relative to the ability of cropland to utilize them between 1982 and 1997.[31]

b. CAFO Water Pollution Impacts

Standard CAFO operation and waste disposal practices have led to widespread water pollution. Numerous studies identify agriculture as the nation's leading contributor to water quality impairments in rivers and lakes, with manure responsible for a significant share of that

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https://www.scribd.com/document/214717740/Literature-Review-of-Contaminants-in-Livestock-and-Poultry-Manure-and-Implications-for-Water-Quality.

[27] *Id.* at 1. For example, the number of dairy farms fell by about 40% between 1999 and 2008, but during the same period, the number of dairy cows decreased by only 16%, while total milk production increased by 18%. John C. Becker & John H. Howard, *A Historical View of the Solutions Offered to Regulate Concentrate Animal Feeding Operations under the Clean Water Act: What Has Been Learned*, 3 Ky. J. Equine Agric. & Nat. Res. L. 71, 75 (2010). Similarly, between 1994 and 2001 the number of hog farms in the U.S. decreased by approximately 120,000 while the number of hogs remained relatively stable. Susan M. Brehm, *From Red Barn to Facility: Changing Environmental Liability to Fit the Changing Structure of Livestock Production*, 93 Cal. L. Rev. 797, 801 (2005). The poultry market peaked even earlier, with the number of broiler chicken farms dropping 35% between 1969 and 1992, while the number of chickens produced tripled. John Marks, *Regulating Agricultural Pollution in Georgia: Recent Trends and the Debate over Integrator Liability*, 18 Ga. State Univ. L. Rev. 1031, 1035 (2002).

[28] EPA Literature Review at 1.

[29] EPA, National Pollutant Discharge Elimination System (NPDES) Concentrated Animal Feeding Operation (CAFO) Reporting Rule, Proposed Rule, 76 Fed. Reg. 65431, 65433 (Oct. 21, 2011) [hereinafter Proposed CAFO Reporting Rule]; Food & Water Watch, *Factory Farm Nation 2015 Edition* 3 (2015) [hereinafter *Factory Farm Nation*], http://www.foodandwaterwatch.org/sites/default/files/factory-farm-nation-report-may-2015.pdf.

[30] GAO, *Concentrated Animal Feeding Operations: EPA Needs More Information and a Clearly Defined Strategy to Protect Air and Water Quality from Pollutants of Concern* 21-22 (2008), http://www.gao.gov/assets/290/280229.pdf [hereinafter GAO CAFO Report]. *See also Animal Waste and Hazardous Substances* at 1 (noting that in 1997 USDA estimated that 66,000 operations had nitrogen in excess of the "assimilative capacity of the soil," while 89,000 operations had a similar excess in phosphorous).

[31] Robert L. Kellogg, et al., *Manure Nutrients Relative to the Capacity of Cropland and Pastureland to Assimilate Nutrients: Spatial and Temporal Trends for the U.S.*, USDA Pub. No. nps00-0579 75 (2000), http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_012133.pdf. This does not address other manure pollutants that are not agronomically valuable in any quantity.

pollution.[32] Twenty–nine states have specifically identified AFOs as contributing to their water quality impairments,[33] and states with high concentrations of CAFOs "experience on average 20 to 30 serious water quality problems per year as a result of manure management problems."[34] EPA has acknowledged that "[w]ater quality impacts from CAFOs may be due, in part, to inadequate compliance with existing regulations or to limitations in CAFO permitting programs."[35]

Surface water pollution from CAFOs occurs through two major pathways—production areas and land application fields. Spills, runoff, and other unintentional discharges may occur from numerous parts of a CAFO production area, such as manure lagoons, pits, or stockpiles, feed storage areas, livestock confinement ventilation fans, and mortality management areas. A number of factors, including poor facility design, equipment failure, operator error, and extreme weather events, lead to discharges. Operators may also cause releases intentionally if inadequate storage, poor planning, or rainfall accumulation results in overly full waste impoundments.[36]

Surface water pollution from CAFO production areas in various livestock sectors is widespread and has impacted waterways across the country. Hundreds of documented overflows and catastrophic failures of manure storage systems have resulted in large discharges, which in turn have caused toxic stream conditions and large fish kills in numerous states, including Iowa, Wisconsin, Minnesota, Michigan, Missouri, Illinois, New York, Virginia, and North Carolina.[37] In addition, earthen lagoons, and even most lined lagoons, are not designed to retain all wastewater. These storage systems are designed to allow seepage and/or leaking of manure into groundwater, which can lead to jurisdictional discharges into nearby surface waters.[38] Even deep

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[32] David Osterberg and David Wallinga, *Addressing Externalities from Swine Production to Reduce Public Health & Environmental Impacts*, 94 Am. J. Pub. Health 1703, 1704 (Oct. 2004) (estimating that "[c]urrent farming practices are responsible for 70% of the pollution in the nation's rivers and streams"); Claudia Copeland, *Air Quality Issues and Animal Agriculture—A Primer*, CRS Report RL32948 9 (Apr. 11, 2007) [hereinafter *Air Quality Primer*], http://nationalaglawcenter.org/wp-content/uploads/assets/crs/RL32948.pdf.

[33] Proposed CAFO Reporting Rule, 76 Fed. Reg. at 65434, citing EPA, National Water Quality Inventory: Report to Congress—2004 Reporting Cycle, EPA–841–R–08–001 (Jan. 2009).

[34] Carrie Hribar, Nat'l Ass'n of Local Bds. of Health, *Understanding Concentrated Animal Feeding Operations and Their Impact on Communities* 4 (2010) [hereinafter *Understanding CAFOs and Their Impact on Communities*], http://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf.

[35] Proposed CAFO Reporting Rule, 76 Fed. Reg. at 65434.

[36] *Id.*

[37] *See, e.g.*, EPA Literature Review at 49 (reviewing reported incidences of fish kills); Iowa DNR, Manure Discharge Chart, http://www.iowadnr.gov/Environmental-Protection/Land-Quality/Animal-Feeding-Operations/EPA-DNR-Workplan-Materials (last visited Feb. 10, 2017); David Jackson and Gary Marx, Chicago Tribune, Spills of Pig Waste Kill Hundreds of Thousands of Fish in Illinois (Aug. 5, 2016), http://www.chicagotribune.com/news/watchdog/pork/ct-pig-farms-pollution-met-20160802-story.html; Lee Bergquist and Kevin Crowe, Milwaukee Journal Sentinel, Manure Spills in 2013 the Highest in Seven Years Statewide (Dec. 5, 2013), http://archive.jsonline.com/news/wisconsin/manure-spills-in-2013-the-highest-in-seven-years-statewide-b99157574z1-234701931.html; Sara Peach, National Geographic, What to Do about Pig Poop? North Carolina Fights a Rising Tide (Oct. 30, 3014), http://news.nationalgeographic.com/news/2014/10/141028-hog-farms-waste-pollution-methane-north-carolina-environment/.

[38] *See* Natural Resources Conservation Service (NRCS), Conservation Practice Standard 359: Waste Treatment Lagoon (Jul. 2004), https://efotg.sc.egov.usda.gov/references/public/AL/tg359.pdf. *See also, e.g.*, Animal Waste

pit systems that retain waste below confinement buildings, as are common in the hog industry, are reliant on pumping systems and are prone to structural and equipment failures that cause discharges to surface and groundwater.[39]

CAFO discharges also occur due to waste application to cropland in excess of crop needs or under conditions that lead to runoff, such as on frozen, saturated, or sloped ground, or when crops are not in place to uptake nutrients. Many manure application fields also contain direct conduits to waterways, such as tile lines, ditches, grassed waterways, or sinkholes, and application practices do not always properly account for the need for setbacks from these features. As a result of application under any of these circumstances, precipitation, erosion, and other natural processes carry excess nutrients and other CAFO pollutants off of land application fields and into surface waters and conduits to surface waters. Collectively, these discharges are responsible for widespread degradation of U.S. waterways, and due to inadequate tracking and regulation, the full magnitude of their water pollution impacts remains unknown.

CAFO wastes contain numerous pollutants that pose substantial threats to human health and the environment. Specifically, these wastes include nitrogen, phosphorous, pathogens, salts, heavy metals, trace elements, antibiotics, pesticides, and hormones.[40] Pathogens associated with CAFO manure include *E. coli*, *Salmonella*, and *Giardia*,[41] which endanger those who come into contact with contaminated water through swimming, boating, or other recreational activities. EPA has found that "[m]ore than 150 pathogens associated with industrial livestock production are also associated with risks to humans, including the six human pathogens that account for more than 90% of food and waterborne diseases."[42] Various pathogens in CAFO waste can cause symptoms such as diarrhea and an increased risk for severe illness or death.[43]

Management Plan for Lost Valley Ranch Dairy App. A, discussing expected leakage rates from double lined lagoons, http://www.oregon.gov/ODA/programs/NaturalResources/Pages/CAFO.aspx. Although groundwater is not regulated as water of the United States, EPA has a longstanding position that point source discharges into groundwater that then discharge to surface waters via a "direct hydrological connection" are jurisdictional and subject to NPDES permitting requirements. National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations, Proposed Rule, 66 Fed. Reg. 2960, 3016 (Jan. 12, 2001) [hereinafter 2001 Proposed CAFO Rule].

[39] *See, e.g.*, Iowa DNR, Manure Discharge Chart, http://www.iowadnr.gov/Environmental-Protection/Land-Quality/Animal-Feeding-Operations/EPA-DNR-Workplan-Materials.

[40] EPA Literature Review at 2. *See also* 2001 Proposed CAFO Rule, 66 Fed. Reg. at 2976-79; *Air Quality Primer* at 9; *Understanding CAFOs and Their Impact on Communities* 2-3 (Animal wastes contain a variety of pollutants, primarily nutrients, such as nitrogen and phosphorous, as well as organic matter, solids, pathogens such as *E. coli*, odorous/volatile compounds, growth hormones, antibiotics, chemicals used as additives to the manure or to clean equipment, silage leachate from corn feed, or copper sulfate used in footbaths for cows.); David Osterberg & David Wallinga, *Addressing Externalities from Swine Production to Reduce Public Health & Environmental Impacts*, 94 Am. J. Pub. Health at 1704.

[41] Claudia Copeland, *Animal Waste and Water Quality: EPA Regulation of Concentrated Animal Feeding Operations (CAFOs)*, CRS Rep. RL31851 5 (Feb. 16, 2010) [hereinafter *Animal Waste and Water Quality*], http://nationalaglawcenter.org/wp-content/uploads/assets/crs/RL31851.pdf.

[42] 2003 CAFO Rule, 68 Fed. Reg. at 7236.

[43] *Understanding CAFOs and Their Impact on Communities* at 8-9.

Nutrients, primarily nitrogen and phosphorus, are also primary pollutants of concern in CAFO waste, due to their impacts on aquatic ecosystems and public health. Excess nitrogen and phosphorus lead to eutrophication of surface waters,[44] generate algal blooms that can produce toxins harmful to wild animals, aquatic life, and humans who come into contact with them,[45] and cause hypoxic "dead zones," such as occur annually in the Gulf of Mexico and the Chesapeake Bay. EPA has recognized that "[n]utrient pollution is one of America's most widespread, costly and challenging environmental problems."[46]

Antimicrobials, including medically important antibiotics, are also common constituents of CAFO waste, and have been detected in both surface and groundwater samples collected near CAFOs.[47] EPA has found that 80-90% of some administered antibiotics end up in animal waste.[48] While antibiotics are often used to promote the growth of livestock, as well as to fight disease in crowded, unsanitary CAFO environments, their use also promotes antibiotic–resistant infections in livestock and humans and the dissemination of antibiotic–resistant bacteria in waterways near CAFOs and their land application areas. The proliferation of antibiotic–resistant bacteria makes it more difficult to treat infections in humans, significantly increasing the likelihood of hospitalization and the average length of hospitalization in those who become infected.[49]

EPA has previously found that heavy metals including "arsenic, cadmium, iron, lead, manganese, and nickel," some of which are added to feed as micronutrients to promote animal growth, "are commonly found in CAFO manure, litter, and process wastewater."[50] Just as with antibiotics fed to livestock, 80-90% of added arsenic, zinc, and copper are excreted in manure, and subsequent land application can lead to metal accumulation in soils and metal-contaminated runoff to waterways. When metal pollutants are present in CAFO discharges, they can damage aquatic ecosystems and cause a broad set of human health impacts."[51] Researchers have found that the full impacts of metal pollution from CAFO waste, both alone and in combination with

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[44] Shauna R. Collins, *Striking the Proper Balance Between the* Carrot *and the* Stick *Approaches to Animal Feeding Operation Regulation*, 2012 U. Ill. L. Rev. 923, 932 (2012).
[45] EPA Literature Review at 47.
[46] EPA, Nutrient Pollution: The Problem, https://www.epa.gov/nutrientpollution/problem (last visited Feb. 10, 2017).
[47] *See, e.g.*, Joanne C. Chee-Sanford et al., *Fate and Transport of Antibiotic Residues and Antibiotic Resistance Genes following Land Application of Manure Waste*, 38 J. Envtl. Quality 1086 (2009); Yi Luo et al., *Trends in Antibiotic Resistance Genes Occurrence in the Haihe River, China*, 44 Envtl. Sci. Tech. 7220 (2010); Pew Commission on Industrial Farm Animal Production, *Putting Meat on the Table: Industrial Farm Animal Production in America* 15-16 (2008), http://www.pewtrusts.org/~/media/legacy/uploadedfiles/peg/publications/report/pcifapfinalpdf.pdf.
[48] Proposed CAFO Reporting Rule, 76 Fed. Reg. at 65434.
[49] Shane Rogers & John Haines, *Detecting and Mitigating the Environmental Impact of Fecal Pathogens Originating from Confined Animal Feeding Operations: Review*, EPA/600/R-06/021 15 (Sept. 2005).
[50] Proposed CAFO Reporting Rule, 76 Fed. Reg. at 65434.
[51] *Id.*

other contaminants, are inadequately understood.[52]

CAFO wastes can also contain large quantities of hormones—both naturally produced and synthetic.[53] While acknowledging that hormone quantities are difficult to estimate due to the lack of reporting requirements, one study estimated that approximately 722,852 pounds of naturally–produced estrogens, androgens, and progestogens were excreted by cattle, swine, and poultry in 2000; accounting for all synthetic hormones in manure, the use of which does not have to be reported, would drive this figure even higher.[54] Hormones and their metabolites are also found in the environment surrounding livestock and poultry facilities, including streams, creeks, and surface waters downstream from beef cattle feedlots,[55] where they can cause serious damage to the endocrine and reproductive systems of aquatic species, lab rats, and human cells.[56]

While CAFO pollution is widespread, it also disproportionately impacts environmental justice communities. Research to date has focused primarily on the hog industry, and several studies have shown that "a disproportionate number of swine CAFOs are located in low-income and nonwhite areas."[57] One study analyzed the locations of large hog CAFOs in 17 states, including Iowa, North Carolina, and Minnesota, which are leaders in hog production where CAFOs had been rapidly expanding. In these three states, the researchers found disproportionate siting and expansion of large hog CAFOs in African American communities in the 1980s and 1990s, and concluded that as hog production shifts from small-scale to large-scale, racial inequity in CAFO siting intensifies.[58] A 2011 study of 16 North Carolina communities concluded that in general, "[i]ndustrial hog operations in North Carolina are disproportionately located in low-income communities of color."[59]

Although many studies have focused on the hog sector, these environmental justice impacts do extend to communities affected by other livestock sectors. EPA recently conducted its own limited analysis of CAFO location in relation to environmental justice populations of concern, and identified areas at risk of disproportional impacts from virtually every CAFO livestock sector: the Delmarva Peninsula, characterized by broiler chicken operations; the Iowa-Minnesota border, characterized by hog, egg layer, and beef feedlot operations; the Carolina

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[52] JoAnn Burkholder et al., *Impacts of Waste from Concentrated Animal Feeding Operations on Water Quality*, 115 Envtl. Health Perspectives 308, 308-309 (2007) [hereinafter *Impacts of Waste from Concentrated Animal Feeding Operations on Water Quality*], http://ir.uiowa.edu/cgi/viewcontent.cgi?article=1025&context=oeh_pubs.
[53] EPA Literature Review at 40-41.
[54] *Id.*
[55] *Id.* at 45.
[56] GAO CAFO Report at 24.
[57] Kelley Donham, Steven Wing, et al., *Community Health and Socioeconomic Issues Surrounding Concentrated Animal Feeding Operations*, 115 Envtl. Health Perspectives 317, 318 (2007).

[58] Jeremy Arney, Janice E. Johnston, and Paul B. Stretesky, *Environmental Inequity: An Analysis of Large-Scale Hog Operations in 17 States, 1982-1997*, 68 Rural Sociology 231, 244 (2003).
[59] Schinasi, et al., *Air Pollution, Lung Function, and Physical Symptoms in Communities Near Concentrated Swine Feeding Operations*, 22 Epidemiology 7 (March 2011).

lowlands, characterized by hog, broiler, and turkey operations; and the California central valley, characterized by dairy operations. All of these regions have both large numbers of CAFOs and large minority and low-income populations.[60]

Recognition of these environmental justice impacts is growing; the Department of Justice recently cited to the disproportionate impact of a Mississippi egg layer operation's water pollution on a low-income community in its 2015 Implementation Progress Report on Environmental Justice,[61] and Maryland's Wicomico County Health Department was recently compelled to conduct a Health Impact Assessment for a proposed 10-house broiler operation in an 80% African American community.[62] EPA's External Civil Rights Compliance Office also recently investigated North Carolina's swine permitting program and found "the possibility that African Americans, Latinos, and Native Americans have been subjected to discrimination as the result of [North Carolina Department of Environmental Quality's] operation of the [program] . . . ."[63]

CAFO pollution also poses a considerable threat to wildlife in the United States. Exposure to the contaminants discharged from these operations, including heavy metals, pharmaceuticals, and pesticides can harm or kill aquatic species. The fish kill events caused by some CAFO discharges, for example, harm not only these observable fish populations, but are also generally indicative of larger aquatic species losses. Relatedly, reproductive and endocrine disruption from exposure to pharmaceuticals in farm animal waste can result in the reduction and imbalance of impacted species' population numbers.[64] Pollution from CAFOs further harms wildlife and ecosystems though loss of ecosystem biodiversity, including through conversion and encroachment of essential species habitat.[65] These harms are particularly acute for endangered

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[60] EPA Office of Water, National Pollutant Discharge Elimination System (NPDES) Concentrated Animal Feeding Operation (CAFO) Reporting Rule, Analysis under Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations 4 (Oct. 3, 2011).

[61] U.S. Dep't of Justice, 2015 Implementation Progress Report on Environmental Justice 23, https://www.justice.gov/ej/file/870526/download.

[62] Wicomico County Health Dep't, Health Impact Assessment: Proposed Concentrated Animal Feeding Operation in Wicomico County (Apr. 2016), https://www.wicomicohealth.org/file/0/0/Health%20Impact%20Assessment.pdf.

[63] Letter of Concern from Lilian S. Dorka, Director, EPA External Civil Rights Compliance Office to William G. Ross, Jr., Acting Sec'y, N.C. Dep't of Envtl. Quality 1 (Jan. 12, 2017), http://blogs.law.unc.edu/documents/civilrights/epalettertodeq011217.pdf.

[64] 2001 Proposed CAFO Rule, 66 Fed. Reg. at 2981; Food and Agriculture Organization of the United Nations, Livestock's Long Shadow, 209-11 (2008); World Health Organization and United Nationals Environmental Programme, State of the Science of Endocrine Disrupting Chemicals – 2012 vii - xv (2013), http://www.who.int/ceh/publications/endocrine/en/; *see also* J.K. Leet, et al., *Environmental hormones and their impacts on sex differentiation in fathead minnows*, 158 Aquatic Toxicology 98, 98 (2015), https://www.researchgate.net/publication/267870556_Environmental_Hormones_and_Their_Impacts_on_Sex_Differentiation_in_Fathead_Minnows; Ripley, et al., *Utilization of protein expression profiles as indicators of environmental impairment of smallmouth bass (Micropterus dolomieu) from the Shenandoah River, Virginia, USA*, 27 Envtl. Toxicology and Chemistry 1756, 1756 (2008).

[65] USDA, Agricultural Waste Management Field Handbook, Agricultural Wastes, Air, and Animal Resources 3-3 (2012), http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=31441.wba ("Adding wastes to a stream can lower oxygen levels to such an extent that fish and other aquatic life are forced to migrate from the polluted area or die for lack of oxygen."); FWS, Endangered and Threatened Wildlife and Plants; Final Rule to List

and threatened species, where prolonged insecurity or heightened pollution exposure can result in the extirpation and, potentially, extinction of impacted species.[66]

Widespread CAFO water pollution is significantly damaging public health and ecosystems, and although the full extent of this pollution is unknown due to the lack of CAFO permitting and water pollution monitoring, there is overwhelming evidence of EPA's failure to live up to its CWA mandate. The contamination, both expressly authorized and simply overlooked, under EPA's current regulatory approach poses a direct threat to water quality, aquatic ecosystems, and human health. It is therefore incumbent upon EPA to promulgate revised CAFO rules that more effectively confront the environmental and public health risks posed by water pollution from these facilities.

c. Inadequate CAFO Regulation under the Clean Water Act

After more than 40 years of CWA implementation, EPA has acknowledged that it still lacks basic information about where the nation's CAFOs are located and which facilities are discharging pollutants into jurisdictional waterways without required permits.[67] EPA estimates that only approximately 40% of CAFOs are currently regulated under the NPDES program,[68] while as many as 75% discharge as a result of their "standard operational profiles."[69] Despite these major gaps in information and regulation, EPA proved unwilling to stand up to CAFO industry pressure when it abandoned the only nationwide effort it has undertaken in decades to fill these gaps by developing a comprehensive inventory of CAFOs.[70]

This failure by EPA to develop or maintain a CAFO inventory has meant that states must identify CAFOs and determine which are subject to regulation with little guidance or oversight from EPA. Predictably, this has resulted in a patchwork of state programs, inconsistent amounts

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the Topeka Shiner as Endangered, 63 Fed. Reg. 69016, 69017 (Dec. 15, 1998) (For endangered Topeka Shiner populations, "[t]he action most likely impacting the species to the greatest degree in the past is sedimentation and eutrophication . . . resulting from intensive agricultural development . . . . Feedlot operations on or near streams are also known to impact prairie fishes due to organic input resulting in eutrophication."); Blehert, et al., USGS, Investigation of Bacterial Pathogens Associated with Concentrated Animal Feeding Operations (CAFOs) and their Potential Impacts on a National Wildlife Refuge in Oklahoma: Final Report, Project 2N44, 200120004 2 (July 24, 2004).

[66] *See, e.g.*, FWS, CAFOs Feed a Growing Problem, Endangered Species Bulletin, Vol. XXIV No. 1 (January/February 1999), http://www.thefreelibrary.com/CAFOs+Feed+a+Growing+Problem.-a054466913 (In 1998, an 11 million gallon spill of liquid waste from a large poultry operation damaged a wetland vernal pool system in the Merced National Wildlife Refuge, killing endangered vernal pool fairy shrimp and vernal pool tadpole shrimp.).

[67] Proposed CAFO Reporting Rule, 76 Fed. Reg. at 65436.

[68] In 2010, EPA estimated that approximately forty percent of an estimated 19,200 CAFOs were covered by NPDES permits. EPA, National Pollutant Discharge Elimination System (NPDES) Information Collection Rulemaking and CAFOs 1 (Sept. 2010) [hereinafter EPA 2010 NPDES Estimate].

[69] *Id.*

[70] National Pollutant Discharge Elimination System (NPDES) Concentrated Animal Feeding Operation (CAFO) Reporting Rule, Withdrawal, 77 Fed. Reg. 42679 (Jul. 20, 2012).

and qualities of available information, and widely varying approaches to NPDES permitting. For example, Michigan requires all CAFOs with the potential to discharge to obtain a NPDES permit, and this requirement has been upheld by the state's court of appeals.[71] Wisconsin generally requires all Large CAFOs to obtain NPDES permits,[72] while Iowa has refused to issue a single permit to any of its thousands of confinement operations, despite hundreds of documented discharges.[73] In South Dakota, the state has proposed to allow CAFO operators to choose whether to apply for a NPDES permit or a state no-discharge permit.[74] And Delaware regulations purportedly require all CAFOs that propose to discharge to obtain permits, but the state had only recently begun granting its first CAFO NPDES permits (general permit coverage for broiler chicken operations that land-apply) at the date of this petition's filing.[75]

EPA has not prioritized permitting, even where CAFOs have had documented discharges. In its 2008 CAFO Rule preamble and a memo issued by EPA's James Hanlon in response to the *Pork Producers* decision, EPA improperly conflates the legal question of whether a violation is ongoing for purposes of establishing jurisdiction to maintain a CWA citizen suit with the distinct question of whether a facility is a point source discharger subject to NPDES permitting requirements.[76] Based on this flawed analysis, even CAFOs with documented jurisdictional discharges are often not required, or even encouraged, to obtain NPDES permits, because they can claim to have "permanently remedied" the cause of their violations. This loophole is ripe for abuse, and as we can see in the case of Iowa, where *no* confinements with known discharges have obtained permits, such abuse is rampant.

For these reasons, as well as the additional deficiencies in EPA's approach explained throughout this petition, EPA and states have never come close to satisfying the CWA's obligations to permit discharging CAFOs and exercise proper oversight. EPA remains apparently ignorant of the fact that its regulations on paper have not translated to effective regulation in the real world. For example, Allison Wiedeman of the EPA's Water Permits Division was quoted in early 2016 as saying, in describing the current state of CAFO CWA permitting, "[w]e see that it's working. We know that these facilities have to have permits if they discharge, and so all I can

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[71] *See Mich. Farm Bureau et al. v. Mich. Dep't of Envtl. Quality*, 292 Mich. App. 106, 108 (Mar. 29, 2011).
[72] Wis. Admin. Code Ch. NR 243.11 (2015).
[73] *See* Iowa Dep't of Nat. Res., 2016 Annual Report for Work Plan Agreement Between the Iowa Department of Natural Resources and the Environmental Protection Agency Region 7 (Aug. 1, 2016), http://www.iowadnr.gov/Environmental-Protection/Land-Quality/Animal-Feeding-Operations/EPA-DNR-Workplan-Materials.
[74] S.D. Dep't of Env't and Natural Res., Draft General Water Pollution Control Permit for CAFOs (Oct. 2015), http://denr.sd.gov/des/fp/publicnotices/DraftGeneralPermitPN.pdf.
[75] *See* DNREC, Division of Water, Concentrated Animal Feeding Operations, http://www.dnrec.delaware.gov/wr/Information/Pages/CAFO.aspx (last visited Jan. 30, 2017).
[76] 2008 CAFO Rule, 73 Fed. Reg. at 70423; James A. Hanlon, Director, EPA Office of Wastewater Management, *Concentrated Animal Feeding Program Update after* National Pork Producers Council v. EPA (Dec. 8, 2011) (both exclusively citing CWA citizen suit case law).

tell you right now is that the process is working."[77] This head-in-the-sand approach does not protect communities from illegal CAFO pollution.

C. Summary of Relief Requested

Petitioners request that EPA promulgate new CAFO rules that will effectively implement the CWA's pollution control mandate. Specifically, Petitioners request the following relief:

1. EPA should establish an evidentiary presumption that certain CAFOs discharge and are either subject to NPDES permitting or must rebut the presumption by demonstrating they do not discharge;
2. EPA should revise its interpretation of the agricultural stormwater exemption such that no discharges resulting from CAFO activities are exempt as non-point source pollution;
3. EPA must ensure that integrators who meet the CWA definition of owner or operator are co-permitted with contract producers, as the statute has always required;
4. EPA should revise certain definitions in the CAFO regulations;
5. EPA should revise the requirements applicable to all CAFOs, including by requiring water quality monitoring in CAFO NPDES permits to ensure compliance with the CWA and permit terms; and
6. EPA should revise the CAFO ELGs to address additional CAFO pollutants of concern, prohibit practices known to harm water quality, and otherwise strengthen existing requirements.

Petitioners further request that EPA open a docket for this petition and solicit public input on the proposed rule changes.

II. ARGUMENT

EPA's current CAFO regulations are failing to achieve the mandates of the CWA to permit point source dischargers of pollution, require pollution reductions based on appropriate technology-based standards, and ultimately eliminate point source discharges to navigable waters.[78] To meet these mandates, EPA must make certain critical changes to its CAFO regulations.

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[77] Keri Brown, Nat'l Public Radio, When a Chicken Farm Moves Next Door, Odor May Not Be The Only Problem (Jan. 24, 2016), http://www.npr.org/sections/thesalt/2016/01/24/463976110/when-a-chicken-farm-moves-next-door-odor-may-not-be-the-only-problem. Even more recently, former EPA Administrator Gina McCarthy expressed her view that cleaning up agricultural pollution is largely up to voluntary industry practices and the USDA, because EPA is not "in a position to demand it of them." Jenny Hopkinson, Politico Pro Agriculture Whiteboard, EPA's McCarthy: Better That USDA Tell Farmers to Up Their Environmental Game (Oct. 18, 2016).

[78] *See* 33 U.S.C. § 1251(a)(1).

This petition lays out a roadmap for necessary and effective changes EPA must make to its CAFO regulations, addressing the two overarching issues of permit coverage and permit effectiveness. As detailed herein, EPA's existing authority enables it to put a regulatory scheme in place that would ensure all CAFO dischargers are subject to NPDES permits and that those permits adequately limit CAFO discharges and protect water quality. Any action that falls short of achieving these fundamental requirements of the Act would be arbitrary and capricious.

A. EPA's CAFO Regulations Must Ensure that All Discharging CAFOs Obtain NPDES Permits

The CWA prohibits the "discharge of a pollutant" by any person from any point source, unless in compliance with a NPDES permit.[79] Nonetheless, as discussed *supra*, EPA's CAFO regulations have failed for decades to reliably bring discharging CAFOs into the NPDES permitting program. Furthermore, the incentive for a majority of CAFOs to seek coverage was diminished by the Fifth Circuit's holding in *National Pork Producers Council v. EPA*, which invalidated the "duty to apply" for a NPDES permit under the 2008 CAFO rules.[80] The lack of a duty to apply has made it difficult for EPA and states to determine whether CAFOs are discharging and to ensure that all CAFO polluters obtain permits.[81]

This general lack of oversight, along with specific regulatory deficiencies, has allowed polluting facilities to evade permitting requirements for decades. The common-sense amendments to EPA's regulatory approach discussed below would close the loopholes that have allowed so many of these point sources to remain unregulated.

a. EPA Should Establish an Evidentiary Presumption that CAFOs with Certain Characteristics Actually Discharge

The overall lack of complete information about the universe of discharging CAFOs, and the persistent and widespread failures by states and EPA to issue CAFO permits to discharging facilities, demonstrates that EPA's current regulations are simply not resulting in permits when required by the CWA. Therefore, in order to create an effective permitting system, EPA must require all CAFOs with certain characteristics—including but not limited to those that have had a documented discharge to a water of the U.S.—to obtain NPDES permits. To do so in a way that is consistent with recent case law, EPA must establish a presumption that certain operations actually discharge, as opposed to having the potential to discharge or proposing to discharge. EPA has clear authority to establish such a presumption, and abundant evidence with which to support it.

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[79] 33 U.S.C. § 1311(a).

[80] *See Nat'l Pork Producers Council v. EPA*, 635 F.3d 738, 751 (5th Cir. 2011).

[81] GAO CAFO Report at 17-18 (concluding that data collected by EPA and states on the number of CAFOs, discharge status of CAFOs, and number of permits issued by state authorities are unreliable).

i. EPA Has Clear Authority to Establish a Presumption that Certain CAFOs Discharge

Recent judicial decisions have undermined EPA's previous efforts to require polluting CAFOs to obtain NPDES permits. In *Waterkeeper Alliance v. EPA*, the Second Circuit vacated the requirement for each large CAFO to apply for a permit, or to secure a determination from the relevant permitting authority that that CAFO has "'no potential to discharge' manure, litter or process wastewater."[82] The court held that this requirement exceeded EPA's statutory jurisdiction under the Act because "unless there is a 'discharge of any pollutant,' there is no violation of the Act, and point sources are . . . [not] statutorily obligated to seek or obtain an NPDES permit." [83] The Fifth Circuit echoed this holding in *National Pork Producers Council v. EPA*,[84] vacating a similar requirement that CAFOs that "proposed to discharge" must apply for permits. The practical result of these cases and EPA's interpretation of them has been to place the burden on citizens and regulators to identify discharging CAFOs that require permits *and* demonstrate that discharges are likely to recur—a 'catch me if you can' system that has resulted in widespread failure to require permits at the state level.[85]

However, these decisions do not foreclose further action by EPA. While EPA's authority to require NPDES permits is limited to those CAFOs that actually discharge, the Second Circuit noted, in a footnote to the *Waterkeeper* decision, that EPA had not argued that the administrative record in that case "support[ed] a regulatory presumption to the effect that Large CAFOs *actually* discharge."[86] As such, the court did not consider whether EPA "might properly presume that Large CAFOs—or some subset thereof—actually discharge."[87] The court thus suggested that EPA may be able to martial evidence to support a regulatory presumption that all or certain categories of CAFOs discharge.[88]

Under well–settled principles of administrative law, agencies have the power to establish evidentiary presumptions.[89] EPA recognized this authority when it proposed establishing a

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[82] *Waterkeeper Alliance v. EPA*, 399 F.3d 486, 506 (2d Cir. 2005).
[83] *Id.* at 504.
[84] *Nat'l Pork Producers Council*, 635 F.3d at 750-51.
[85] As discussed *supra*, even when facilities experience documented discharges, some states allow operators to "remedy" the cause of the violation rather than apply for NPDES permits.
[86] *Waterkeeper Alliance*, 399 F.3d at 506 n.22.
[87] *Id.* (citing *NLRB v. Curtin Matheson Scientific, Inc.*, 494 U.S. 775 (1990); *Nat'l Mining Ass'n v. Babbitt*, 172 F.3d 906 (D.C. Cir. 1999)).
[88] In the subsequent *Nat'l Pork Producers Council* case, EPA did not argue that it had established such a presumption in the 2008 CAFO rulemaking; indeed, it argued the opposite. *See* Final Brief of Respondent U.S. EPA at 62, *Nat'l Pork Producers Council*, 635 F.3d 738 (argument heading: "Nothing in 40 C.F.R. § 122.23(j) Alters the Evidentiary Burden for a CAFO Alleged to Have Discharged Without a Permit"). The court therefore offered no opinion on whether an evidentiary presumption could be properly invoked to shift the burden of producing evidence of no-discharge to the regulated entity.
[89] *See e.g., NLRB v. Baptist Hospital*, 442 U.S. 773, 787 (1979); *Nat'l Mining Ass'n v. U.S. Dept. of Interior*, 177 F.3d 1, 6 (D.C. Cir. 1999); *U.S. Steel Corp. v. Astrue*, 495 F.3d 1272, 1284 (11th Cir. 2007); *Cole v. USDA*, 33 F.3d

rebuttable presumption that CAFO lagoons discharge to surface water via groundwater, suggesting a requirement that CAFOs either conduct groundwater pollution monitoring or rebut the presumption of discharge by providing a hydrologist's report demonstrating that no such connection exists at a facility.[90] A court will deem such an evidentiary presumption valid so long as a there is "some rational connection between the fact proved and the ultimate fact presumed, and [] the inference of one fact from proof of another [is] not so unreasonable as to be a purely arbitrary mandate."[91] Regulatory presumptions, i.e., evidentiary presumptions established through rulemaking, are therefore entitled to substantial deference.[92] It follows that, by establishing an evidentiary presumption that certain CAFOs actually discharge, EPA can validly either treat them as discharging facilities or require them to produce evidence that they do not discharge, and therefore should not be subject to the NPDES program.[93] Moreover, case law strongly supports the use of this kind of legal device to increase administrative efficiency, and as a solution to the paucity of reported data pertaining to individual facilities.[94]

ii. EPA Has Sufficient Evidence to Support a Presumption that CAFOs with Certain Characteristics Discharge

In this case, there is overwhelming evidence that many CAFOs actually discharge, so an evidentiary presumption to that effect is appropriate and necessary. EPA's own data already reflect much more than the "rational connection" between the design, construction, and operation of many CAFOs, and their actual discharges, that would be needed to uphold such a

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1263, 1267 (11th Cir. 1994); *Holland Livestock Ranch v. U.S.*, 714 F.2d 90, 92 (9th Cir. 1983); *Chem. Mfrs. Ass'n v. Dep't of Transp.*, 105 F.3d 702, 705 (D.C. Cir. 1997).

[90] 2001 Proposed CAFO Rule, 66 Fed. Reg. at 3040.

[91] *Mobile, Jackson & Kansas City R. Co. v. Turnipseed*, 219 U.S. 35, 43 (1910); *See also NLRB v. Baptist Hospital*, 442 U.S. at 787; *Atchison, T. & S. F. Ry. Co. v. ICC*, 580 F.2d 623, 629 (D.C. Cir. 1978); *Nat'l Mining Ass'n v. Babbitt*, 172 F.3d at 912. That the fact presumed does not always and inevitably follow from the predicate fact has no bearing on the validity of an evidentiary presumption. *See Cole v. USDA*, 33 F.3d at 1270 ("The mere statement that the fact presumed does not *always follow necessarily* from the predicate fact obviously leaves ample room for some lesser, though still rational, connection between the two," thus the mere possibility of circumstances in which the relationship might not hold true was insufficient to invalidate a regulatory presumption).

[92] *NLRB v. Baptist Hospital*, 442 U.S. at 796 (Justice Brennan concurring); *NLRB v. Los Angeles New Hospital*, 640 F.2d 1017, 1020 (9th Cir. 1981); *N.Y. Foreign Freight Forwarders & Brokers Ass'n v. Fed. Mar. Comm'n*, 337 F.2d 289, 295 (2d Cir. 1964).

[93] The effect of an evidentiary presumption is to shift the burden of proof, but not the burden of persuasion, to the party against whom the presumption is invoked. *See* Fed. R. Evid. 301 ("In a civil case, unless a federal statute or those rules provide otherwise, the party against whom a presumption is directed has the burden of producing evidence to rebut the presumption. But this rule does not shift the burden of persuasion, which remains on the party who had it originally.").

[94] *Chem. Mfrs. Ass'n v. Dep't of Transp.*, 105 F.3d at 706 (upholding an evidentiary presumption, established by rule, as an exercise of the agency's "reasoned judgment," and a "sensible, timesaving device"); *Nat'l Mining Ass'n v. Babbitt*, 172 F.3d at 912 (finding an evidentiary presumption is permissible "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"). *See also* 2003 CAFO Rule, 68 Fed. Reg. at 7201 ("It is [] much easier for CAFOs to avoid permitting by not reporting their discharges [than it is for operations in other industries]. EPA continues to believe that imposing a duty to apply for all CAFOs is appropriate given that the current regulatory requirements are being misinterpreted or ignored.").

presumption. Two sets of factors are closely correlated with a CAFO's tendency to discharge, and should inform the creation of one or more evidentiary presumptions. First, even under EPA's untenably broad construction of the agricultural stormwater exemption, CAFOs that apply manure to land as fertilizer should be presumed to discharge, because nutrient management tools are simply not calculated to eliminate discharges, even if optimally designed and perfectly implemented, and should be assumed to result in discharges to surface waters and groundwater with a direct hydrologic connection to surface waters.[95] Second, CAFOs with certain production area characteristics that inevitably cause discharges—such as ditches and conduits that flow to jurisdictional waters, barns that spew pollutants from ventilation systems, or certain types of waste storage structures—should also be presumed to discharge. EPA has already done much of the analysis needed to support a presumption related to facilities with certain production area characteristics, and has concluded that 75% of CAFOs do in fact discharge based on their "standard operational profiles."[96]

1. Land Application Discharges

Land application of manure through spreading, spraying, injection, or incorporation is one of the most common methods of disposal of CAFO waste.[97] Yet EPA's current regulations effectively assume that dry weather land application in accordance with a nutrient management plan (NMP) will result in zero discharge, such that no permit is required. Although the regulations do not expressly state that land application in accordance with an NMP renders a permit unnecessary, the NMP is ostensibly designed to "ensure appropriate agricultural utilization of the nutrients . . . ."[98] As a result, many large CAFOs elect not to obtain permits based on reliance on an NMP.[99] Land application of waste is likely the leading source of CAFO water pollution and must be more effectively addressed through NPDES permitting.

As explained in more detail *infra*, EPA's primary assumption that land application does not result in discharges, absent a precipitation event, is fundamentally at odds with scientific

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[95] *See* discussion *infra* Section II.A.b., asserting that such land application discharges should never be exempt from the definition of a point source discharge.

[96] EPA 2010 NPDES Estimate at 1. EPA should also presume that facilities that have experienced one or more documented discharges do in fact discharge, and must obtain permits. The current regulatory scheme defies logic by in effect presuming that a facility with a record of unpermitted pollution will never pollute again, and does not require operators to make any affirmative showing that they have made all necessary modifications to the facility to cease all continuous or sporadic discharges.

[97] *Understanding CAFOs and Their Impact on Communities* at 2.

[98] 40 C.F.R. § 122.23(e).

[99] In Iowa, for example, thousands of large confinement hog CAFOs apply waste according to state "manure management plans," but at the time of filing, not a single one had been issued a NPDES permit. Due to the CAFO rules' limitations, even increased EPA oversight of Iowa's NPDES program, in part resulting from EPA's findings that the Iowa Department of Natural Resources fails to issue permits to CAFOs when necessary, has not compelled permitting of confinement operations. *See* Iowa Dep't Natural Res., EPA/DNR Work Plan Materials, http://www.iowadnr.gov/Environmental-Protection/Land-Quality/Animal-Feeding-Operations/EPA-DNR-Workplan-Materials.

research. Despite the legal fiction implied in EPA's rules, NMPs are not designed as zero discharge plans, either for nutrients or for other CAFO waste pollutants.[100] Numerous studies have recognized that runoff and leaching of contaminants from animal waste occurs even where it is applied at recommended application rates.[101] Because land application practices result in actual discharges, EPA has strong grounds on which to presume that all land-applying CAFOs discharge and have a duty to apply for NPDES permits.[102]

EPA's CAFO effluent guidelines do acknowledge that NMPs are not truly zero discharge, by requiring that *permitted* CAFOs' NMPs "minimiz[e]" nutrient runoff to surface waters.[103] Yet the current rules inexplicably allow Large CAFOs to land apply *without* NPDES permits, in effect assuming that these CAFOs' NMPs are even better and will result in *zero* dry weather discharge. This inherently contradictory scheme fails to protect waterways and has led to far less permitting than the CWA requires. The evidence clearly supports—and in fact dictates—a determination that all CAFOs that land apply waste discharge and require NPDES permits.[104]

2. Production Area Characteristics

Similarly, EPA should presume that CAFOs with certain production area characteristics actually discharge. The production area of a CAFO generally includes, but is not limited to, the animal confinement, raw materials storage, mortalities management, and waste containment areas.[105] Numerous studies and EPA guidance documents recognize that facilities with certain characteristics are associated with discharges to surface waters.

After promulgating the 2008 CAFO Rule, EPA published a guidance document identifying certain features of CAFO production areas, both manmade and beyond the operator's

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[100] *See infra* Section II.B.b.iii.

[101] *Impacts of Waste from Concentrated Animal Feeding Operations on Water Quality* at 308 (surveying literature that found high concentrations of nitrogen in surface waters adjacent to sprayfields where animal waste was applied at recommended rates); *see also* L.M. Risse, et al., *Land Application of Manure for Beneficial Reuse,* National Center for Manure and Animal Waste Management White Papers iii (2001), https://www.ars.usda.gov/ARSUserFiles/66120900/SoilManagementAndCarbonSequestration/2001ajfB02.pdf ("Even under ideal conditions, there is still a significant risk of losses to the environment. Agricultural systems leak and elimination of non-point source impacts is practically impossible.").

[102] This petition also requests that EPA strengthen its requirements for land application practices to better protect water quality. However, these two proposals are not in the alternative; because even the requested improvements to the land application regulations would still not eliminate resulting discharges, the presumption of discharge is appropriate and necessary for all CAFOs that land apply, even assuming significantly more stringent nutrient management requirements.

[103] 40 C.F.R. § 412.4(c).

[104] The regulations' failure to account for most non-nutrient pollutants underscores the fact that NMPs are not zero discharge plans. EPA should make further regulatory revisions regarding the agricultural stormwater exemption and the CAFO definitions, as discussed *infra*, to enable it to also require NPDES permits for wet–weather CAFO land application discharges and Medium AFOs that land apply, via establishment of similar presumptions.

[105] 40 C.F.R. § 122.23(b)(8).

control, which support a presumption of discharge.[106] These include: proximity of the CAFO to jurisdictional waters, and whether the CAFO is upslope from such waters; climatic conditions, including whether precipitation exceeds evaporation; type of waste storage system, and the capacity, quality of construction, and presence and extent of built–in safeguards of the storage system; drainage of the production area; and exposure of animal waste and feed to precipitation or other water.[107] As noted previously, EPA has enough information to assess what aspects of CAFO operations are resulting in discharges, and has already used this information to estimate that up to 75% of CAFOs do in fact discharge as a result of their "standard operational profiles;"[108] it therefore can and should re-evaluate these factors in light of available discharge data and establish a list of criteria related to the production area for which it will establish a presumption of discharge.

Ventilation systems also lead to surface water discharges.[109] Chicken house ventilation fans, for example, constantly and intentionally release pollutants such as ammonia, manure, dust, feathers, and feed,[110] and often these pollutants are not kept out of waterways. Many CAFOs are "designed to channel precipitation runoff from the areas around the houses away from the confinement area."[111] At such facilities, contaminants vented from poultry houses will deposit in ditches or waterways that traverse or border production areas.[112] Facilities can also discharge

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[106] EPA, *Implementation Guidance on CAFO Regulations—CAFOs that Discharge or Are Proposing to Discharge* (May 28, 2010), http://www.epa.gov/npdes/pubs/cafo_implementation_guidance.pdf [hereinafter CAFOs that Discharge Guidance].

[107] *Id.* at 2. EPA identified additional factors specific to the production area that determine whether a CAFO will discharge, including:

> (1) Whether there are structural controls in place to divert clean water and what condition they are in;
> (2) Inspection and maintenance schedules for clean water diversion controls, such as berms, gutters, and channels;
> (3) Whether design and maintenance of pipes, valves, ditches, drains, etc. associated with the collection of manure and wastewater from the animal confinement area prevents spills and leakage;
> (4) Whether any secondary containment to manage contaminated runoff is designed, operated and maintained to handle all pollutant loads; and
> (5) Whether the animal confinement area prevents animals from having direct contact with waters of the U.S.

Id. at 5.

[108] EPA 2010 NPDES Estimate at 1.

[109] EPA guidance indicates that a number of factors contribute to the likelihood that a ventilated confinement house system will discharge, including the way water is drained from the site and proximity to jurisdictional waters. CAFOs that Discharge Guidance at 13.

[110] *Understanding CAFOs and Their Impact on Communities* at 5.

[111] CAFOs that Discharge Guidance at 13.

[112] *See* EPA, NPDES Permit Writers' Manual for Concentrated Animal Feeding Operations, EPA 833-F-2-001 4-18 (2012) [hereinafter Permit Writers' Manual] (noting that pollutants including manure, feathers, and feed fall to the ground immediately downward from confinement building exhaust ducts and ventilation fans and "are carried by precipitation-related or other runoff to waters of the U.S."); *see also Nat'l Cotton Council v. EPA*, 553 F.3d 927, 939-40 (6th Cir. 2009), finding that pesticide pollutants deposited into waterways after their release from a point source, similar to ventilated ammonia emissions that deposit in waterways, are subject to NPDES permitting requirements.

directly via deposition of ventilated pollutants into waterways. A North Carolina trial court has recognized that this constitutes a jurisdictional discharge, finding that ammonia and other pollutants that reach jurisdictional waters after being expelled by ventilation fans are subject to NPDES permitting requirements.[113] EPA should presume that both CAFOs in close proximity to waterways or conduits to waterways that fail to capture ventilated pollutants, as well as CAFOs designed to channel precipitation and production area pollutants off of the facility into ditches and waterways, do in fact discharge.

These findings with respect to land application practices and specific production area characteristics reflect a larger body of evidence that demonstrates that CAFOs with certain practices and characteristics are not only prone to discharge, but they do *in fact* discharge. EPA should use its technical expertise and available research to identify the full suite of practices and characteristics that support presumptions that certain CAFOs discharge in fact, and adopt presumptions based on these determinations. Because the evidence demonstrates that many CAFOs actually discharge pollutants, as opposed to merely having the potential to discharge or proposing to discharge, EPA has clear authority to establish an evidentiary presumption to that effect, notwithstanding the decisions of the Second and Fifth Circuits on previous CAFO rulemakings.

iii. Establishing a Presumption that Certain CAFOs Discharge is Necessary to Achieve the Purposes of the Act

The stated objective of the CWA is not merely to reduce, but to eliminate pollution discharges to navigable waters.[114] Yet the current regime essentially allows CAFOs to determine for themselves whether they are subject to regulation, an approach that has resulted in wildly inconsistent and inadequate permitting at the state level, along with widespread unregulated pollution from CAFOs.[115] Moreover, this scheme's 'zero discharge' fiction discourages states from establishing water quality based effluent limitations (WQBELs) for CAFO discharges into impaired waters, which further hinders proper implementation of the Act and undermines its mandate to achieve compliance with water quality standards. A rebuttable presumption that certain CAFOs discharge is necessary to mitigate these failings and meet EPA's obligations under the CWA.

Under EPA's current approach, the majority of CAFOs are responsible for determining for themselves whether they discharge or are exempt from permitting requirements. But EPA has

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[113] *Rose Acre Farms, Inc. v. N.C. Dep't of Env't and Natural Res.*, No. 12-CVS-10 ¶¶ 54, 55 (Jan. 4, 2013).
[114] 33 U.S.C. § 1251(a)(1).
[115] *See, e.g.*, T.J. Centner, *Challenging NPDES Permits Granted without Public Participation*, 38 Boston Coll. Envtl. Aff. L. Rev. 1, 8 (2011) (noting that regulation of unpermitted CAFOs under state law "has been unsuccessful"); Jillian P. Fry, et al., *Investigating the Role of State Permitting and Agriculture Agencies in Addressing Public Health Concerns Related to Industrial Food Animal Production*, 9 PLOS 1 2 (2014), http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0089870.

acknowledged that CAFO operators will not voluntarily subject themselves to regulations, and will therefore not apply for CAFO permits if they are not required to do so.[116] In the preamble to the 2001 proposed CAFO rule, EPA noted that only about 2,500 of the 12,000 CAFOs that should have applied for permits at the time had done so.[117] Based on the continued CAFO–related impairment of neighboring watersheds, EPA concluded that many of these large facilities were "actually discharging" and should have applied for a permit.[118] Years later, the *Waterkeeper* court similarly found that owners and operators of discharging Large CAFOs have historically "improperly tried to circumvent the permitting process."[119] The history of the CAFO regulations' implementation demonstrates, therefore, that CAFOs, and particularly those facilities with no history of documented discharges, have little incentive to seek permit coverage absent a regulatory presumption that they must.[120]

Requiring permit coverage of facilities that actually discharge is not only consistent with the purposes of the Act, but it is necessary to effectuate the *Waterkeeper* court's call for regulation "in fact, not just in principle."[121] Given the overwhelming evidence that CAFO facilities and land application areas are significant sources of point source pollution, and that they are not effectively regulated under the current NPDES program, a decision not to establish a presumption that certain CAFOs actually discharge would be arbitrary and capricious. Moreover, as the next section will discuss, a presumption that all CAFOs that land apply also discharge pollutants would independently follow from a more reasonable interpretation of the agricultural stormwater exemption.

b. EPA Must Revise its Interpretation of the Agricultural Stormwater Exemption to Give Effect to Congress' Intent that No CAFO–Related Discharges Are Exempt from the Act's Permitting Requirements

The failure of the current permitting scheme to effectively limit pollutant discharges from CAFOs is also attributable in part to EPA's strained interpretation of the agricultural stormwater exemption. Despite the fact that the environmental impacts from land application of manure are well known, EPA has adopted an overly broad reading of the agricultural stormwater exemption that has tied its hands from regulating much of this CAFO pollution. This reading, which defines precipitation-related discharges of manure as non-point source pollution when land-applied in accordance with an NMP, rather than as point source pollution subject to the NPDES program, is

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[116] 2001 Proposed CAFO Rule, 66 Fed. Reg. at 2963.
[117] *Id.*
[118] 2003 CAFO Rule, 68 Fed. Reg. at 7180.
[119] *Waterkeeper Alliance*, 399 F.3d at 506, n.22.
[120] Cases holding EPA lacks authority to assess administrative penalties for the failure to apply for a NPDES permit have made the situation worse by removing much of the incentive for sporadic dischargers to apply for NPDES permits. *See Service Oil v. EPA*, 590 F.3d 545, 550-51 (8th Cir. 2009), *Nat'l Pork Producers Council*, 635 F.3d at 752-53.
[121] *Waterkeeper Alliance,* 399 F.3d at 498.

contrary to the language and purpose of the Act. Moreover, it virtually guarantees that there will be unregulated runoff of CAFO pollution to waterways—the very concern that prompted Congress to regulate CAFOs as point sources in the first place.[122]

In light of mounting evidence that the current interpretation and permit scheme have generally failed to result in CAFO permitting, allowing pollution from this industry to continue degrading waterways across the country, EPA's current interpretation of the exemption is arbitrary and capricious, and contrary to the CWA. EPA must therefore revise its interpretation of the exemption by bringing it in line with the statutory directive to regulate CAFO discharges as point source pollution.

i. EPA's Current Interpretation of the Agricultural Stormwater Exemption

The CWA specifically excludes "agricultural stormwater" from the definition of point source, but does not define the term, leaving some discretion to EPA to interpret the exemption's scope in light of the statutory context. EPA's current CAFO regulations define "agricultural stormwater discharge" as "a precipitation-related discharge of manure, litter or process waste water from land areas under the control of a CAFO" where such materials have been applied "in accordance with site specific nutrient management practices."[123] CAFO discharges associated with precipitation are therefore considered non–point source pollution, and are exempt from permitting requirements under the NPDES program.

This interpretation has made it virtually impossible for EPA and state regulators to ensure that discharges are actually caused by precipitation events, rather than by over–application of CAFO wastes to fields, or otherwise improper manure management. The rules impose minimal requirements before a CAFO operator is permitted to avail him or herself of this blanket exemption from regulation under the Act. Unpermitted Large CAFOs are simply instructed to maintain on–site documentation demonstrating nutrient management practices that "ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater" in

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[122] *See* S. Rep. No. 92-414, 92-93 (1971), *reprinted in* 1972 U.S.C.C.A.N. 3668, 3670 ("Animal and poultry waste, until recent years, has not been considered a major pollutant . . . . 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 . . . . Precipitation runoff from these areas picks up high concentrations of pollutants which reduce oxygen levels in receiving streams and lakes . . . . [W]aste management systems are required to prevent waste generated in concentrated production areas from causing serious harm to surface and ground waters."). While the *Waterkeeper Alliance* court did not find this legislative history dispositive on the meaning of the subsequently enacted exemption, it underscores the ambiguity in the statute that affords EPA authority to revise its interpretation.

[123] 40 C.F.R. § 122.23(e).

order to qualify for the exemption.[124] CAFO operators must make such documentation available to EPA or state permitting agencies upon request.[125]

These site-specific NMPs are never submitted to regulatory authorities unless EPA or state agencies specifically request to review a plan, and the rules do not require any independent verification that NMPs are calculated to ensure land application of wastes occurs at agronomic rates.[126] Consequently, despite the fact that land application is a predominant means of CAFO waste disposal,[127] there is no federal requirement that EPA or state permitting authorities exercise *any* oversight to ensure animal wastes will be applied to land at agronomic rates[128] and that any discharges are precipitation-related. The current permitting requirements therefore incentivize CAFO operators to over–apply animal wastes to cropland, while claiming any confirmed discharges are exempt from permitting as agricultural stormwater and avoiding regulation under the NPDES program.

ii. EPA Has Clear Authority to Revise its Interpretation of the Agricultural Stormwater Exemption as Requested in this Petition

Because the term "agricultural stormwater" is not defined in the CWA, the statute is somewhat ambiguous as to the scope of the agricultural stormwater exemption, and EPA is free to revise its interpretation so long as it reflects a permissible construction of the statute.[129] It is well–settled that agencies are "free to change course as their expertise and experience may suggest or require."[130] Over the past decade, the Agency has continued to amass evidence of widespread CAFO land application pollution, increasing scale and concentration of CAFOs and their waste, and persistent failures to require permits for CAFOs whose land application contribute to water impairments under the existing regulatory scheme—precisely the type of circumstances in which an updating of statutory interpretation is reasonable and necessary. The *Waterkeeper* decision in no way diminishes EPA's authority to revise its interpretation. While the *Waterkeeper* court upheld EPA's current interpretation of the agricultural stormwater

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[124] *Id.*; *Id.* § 122.42(e)(1)(vi)-(ix) (specifying additional criteria that land application practices must meet in order to qualify for the "agricultural stormwater exemption").
[125] *Id.* § 122.23(e)(2).
[126] State laws may impose additional requirements.
[127] Marc Ribaudo, et al., *Consequences of Federal Manure Management Proposals: Cost to Swine Operations from Land Applying Manure* 1 (paper presented at American Agricultural Economics Association Meeting, Long Beach, CA, July 28-30, 2002), http://ageconsearch.umn.edu/bitstream/19735/1/sp02ri01.pdf.
[128] Though, as discussed elsewhere in this Petition, even "agronomic" application rates are not capable of achieving zero discharge.
[129] *Chevron v. NRDC*, 467 U.S. 837, 863-64 (1984) ("the fact that the agency has from time to time changed its interpretation of [a statutory term] does not . . . lead us to conclude that no deference should be accorded the agency's interpretation of the statute").
[130] *Ramaprakash v. FAA*, 346 F.3d 1121, 1124 (D.C. Cir. 2003) (citing *Greater Boston Television Corp. v. FCC*, 444 F.2d 841, 852 (D.C. Cir. 1970)).

discharge exemption against challenges from environmental groups, it did so based on deference principles, clearly indicating that other interpretations may be more reasonable.[131]

More than a decade after the *Waterkeeper* decision, there is a growing body of factual evidence demonstrating that the current interpretation is in fact unreasonable because it subverts the central purpose of the Act. Evidence of widespread CAFO pollution escaping CWA regulation necessitates a revision of EPA's current interpretation. EPA must adopt the interpretation that no discharges from CAFOs—including from land application areas under the control of the CAFO—are exempt from the definition of point source pursuant to the agricultural stormwater exemption. Even assuming the *Waterkeeper* court properly deferred to EPA's current interpretation in 2005, a mutually exclusive reading of the two terms is the most reasonable interpretation of the agricultural stormwater exemption because it effectuates the plain language of the statute, which provides that CAFOs are to be regulated as point sources, and aims to eliminate pollution from such sources. EPA's revised interpretation of the agricultural stormwater discharge exemption would be entitled to substantial deference, so long as the Agency provides a reasonable explanation for the revision.[132]

iii. The Language and History of the Statute Indicate Congress' Intent to Regulate All CAFO Pollution

Beginning with the 1972 drafting of the Water Pollution Control Act Amendments, Congress made a policy judgment that CAFO wastes were fundamentally different from other types of agricultural pollution. The 1972 Act Amendments encoded this policy judgment, recognizing that the volume and concentration of waste produced by CAFOs necessitated treating these types of facilities differently than other sources of agricultural pollution.[133] There is no general exemption from compliance with the CWA for agricultural pollution sources. To the contrary, the Act broadly prohibits the "discharge of a pollutant," including agricultural wastes,[134] by any person from any point source, including CAFOs.[135] The Act's default rule therefore requires regulation of CAFOs under the NPDES program, as distinct from other sources of agricultural pollution, which were historically exempt.

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[131] *Waterkeeper Alliance,* 399 F.3d at 507 ("Congress has not addressed the precise issue . . . as a result, the operative question we must consider becomes, pursuant to *Chevron*, whether the CAFO Rule's exemption for 'precipitation-related' land application discharges is grounded in a 'permissible construction' of the Clean Water Act."). In other words, the Court at that time found that EPA's interpretation was a permissible one, but not necessarily the most reasonable or the only reasonable interpretation of the statute. *Id.* at 509.

[132] *Chevron*, 467 U.S. at 863-64; *FCC v. Fox Television Stations*, 556 U.S. 502, 515 (2009). The Supreme Court has noted that agency inconsistency "is not a basis for declining to analyze the agency's interpretation under the *Chevron* framework." *Nat'l Cable & Telecomm. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 981 (2005).

[133] *See* S. Rep. No. 92-414, 92-93 (1971), *reprinted in* 1972 U.S.C.C.A.N. 3668, 3670. *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) (finding that it would "avoid the clear intent of Congress as expressed in the CWA and by EPA in its NPDES regulations" to exempt discharges resulting from the land application of manure from the definition of "point source").

[134] 33 U.S.C. § 1362(6).

[135] *Id.* §§ 1311(a), 1362(14).

The legislative and regulatory history of the 1987 Amendment, which established the agricultural stormwater exemption, make clear that the terms "agricultural stormwater" and "concentrated animal feeding operation" are most logically read as being mutually exclusive. While Congress did not explain the relationship between the new term "agricultural stormwater" and the existing "concentrated animal feeding operation,"[136] the new language was merely added to the end of the definition of "point source," without any alteration of the existing text. Because there is no indication in the statute or in the legislative history that Congress sought to re–address the status of CAFOs as point sources, the 1987 Amendment cannot be read to amend this existing policy judgment. To the contrary, it is well–settled law that "Congress does not alter a regulatory scheme's fundamental details in vague terms or ancillary provisions."[137]

Here, Congress left no indication that it had reconsidered its reasons for including CAFOs in the definition of point source. Nor did it discuss the definition of "agricultural stormwater" in a way that could justify a departure from the meaning of that term as it was understood at the time. Rather, the 1987 Amendment is best read to codify already–existing exemptions for certain types of non–point source agricultural pollution and clarify that the non-exclusive definition of point source was not intended to sweep such non-CAFO farm runoff into the regulatory scheme. By retaining the term "concentrated animal feeding operation," unqualified, in the definition of "point source," the legislative history makes clear that the addition of the "agricultural stormwater" exclusion was not intended to alter the scope of the NPDES program with respect to CAFOs.

The regulatory history preceding the statutory amendment supports the conclusion that Congress did not intend to include any CAFO–related discharges within the meaning of "agricultural stormwater." Prior to the 1987 Amendment, EPA had already established certain agricultural exemptions from the point source definition through rulemaking. The 1980 CWA implementing regulations excluded certain types of agricultural discharges from NPDES permit requirements.[138] Specifically, the regulations excluded from the permit program "[a]ny introduction of pollutants from non–point–source agricultural and silvicultural activities, including runoff from orchards, cultivated crops, pastures, range lands, and forest lands, *but not discharges from concentrated animal feeding operations*."[139] In other words, while certain non–point source agricultural runoff was exempt from NPDES program requirements under the regulations, waste from CAFOs was not considered non–point source pollution, and was therefore ineligible for the exemption. As such, the 1987 addition of an "agricultural stormwater

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[136] *Waterkeeper Alliance*, 399 F.3d at 507 ("the Act makes absolutely no attempt to reconcile the two [provisions]").
[137] *See Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457, 458 (2001).
[138] *Consolidated Permit Regulations: RCRA Hazardous Waste, SDWA Underground Injection Control; CWA National Pollutant Discharge Elimination System; CWA Section 404 Dredge or Fill Programs; and CAA Prevention of Significant Deterioration*, 45 Fed. Reg. 33290, 33442 (May 19, 1980) (codified in relevant part at 40 C.F.R. § 122.3(e)); *see also* 48 Fed. Reg. 14146-01 (Apr. 1, 1983) (reorganized version of permit program requirements).
[139] *Id.* (emphasis added). This exclusion was challenged in *NRDC v. EPA*, No. 80-1607 (filed June 3, 1980), but that challenge was dismissed as a result of the agricultural stormwater discharge amendment in 1987. *See* National Pollutant Discharge Elimination System Permit Requirements, 54 Fed. Reg. 246-01, 247 (Jan. 4, 1989).

discharge" exemption is most reasonably read to codify EPA's then–existing exemption for certain non-CAFO-related agricultural pollution.[140] Congress did not indicate any intent to depart from the existing regulatory scheme, so the agricultural stormwater exemption cannot be read to cover CAFO–related discharges.[141]

Because the current interpretation allows the exception to swallow the rule, EPA must adopt the position that no CAFO–related discharges are exempt from regulation as point source pollution under the agricultural stormwater discharge exemption. EPA has authority to revise its interpretation of the exemption, and the proposal to read "CAFO" and "agricultural stormwater" as mutually exclusive would not only be entitled to substantial deference, but would be the most natural reading of the Act, its legislative history, and its regulatory history. A revised interpretation of the agricultural stormwater exemption would also best implement the policy choice underlying Congress' decision to treat CAFOs as point sources of pollution and its intent to eliminate point source discharges of pollution to waters of the U.S.

c. EPA Must Ensure that Permitting Agencies Co-Permit Integrators and other Operators with Producers

EPA has long understood that entities that "exercise substantial operational control over CAFOs" meet the CWA regulatory definition of "operator" and should therefore be co-permitted or required to hold a separate NPDES permit.[142] In the 2001 proposed CAFO rule, EPA acknowledged that integrators are increasingly exercising control over where CAFOs are located, how they raise animals, and how they manage waste, including through production contracts and direct ownership of CAFO livestock.[143] As EPA pointed out, even in 2001 "[p]roduction contracting dominate[d] U.S. broiler and turkey production," and 40% and 30% of eggs and hogs, respectively, were produced under contract.[144] By 2014 just four companies controlled production of nearly one third of U.S. layer hens, and by 2012 more than 60% of hogs were raised under contract and packers owned more than one in twenty cattle slaughtered.[145]

These dramatic increases in processor consolidation and control over CAFOs directly impacts water quality, in part because CAFOs "tend to locate in close proximity to feed and meat packing plants," which leads to increased concentration and "thus rais[es] the potential for increased environmental pressure in those areas."[146] In the tightly controlled broiler chicken industry, this has led to such regional concentration that "in many regions, the scale at which

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[140] *See Concerned Area Residents for the Env't v. Southview Farm*, 34 F.3d 114, 123 (2d Cir. 1994) (holding that CAFOs, which are defined by the Act as "point sources," are "not to be treated as [] agricultural nonpoint source operation[s]").
[141] *See Whitman v. Am. Trucking Ass'ns*, 531 U.S. at 458.
[142] 2001 Proposed CAFO Rule, 66 Fed. Reg. at 3023.
[143] *Id.* at 3024.
[144] *Id.*
[145] *Factory Farm Nation* at 10, 11, 15.
[146] 2001 Proposed CAFO Rule, 66 Fed. Reg. at 3024.

chicken litter is produced is far more than crops can absorb."[147] Moreover, "[e]very aspect of the birds' care is regulated by the integrator," and as a result, contract growers "do not have control over the inputs . . . including feed, medication, and the chickens themselves."[148] Many of these inputs, such as pharmaceuticals, will end up in the chicken litter. Integrators' many requirements thereby dictate their contract CAFOs' day to day operations, as well as the location, quantity, and characteristics of the waste they produce.

Because integrators and other corporate entities are a driving force behind so many CAFOs' operations and exercise so much control over them, EPA's 2001 proposed rule solicited input on whether it should establish specific factors, such as ownership of CAFO animals or contractual agreements that dictate CAFO activities, that permitting agencies must consider in identifying "substantial operational control." Recognizing that many of these integrators and other entities already meet the definition of an "operator," EPA explained that its "proposal would *clarify*" that such entities "are subject to NPDES permitting requirements."[149] EPA went further and stated unequivocally that it "believes that ownership of the animals establishes an ownership interest in the pollutant generating activity at the CAFO that is sufficient to hold the owner of the animal responsible for the discharge of pollutants from the CAFO."[150] Despite all of these findings, EPA decided to maintain the status quo in the 2003 final rule.

The past 15 years have demonstrated that EPA's hands-off approach has granted far too much discretion to states. In the absence of clear requirements from EPA explaining which entities meet the definition of an operator and must have permits, permitting agencies are simply not requiring co-permitting. In fact, in 2015 the Center for Progressive Reform found that *no states* are co-permitting integrators with their CAFO producers under their delegated NPDES programs.[151] Just as EPA predicted in 2001, a scheme that leaves operator determinations to the state agency has meant that "the state . . . might not make them at all" and operators have continued to "inappropriately . . . avoid liability."[152]

EPA has more recently revisited the idea that unpermitted integrators are operators and should be permitted. In 2010, EPA issued its Chesapeake Bay Compliance and Enforcement Strategy, which was meant to complement the multi-jurisdictional Chesapeake Bay Total Maximum Daily Loads (TMDL) effort to restore the Bay. In the Strategy EPA named CAFO integrator liability enforcement actions in the Bay region among the "immediate" actions it could

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[147] Rural Advancement Foundation International-USA, Under Contract: Farmers and the Fine Print, Viewers Guide 24 (2017), http://rafiusa.org/undercontractfilm/press-kit/.
[148] *Id.* at 20.
[149] 2001 Proposed CAFO Rule, 66 Fed. Reg. at 3024 (emphasis added).
[150] *Id.* at 3025.
[151] Ctr. for Progressive Reform, *Integrator Liability: Legal Tools to Hold the Biggest Chicken Companies Responsible for Waste* 3, http://www.progressivereform.org/articles/Integrator_Liability_IssueAlert_1502.pdf (Mar. 2015).

[152] 2001 Proposed CAFO Rule, 66 Fed. Reg. at 3025.

take to drive pollution reductions while the Bay states put longer-term TMDL programs into place.[153] More than six years later, it has failed to initiate any such actions, and took no action to support citizen litigants when they sued Perdue in federal court for illegal discharges from a Maryland contract operation.[154]

Corporations such as Perdue and Tyson exercise substantial control over their contractors' production process and collect the profits generated. In light of their substantial stake in the venture, they should share in the liability that may result from discharges. Placing the entire permitting burden on producers is not only unfair, but also inefficient: if contracted farmers are wholly liable for the costs associated with water pollution, the integrators who control their operations will have no incentive to minimize the extent of such pollution. Co-permitting integrators would be an equitable step that would also create a sensible incentive scheme and likely to lead to the development of more cost-effective waste management systems.

EPA has already established that many of these corporate entities are CWA operators, but it must now clarify by regulation which entities meet the definition of an operator and are required to obtain NPDES permits. It will be entitled to substantial deference for a reasonable articulation of "substantial operational control," similar to that proposed in 2001. However, EPA must establish a more bright-line test for substantial operational control, rather than leaving that determination to state permitting agencies as previously proposed.[155] In light of the lack of integrator liability for operators that exercise increasing control over CAFOs and their pollution, a failure to impose unambiguous co-permitting requirements on integrators and state permitting agencies would be arbitrary and capricious.

d. EPA Should Revise the CAFO and Production Area Definitions and Designation Authorities, 40 C.F.R. § 122.23(b)-(c)

EPA should revise the definition of production area to resolve uncertainty created by courts, and should revise the CAFO definitions because as written, the current definitions prevent effective regulation of medium and small AFOs that are nonetheless significant sources of water pollution. Moreover, they create incentives for operators to avoid regulation by maintaining herd sizes just below the regulatory threshold. Specifically, EPA should revise its

[153] EPA Office of Enforcement and Compliance Assurance, Chesapeake Bay Compliance and Enforcement Strategy 4 (May 2010), http://www.epa.gov/oecaerth/civil/initiatives/chesapeake-strategy-enforcement.pdf.

[154] *See Waterkeeper Alliance, Inc. v. Alan Hudson*, No. WMN–10–487, 2012 WL 6651930 (D. Md. Dec. 20, 2012). Perdue ultimately prevailed in this case when the court did not find sufficient proof of a discharge from the broiler operation. But the judge's prior order denying Perdue's Motion to Dismiss recognized that integrators who exercise sufficient control over contractors may be held liable as CWA operators. Memorandum on Motions to Dismiss, *Assateague Coastkeeper et al. v. Alan and Kristin Hudson Farm et al.*, 727 F. Supp. 2d 433 (D. Md. Jul. 21, 2010).

[155] *See* 2001 Proposed CAFO Rule, 66 Fed. Reg. at 3025 ("The proposed regulations would provide that a person is an 'operator' when 'the Director determines' that the person exercises substantial operational control over the CAFO.").

CAFO definitions to either eliminate or shrink the "Medium CAFO" category and to make it easier for both state agencies and EPA to designate a Small (or Medium, if EPA retains that category) AFO as a CAFO, such that facilities with the same environmental impact as Large CAFOs are subject to the same degree of environmental regulation.[156]

i. EPA Should Revise the Definition of Production Area

EPA's existing definition of "production area" is appropriately broad and non-exclusive. A reasonable interpretation of this definition should ensure that all Large CAFO-related discharges are subject to the ELGs if they are not from land application areas, and should preclude any application of the agricultural stormwater exemption to discharges from non-land application areas associated with a CAFO. However, the 2014 *Alt v. EPA* decision adopted a strained interpretation of the production area, creating the new concept of a CAFO "farmyard" that it declared eligible for the agricultural stormwater exemption, and thereby created uncertainty where none had previously existed.[157] EPA failed to appeal that erroneous District Court decision, and must now eliminate any purported ambiguity or regulatory gaps through its rulemaking authority.

Of course, if EPA acts to properly limit the scope of the agricultural stormwater exemption, that revision would remedy much of the uncertainty created by *Alt*. However, EPA should additionally clarify the scope of the production area to ensure that all areas associated with the CAFO facility are subject to the CAFO ELGs. EPA can do this by simply adding language to the existing production area definition explaining that each CAFO has a single, contiguous production area that encompasses all listed aspects of the operation and all areas in between, and that the agricultural stormwater exemption may never be applied to discharges from the CAFO production area.

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[156] The regulations divide AFOs into three groups—Large, Medium, and Small, based on the number of animals raised at the facility. All large AFOs are considered Large CAFOs, based solely on the size threshold. But a Medium AFO is only considered a CAFO if it both meets the specified size threshold and satisfies one of two conditions: (1) the facility must discharge pollutants to a water of the U.S. through a man–made ditch, flushing system, or other similar man–made device; or (2) the facility must discharge pollutants directly into a water of the U.S which originates outside of and passes over, across, or through the facility, or otherwise comes into direct contact with the animals confined in the facility. "Small CAFO" is defined in the regulations as any AFO "that is designated as a CAFO and is not a Medium CAFO." Irrespective of size threshold, AFOs can be designated as CAFOs by the appropriate NPDES permitting authority if, upon inspection of the operation, the authority determines that the facility "is a significant contributor of pollutants to waters of the United States." 40 C.F.R. § 122.23(b)-(c). In making this designation, permitting authorities are directed to consider: (1) the size of the AFO and the amount of waste reaching waters of the U.S.; (2) the location of the AFO relative to jurisdictional waters; (3) the means of conveyance of animal wastes and process waste waters to waters of the U.S.; (4) the slope, vegetation, rainfall, and other factors affecting likelihood or frequency of discharge; and (5) other relevant factors. *Id.* § 122.23(c)(2).

[157] *Alt v. EPA*, 979 F. Supp. 2d 701, 711 (N.D. W. Va., Oct. 23, 2013).

ii. EPA Should Revise or Eliminate the "Medium CAFO" Category

While the environmental concerns associated with many Medium AFOs differ only in scale, not type, from those caused by Large CAFOs, EPA's default position under the current regulations is to leave the former unregulated. However, there is evidence that Medium AFOs are significant polluters,[158] and EPA's current approach does not adequately ensure that polluting Medium AFOs are designated as CAFOs or that designated CAFOs are sufficiently regulated.

The current definition of "Medium CAFO" inhibits effective regulation of these facilities in two ways. First, a Medium AFO can only be defined as a CAFO if the operation discharges from the production area directly or via a manmade conveyance, and can only be designated as a CAFO after an on–site inspection demonstrates that it is a significant contributor of pollutants to a water of the U.S.[159] This means that Medium AFOs have no incentive or obligation to seek NPDES permit coverage until they have been caught directly discharging into a jurisdictional water, nor do they have any incentive or obligation to control their land application discharges. Even the most egregious over-application of waste on cropland or application in circumstances that lead to discharges are not grounds for CAFO designation. As discussed elsewhere in this Petition, even permitted CAFOs' NMPs are not "zero discharge" plans; the application practices of facilities with no plans whatsoever are even more likely to lead to discharges. Second, even where Medium (or Small) AFOs are designated as CAFOs, EPA has not promulgated federal ELGs for these facilities, leaving permitting authorities to establish BPJ effluent limitations for these operations on an ad hoc basis.[160]

Despite EPA's failure to comprehensively track the nation's CAFOs, literature and anecdotal evidence indicate that the current size–based Large CAFO definition has incentivized AFO operators to skirt environmental regulations by maintaining animal numbers just under the Large CAFO threshold. One empirical study found, for example, that in the four years after promulgation of the 2003 CAFO Rule, "7.7% of potentially regulated operations near the threshold 'avoided' [regulation] by remaining just below the cutoff."[161] The same study found that "avoidance" is even more prominent among new facilities than among existing

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[158] *See, e.g.*, J. Mark Powell, et al., *Environmental Policy and Factors that Impact Manure Management on Wisconsin Dairy Farms*, Proceedings of the Symposium on the State of the Science of Animal Manure 3-4 (2005) (Wisconsin dairy farms with small and medium herd sizes have the lowest manure collection rates, and are often located close to streams or springs; these farms may require "particular attention" with respect to manure management).

[159] 40 C.F.R. §§ 122.23(b)(6), (c).

[160] *Id.* § 412; Permit Writers' Manual at 4-17; EPA, *Producers' Compliance Guide for CAFOs* 5 (2003), https://www.epa.gov/sites/production/files/2015-06/documents/compliance-cafos.pdf.

[161] Stacy Sneeringer and Nigel Key, *Effects of Size-Based Environmental Regulations: Evidence of Regulatory Avoidance*, 93 Am. J. Agric. Econ. 1189, 1190 (2011), http://faculty.smu.edu/millimet/classes/eco7377/papers/sneeringer%20key%202011.pdf.

operations.[162] Summarizing its findings, the study concluded that increased numbers of operations just under the regulatory thresholds between 1997 and 2007 coincided with increased environmental regulations—namely EPA's 2003 CAFO Rule.[163]

Producer–oriented publications from various agricultural extension networks further support this common–sense finding. In a document entitled "How to Avoid CAFO Status," soil specialists at the Colorado State University Cooperative Extension recommended that AFO operators inspect their facilities to determine whether any of the size or discharge criteria that would render such facilities CAFOs were met—and if so, "change it, so you won't be defined or designated as a CAFO in the future."[164]

While EPA adopted this three–tiered system in order to ease states' burdens in revising CAFO regulations, many of which had included this structure prior to the 2003 Rule,[165] as implemented, this system arbitrarily exempts a large number of operations approaching the Large CAFO size threshold and their land application practices from regulation, and encourages circumvention of laws governing permitted facilities. Given these failings, EPA should either eliminate the "Medium CAFO" category altogether and expand the Large CAFO category to include these facilities, or remove the requirement that a Medium AFO directly discharge from the production area to qualify as a CAFO. Such a revision, particularly if made in conjunction with the proposed revision to the agricultural stormwater exemption, would bring many discharging Medium AFOs into the NPDES permit program and significantly benefit water quality.

iii. EPA Should Impose Meaningful Limits on States' Discretion in Designating AFOs as CAFOs

Current CAFO regulations allow states an inordinate amount of discretion in determining whether to regulate Small or Medium AFOs by designating them as CAFOs. Such a designation requires that a facility be "a significant contributor of pollutants to waters of the United States."[166] The term "significant" is not defined in the regulations, however, so state permitting authorities have an enormous amount of leeway in determining whether to designate an AFO as

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[162] *Id.* at 1202 (noting that "new entrants exhibit a 10.5% avoidance rate, while that for continuing operations is only 5.2%").

[163] *Id.* at 1207-09; *see also* Bradley Crawford, *Going Half Hog: CAFOs Downscale in the Face of Regulation*, Chicago Policy Review (May 3, 2012), http://chicagopolicyreview.org/2012/05/03/going-half-hog/.

[164] Jessica G. Davis, How to Avoid CAFO Status, Colorado State University Cooperative Extension.

[165] *See* 2003 CAFO Rule, 68 Fed. Reg. at 7189-90 (stating that eliminating the three-tier structure "at this point in time would be unnecessarily disruptive in a number of States that currently have three-tier CAFO programs in place.").

[166] 40 C.F.R § 122.23(c). In making this designation, permitting authorities are directed to consider: (1) the size of the AFO and the amount of waste reaching waters of the U.S.; (2) the location of the AFO relative to jurisdictional waters; (3) the means of conveyance of animal wastes and process waste waters to waters of the U.S.; (4) the slope, vegetation, rainfall, and other factors affecting likelihood or frequency of discharge; and (5) other relevant factors. *Id.* § 122.23(c)(2).

a CAFO. Moreover, this term is so vague that it essentially precludes citizens from contesting the determination of the state agency.

While the regulations provide an open–ended list of criteria that permitting authorities may consider in making such a determination, the rules give no indication of how permitting authorities are to weigh these criteria. The complete lack of standards or accountability for state designation of Small CAFOs, in practice, renders this tier of the CAFO definition a nullity, despite the fact that even Small AFOs can cause large discharges and severe water quality impacts.[167] EPA should therefore revise the definition of "Small CAFO" to apply the current criteria for the Medium CAFO definition – if a Small AFO discharges from the production area, it should be defined as a CAFO. It simply defies logic to permit direct discharges from any size of AFO into jurisdictional waters without imposing basic NPDES permit requirements. Finally, EPA should expand its own authority to designate an AFO as a CAFO in other circumstances when the state permitting agency fails to act. This authority should not hinge on a finding that an AFO is contributing to a downstream water quality impairment.[168]

Overall, EPA's current CAFO regulations have failed to effectively bring discharging CAFOs and AFOs into the NPDES program, and EPA must establish presumptions that certain CAFOs discharge, close the agricultural stormwater loophole, affirm that integrators who qualify as operators must obtain permits, and update its CAFO definitions to reflect the fact that a functional program must better control pollution from Medium and Small AFOs. Any course of action short of adopting this set of revisions will allow the status quo of unregulated CAFO pollution to continue.

B. EPA Must Strengthen CAFO NPDES Permits to Adequately Protect Water Quality

Under EPA's current regulations and effluent guidelines, even the minority of CAFOs that have NPDES permits are inadequately regulated. The regulations applicable to all CAFOs purport to require CAFOs to maintain adequate waste storage and implement NMPs, and the effluent guidelines applicable to Large CAFOs further impose a zero discharge requirement on the production area under most circumstances and require various best management practices and minimization of runoff from land application areas. Yet the CAFO rules suffer from unclear language and fail to require the basic water quality monitoring required of virtually every other point source category, instead relying only on annual reports of waste applications. Such

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[167] *See, e.g.*, Adam Rodewald, Green Bay Press-Gazette, Manure Spills Putting Water Supply at Risk (Feb. 8, 2015), http://www.greenbaypressgazette.com/story/news/investigations/2015/02/06/manure-spills-water-supply/22983669/; Bob Dohr, Green Bay Press-Gazette, One Million Gallons of Manure Dumped in Spencer Wetland (Aug. 13, 2014), http://www.greenbaypressgazette.com/story/news/local/2014/08/12/farm-cited-manure-discharge/13983497/ (discussing a 120-head Wisconsin dairy that spilled an estimated one million gallons of manure from a storage tank into a wetland and the Eau Pleine River between 2013 and 2014).

[168] 40 C.F.R. § 122.23(c)(1).

monitoring is essential, particularly given the other weaknesses in EPA's permit scheme. EPA's CAFO ELGs do not apply to Small or Medium CAFOs, leaving these permits' limits up to states. The ELGs also fail to prohibit certain practices that inherently pose threats to water quality from both the production and land application areas, and rely on state-based nutrient management requirements derived to maximize crop yield, rather than protect water quality. This approach addresses CAFO waste as though it is merely manure, and as a result EPA has also entirely overlooked numerous pollutants of concern.

To ensure that CAFO permits adequately protect water quality and provide necessary transparency and enforceability, EPA must adopt common-sense waste management and monitoring requirements, strengthen the basic requirements applicable to all CAFOs, regulate all important CAFO pollutants through the CAFO ELGs, and otherwise strengthen the CAFO ELGs to prohibit practices known to harm water quality.

a. EPA Must Strengthen and Clarify the Requirements Applicable to All CAFOs, 40 C.F.R. § 122.42(e)

While it is commendable that EPA has established industry-specific regulations for CAFO NPDES permits in addition to the ELGs, unlike many other regulated industries, the regulations lack clarity and accountability. The Large CAFO ELGs do not adequately make up for these shortcomings.

i. EPA Must Require Water Quality Monitoring in CAFO NPDES Permits

EPA has long failed to require CAFOs to meet one of the most basic requirements of NPDES permits—water quality monitoring capable of assuring compliance with permit terms. The CWA's permitting provisions require that NPDES permits contain conditions, including conditions on data collection and reporting, to "ensure compliance" with the Act.[169] The accompanying CWA regulations clearly require all NPDES permits to include certain monitoring and reporting requirements designed to "assure compliance with permit limitations . . . ."[170] These include, *inter alia*, "requirements to monitor" "[t]he mass (or other measurement specified in the permit) for each pollutant limited in the permit," "[t]he volume of effluent discharged from

[169] 33. U.S.C. § 1342. *See also NRDC v. EPA*, 808 F.3d 556, 580 (2d Cir. 2015) ("Under the CWA, NPDES permits must contain conditions that require both *monitoring* and *reporting of monitoring results* of TBELs and WQBELs to ensure compliance.").

[170] 40 C.F.R. § 122.41(i)(1). Moreover, because these monitoring requirements apply to all NPDES permits, EPA's rejection of groundwater and surface water monitoring requirements in determining BAT for the CAFO industry, and the *Waterkeeper* court's deference to EPA's rejection of groundwater monitoring, is irrelevant to this consideration. The question of surface water monitoring as part of BAT was not before the court, nor was the question of surface water monitoring as a general requirement of NPDES permits. *Waterkeeper Alliance*, 399 F.3d at 513-15.

each outfall," or "[o]ther measurements as appropriate."[171] Permit monitoring provisions must further specify the "type, intervals, and frequency [of sampling] sufficient to yield data which are representative of the monitored activity, including, when appropriate, continuous monitoring."[172] Permittees must report monitoring results "on a frequency dependent on the nature and effect of the discharge, but in no case less than once a year."[173] In light of these statutory and regulatory requirements, "[g]enerally, 'an NPDES permit is unlawful if a permittee is not required to effectively monitor its permit compliance.'"[174]

CAFOs are point sources subject to these permitting provisions, and persistent pollution from these sources has demonstrated that facility-level effluent monitoring on or adjacent to CAFO production and land application areas is necessary to meet the objectives of the CWA. Yet permitting agencies have overwhelmingly failed to incorporate any of these required monitoring provisions into CAFO NPDES permits. EPA must fill this regulatory gap by directly addressing monitoring in the CAFO regulations. To properly implement compliance monitoring, CAFO permits must require monitoring for, *inter alia*, pH, total nitrogen, ammonia nitrogen, nitrate, total phosphorus, specific conductance, biochemical oxygen demand, fecal coliform, temperature, and total suspended solids,[175] and must require such monitoring at points of discharge from the production and land application areas, as identified on a site-specific basis by a certified nutrient management planner. CAFO monitoring plans must be designed based on consistent EPA criteria for representative sampling and subject to public notice and comment prior to permit issuance.

EPA rejected water quality monitoring requirements in the 2003 CAFO Rule, citing "concerns regarding the difficulty of designing and implementing" an effective monitoring program, and "because the addition of in-stream monitoring does not by itself achieve any better controls on the discharges from CAFOs . . . ."[176] EPA did not revisit that decision in the 2008

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[171] 40 C.F.R. § 122.44(i).

[172] 40 C.F.R. §§ 122.48(b), 122.44(i)(1). *See also* 40 C.F.R. § 122.41(j)(1). Section 308 of the CWA provides further support for monitoring, stating that "whenever [it is] required to carry out the objective" of the CWA, a permitting agency "(A) shall require the owner or operator of any point source to . . . (iii) install, use, and maintain such monitoring equipment or methods . . . as may reasonably be require[d]." 33 U.S.C. § 1318(a)(1)(A)(iii).

[173] 40 C.F.R. § 122.44(i)(2). The regulations further set out required monitoring methodologies, 40 C.F.R. § 136, and state that all NPDES permits must specify "[r]equirements concerning the proper use, maintenance, and installation, when appropriate, of monitoring equipment or methods." 40 C.F.R. § 122.48(a).

[174] *NRDC v. EPA*, 808 F.3d at 583, quoting *NRDC v. Cty. of L.A.*, 725 F.3d 1194, 1207 (9th Cir. 2013).

[175] *See, e.g.*, Ca. Reg'l Water Quality Control Bd., North Coast Region, General NPDES Permit No. CAG011001, NPDES Permit for CAFOs, Attachment E – Monitoring and Reporting Program at E-4 [hereinafter CA CAFO Permit], http://www.waterboards.ca.gov/northcoast/water_issues/programs/dairies/pdf/120127/npdes/120127_12_0001_NPDES_CAFO.pdf. This California CAFO General Permit requires surface and groundwater monitoring for numerous pollutant parameters. EPA should also require monitoring for additional pollutants of concern added to the CAFO ELGs, as proposed *infra*.

[176] 2003 CAFO Rule, 68 Fed. Reg. at 7217.

CAFO Rule.[177] But while EPA may believe that CAFO monitoring is more difficult than with other point source industry sectors, there are no exemptions from these basic compliance monitoring requirements. Moreover, various states have demonstrated that such monitoring is in fact practicable and affordable. California, for example, issues CAFO permits with representative effluent monitoring requirements for numerous CAFO pollutants of concern at both production and land application area discharge points.[178] Maryland also has language in its CAFO General Permit authorizing the state to require operators to design a monitoring plan to sample various manure pollutants and pesticides that could be present at potential production and land application area discharge points, to "evaluate the effectiveness" of the facility's nutrient management plan and thereby assure compliance.[179] Contrary to EPA's 2003 findings, it is now practicable to design and implement such CAFO monitoring requirements.

Outside of the CAFO permitting context, other states have found it possible to derive monitoring methods for pollution runoff from agricultural operations, or to require operations to derive their own methods on a case-by-case basis. The emergence of pollution credit trading programs has created the incentive for such monitoring to verify agricultural credit generation where states do not merely rely on modeling, such as in Oregon, where the creation of credits must be accompanied by a monitoring plan, and Ohio, where soil and water conservation professionals must monitor water quality to assess the effectiveness of agricultural credit sellers' practices.[180] Evidently it is possible to develop representative monitoring of pollution from agricultural sources when those sources and permitting agencies have the incentive to do so; EPA cannot credibly claim that such monitoring is impracticable or ineffective while concurrently allowing states to use similar methods to verify credits and ostensibly demonstrate permit compliance in trading programs.

No existing CAFO requirements satisfy these monitoring requirements. The limited manure and soil nutrient sampling required under EPA's regulations is helpful in attempting to determine an agronomic rate for waste application, but does not provide any information relevant to the CWA's requirement that NPDES permits must assure compliance with water quality

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[177] No group challenged this deficiency of the 2003 and 2008 CAFO Rules, and no court has upheld the agency's decision to ignore these requirements.

[178] CA CAFO Permit at Attachment E.

[179] Md. Dep't of the Env't, General Discharge Permit for Animal Feeding Operations, Part V.A. (Dec. 1, 2014), http://www.mde.state.md.us/programs/Land/RecyclingandOperationsprogram/AFO/Documents/gd_permit%20signed.pdf.

[180] *See, e.g.*, Oregon Water Quality Trading Program Regulations, OAR 340-039-0025(5)(g), http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_340/340_039.html; Ohio Water Quality Trading Regulations, OAC 3745-5-04(K), http://epa.ohio.gov/portals/35/rules/05-04.pdf. While these two programs are not specifically designed to assure compliance with effluent limitations and leave too much discretion to individual agricultural polluters to design monitoring plans, they demonstrate that such site-by-site agricultural monitoring requirements do not suffer from the "prohibitive[] expens[e]" or "severe technological limitations" necessary for EPA to lawfully omit them from CAFO permits. *See NRDC v. EPA*, 808 F.3d at 582.

standards[181] or EPA's CAFO ELG requirements to prevent production area discharges and minimize the potential for nutrient pollution from land application fields. EPA's regulations applicable to all NPDES permits speak for themselves, and must be given effect in permitting of CAFOs. In place of the 'honor system' currently in effect, EPA must require all permitted CAFOs to conduct periodic, representative water sampling and submit the results regularly via discharge monitoring reports—just like other industries are required to do. Absent such monitoring requirements, determining CAFO compliance with permit provisions becomes essentially impossible and CAFOs cannot reliably be held accountable for violations of permit terms.

ii. EPA Must Strengthen Annual Reporting Requirements

EPA should add to the CAFO annual reporting requirements, 40 C.F.R. § 122.42(e)(4). The annual report should of course include the results of the water quality monitoring discussed *supra*, though these results should also be submitted the permitting agency and EPA and made available to the public within 30 days of the monitoring event. The annual report should also include a summary of any discharges from land areas under the control of the CAFO; currently only production area discharges are subject to annual reporting requirements. In addition, the annual report should include not only the estimated amount of manure transferred to other persons, but also all of the manure transfer documentation that CAFOs are currently required only to keep on site pursuant to 40 C.F.R. § 122.42(e)(3). These common-sense additions to the existing annual report requirements will provide regulators and the public with far more of the information they need to assess a facility's compliance status without imposing significantly greater administrative burdens on permittees.

b. EPA Must Revise the Large CAFO Effluent Guidelines, 40 C.F.R. § 412

EPA's Large CAFO ELGs purport to prevent all production area discharges, absent a major storm event, and minimize the potential for nutrient runoff from land application.[182] Specifically, land application practices must be subject to best management practices (BMPs) specified in 40 C.F.R. § 412.4.[183] BMPs for land application include the requirement that a CAFO utilizing land application develop a nutrient management plan meeting nine minimum

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[181] 40 C.F.R. § 122.4(d). For the same reason, EPA's 2003 rejection of monitoring in part because monitoring does not itself reduce CAFO pollution, 68 Fed. Reg. at 7217, is not a valid reason to omit monitoring requirements because as explained, that is not the purpose of monitoring requirements. Monitoring is required to demonstrate compliance, not to achieve it.

[182] 40 C.F.R. § 412.31(a) (explaining BPT for dairy cows and cattle other than veal calves); 412.32 (explaining BCT for the same); 412.33 (explaining BAT for the same); 412.43 (explaining BPT for swine, poultry, and veal calves); 412.44 (explaining BCT for the same); 412.45 (explaining BAT for the same).

[183] *See also* 40 C.F.R. §§ 412.31(b); 412.33(b); 412.43(b); 412.44(b); 412.45(b).

elements;[184] determine application rates for manure, litter, and other process wastewater that minimize phosphorous and nitrogen transport to surface waters; sample and analyze manure and soil; inspect land application equipment for leaks; and comply with setback requirements.[185]

But as evidenced by manure spills and widespread water contamination, these ELGs are failing to adequately control CAFO pollution. The regulations only require states to set BPJ limits for pollutants from Medium and Small CAFOs, ignore numerous pollutants of concern, leave various waste pathways unregulated, and fail to prohibit practices that are known to harm water quality and that prevent CAFOs from meeting narrative effluent limits. In short, they fall far short of representing the appropriate level of technology for reducing CAFO pollution.

i. The CAFO ELGs Should Apply to All CAFOs

In the 2001 CAFO rule preamble, EPA considered broadening the applicability of the CAFO ELGs beyond Large CAFOs to establish broader water quality protections and more uniform permit requirements, but its final 2003 rule maintained the status quo established in the 1970's.[186] EPA's rationale for leaving Small and Medium CAFO technology-based effluent limit determinations up to state permit writers was primarily out of a concern for flexibility and cost-effectiveness, as well as a finding that smaller facilities were more likely to have adequate land for manure disposal.[187] But the past decade has shown that the current approach is inadequate to protect water quality, and this is one aspect of the regulations where EPA could easily improve the quality and consistency of permits for a class of operations. If EPA applies the CAFO ELGs to all CAFOs, it will lessen the resource burden on state permit writers and improve water quality outcomes from this category of NPDES permits. Moreover, if EPA adopts certain rule changes discussed *supra*, particularly the revised Medium CAFO and agricultural stormwater definitions, far more facilities currently classified as non-CAFO AFOs will be subject to NPDES permitting requirements, increasing the cost benefits of uniform ELGs for state agencies and the

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[184] NMP requirements are spelled out in 40 C.F.R.§ 122.42, which requires that NMPs: (1) ensure adequate storage of manure, litter, and process wastewater; (2) ensure proper management of mortalities; (3) ensure that clean water is diverted from the production area; (4) prevent direct contact of confined animals with waters of the U.S.; (5) ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water or treatment system; (6) identify appropriate site specific conservation practices to be implemented (BMPs); (7) identify protocols for testing of manure, litter, process wastewater, and soil; (8) establish protocols to land apply manure, litter, or process wastewater in accordance with site specific nutrient management practices; and (9) identify records that will be maintained to document implementation and management of these requirements. 40 C.F.R. § 122.42(e)(1)(i)-(ix).

[185] 40 C.F.R. § 412.4(c)(1)-(5). The regulations also provide two alternatives to compliance with setback requirements. CAFOs can instead implement vegetated buffers meeting certain standards, or demonstrate that alternative conservation practices or field-specific conditions will provide pollutant reductions equivalent to, or better than, the otherwise required setback. 40 C.F.R. § 412.4(c)(5).

[186] 2003 CAFO Rule, 68 Fed. Reg. at 7208.

[187] *Id.*

regulatory certainty for operators.[188] At the very least, EPA should revisit its analysis of whether certain size classes of CAFOs have adequate land base for manure disposal, as this is a primary basis for EPA's differential treatment of these operations. The updated analysis should rely on current data and acknowledge the gaps in EPA's information about the CAFO universe, adopting conservative assumptions where critical information is unavailable.

ii. EPA Must Establish Application Disclosure requirements, BAT and NSPS Limits, and Monitoring Requirements for Additional CAFO Pollutants of Concern

EPA's long-standing approach to regulating CAFO discharges is reliant on the fundamental misconception that CAFO waste is comprised solely of manure. This approach has led EPA to disregard numerous pollutants of concern and instead simply regulate fecal coliform and certain constituents of CAFO waste that have agronomic value. This failure to establish BAT and NSPS limits for numerous pollutants that are not even currently disclosed in permit applications, in combination with the regulations' failure to require basic water quality monitoring, has led to a regulatory scheme in which CAFOs can use unknown combinations and quantities of metals, pharmaceuticals, cleaning products, and synthetic hormones, and then dispose of what ends up in the waste stream without demonstrated, effective controls. EPA must require CAFOs to disclose their use of these pollutants in permit applications, analyze the most effective means to prevent discharges of these pollutants, which are generally not agronomically useful and cannot be assumed to be utilized by crops, establish BAT and NSPS standards for CAFOs to control these pollutants, and incorporate these standards into the CAFO ELGs.

EPA's NPDES regulations require most applicants for NPDES permits to disclose pollutants of concern in their discharge in their permit application. For example, industrial facilities and large publicly owned treatment works must disclose any of a long list of hazardous substances if they will likely be present in their effluent, and provide monitoring data.[189] This is the only way for a permitting agency to ensure that it has established adequate limits to protect water quality, and a lack of such information hinders public participation in the permitting process. But inexplicably, EPA does not require CAFOs to disclose any pollutants beyond providing the quantity of "manure, litter, and wastewater" generated.[190] EPA must remedy this by establishing effluent limits on the full suite of CAFO pollutants of concern and incorporating application disclosure requirements into CAFO permit application Form 2B.

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[188] Even if EPA adopts the recommended changes to the CAFO definitions, which would re-define certain CAFOs as Large CAFOs, broadening the applicability of the ELGs to all CAFOs would benefit water quality and streamline permitting for state agencies—particularly if adopted in conjunction with the proposals, discussed *infra*, to strengthen the ELGs and make them more protective of water quality.

[189] 40 C.F.R. §§ 122.21(2)(i), (iv); EPA NPDES Forms 2A and 2C.

[190] EPA NPDES Form 2B.

Each of the constituents listed above meets the CWA definition of a "pollutant." Most of these substances are added to livestock feed, and EPA has established that the significant majority ends up in the animals' manure. EPA regulates the various heavy metals sometimes used by CAFOs as feed additives as priority pollutants, and has noted their harmful impacts on aquatic life, as well as crops and public health.[191] Pharmaceuticals and synthetic hormones added to livestock feed also plainly constitute pollutants. The CWA's broad pollutant definition includes all "biological materials," which clearly include biological pharmaceutical additives. And in the case of non-biological pharmaceutical and hormone agents, once they have fulfilled their purpose and been excreted in livestock waste, they are no longer serving a useful purpose and qualify as "chemical wastes."[192]

EPA acknowledges that its CAFO ELGs do not address all pollution that CAFOs discharge from the production area,[193] but it also fails to address other important pollutants discharged from both production and land application areas, and state permitting agencies are not acting to fill either of these gaps. Although permitting agencies are required to establish BPJ limits for pollutants that are not regulated under ELGs,[194] Petitioners are unaware of any state or EPA permits that address these pollutants, likely due both to the lack of CAFO monitoring requirements and the fact that the agricultural stormwater loophole enables states to simply assume without evidence that there are only minimal point source discharges of these constituents of CAFO waste. EPA and state agencies are not free to ignore these pollutants altogether, and the only reasonable way to ensure that permits adequately control all relevant pollutants is to establish BAT and NSPS standards for these pollutants and address them in the CAFO ELGs.

In addition to analyzing the availability of BMPs to reduce runoff from CAFO production and land application areas, the Agency has abundant recent evidence to inform an analysis of the costs of reducing or removing various feed additives from the waste stream altogether. Examples of tested pollution-reduction strategies include voluntary actions to remove arsenicals from poultry feed and certain companies' decisions to reduce use of medically important antibiotics, in both cases without any significant adverse economic consequences.[195] CAFO operators have the

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[191] *See* 40 C.F.R. § 423, App. A; 76 Fed. Reg. at 65434.

[192] 33 U.S.C. § 1362(6); *Nat'l Cotton Council*, 553 F.3d at 935-38.

[193] EPA has noted that the current CAFO ELGs do not address "plate chiller waste, filter backwash water, chemicals used in the production area (for disinfection) or pollutants that have fallen to the ground immediately downward from confinement building exhaust ducts and ventilation fans and are carried by precipitation-related or other runoff to waters of the US." Permit Writers' Manual at 4-18. This does not acknowledge metals, pharmaceuticals, or other pollutants of concern.

[194] *See* Hanlon BPJ Memo at Attachment A, pgs. 1-2 ("[A]n authorized state must include technology-based effluent limitations in its permits for pollutants not addressed by the effluent guidelines for that industry. 33 USC § 1314(b); 40 CFR § 122.44(a)(1), 123.25, 125.3. In the absence of an effluent guideline for those pollutants, the CWA requires permitting authorities to conduct the "BPJ" analysis discussed above on a case-by-case basis for those pollutants in each permit.").

[195] In fact, recent USDA research indicates that the economic impact on producers of banning all growth promoting antibiotics—not only those used in human medicine—would be minimal. *See, e.g.*, Stacy Sneeringer, James

ability to directly and significantly reduce the presence of metals and pharmaceuticals in their waste stream through modifying livestock feed inputs, and EPA cannot simply assume that the existing ELGs adequately address these pollutants. Some of these pollutants do not naturally break down or die like coliform bacteria, and may run off or move through soils differently than other pollutants, rendering different BMPs more effective at reducing their discharges and necessitating different BAT requirements.

Regarding metals, EPA's 2003 Rule estimated that the proposed regulations would only reduce Large and Medium CAFOs' metal discharges by 5%, and that assumed incorrectly that all Large CAFOs would obtain permits.[196] Given the low rates of permitting since, it follows that any reductions in metal pollution from the recent series of CAFO regulations have been negligible. EPA needs to address these pollutants directly by independently analyzing what technologies and practices are currently available to obtain results that are more protective of water quality. A useful analogy is sewage sludge, which shares certain characteristics with animal waste. EPA's sewage sludge application regulations impose metal concentration, cumulative loading, and annual loading limits. This is a stark example of EPA's inconsistent approaches to regulating human and animal wastes, and also provides a logical starting point in assessing BAT for CAFO applications of these pollutants.[197]

iii. The CAFO ELGs' NMP Requirements Must Prioritize Protecting Water Quality

Even in the absence of discharge monitoring requirements and the data they would provide, it is apparent that EPA's reliance on states to establish effective nutrient management requirements has failed to protect water quality. The CAFO regulations must provide a stronger backstop against weak state permitting provisions. Specifically, EPA must establish stronger federal requirements to minimize harmful runoff, rather than relying almost solely on NMPs and on state-promulgated technical standards.

MacDonald, et al., *Economics of Antibiotic Use in U.S. Livestock Production,* ERR-200, USDA Econ. Res. Serv. 55 (Nov. 2015), https://www.ers.usda.gov/webdocs/publications/err200/55529_err200.pdf?v=42401; Choices, Economics of Antibiotic Use in U.S. Swine and Poultry Production (2015), http://www.choicesmagazine.org/choices-magazine/theme-articles/theme-overview/economics-of-antibiotic-use-in-us-swine-and-poultry-production. Research has also indicated that "[s]ome antibiotics no longer work as growth promoters or yield a result so slight that the additional profit does not even cover the cost of the antibiotics, yielding a net loss." Food & Water Watch, *Antibiotic Resistance 101: How Antibiotic Misuse on Factory Farms Can Make You Sick* 13 (Mar. 2015), http://www.foodandwaterwatch.org/sites/default/files/Antibiotic%20Resistance%20101%20Report%20March%202015.pdf, citing Bonnie Marshall and Stuart Levy, *Food Animals and Antimicrobials: Impacts on Human Health*, 24 Clinical Microbiology Reviews 718, 723 (2011); S.S. Dritz et al., *Effects of Administration of Antimicrobials in Feed on Growth Rate and Feed Efficiency of Pigs in Multisite Production Systems*, 220 J. Am. Veterinary Med. Ass'n. 1690, 1690 (2002); J.P. Graham et al, *Growth Promoting Antibiotics in Food Animal Production: An Economic Analysis*, 121 Public Health Reports 79, 79 (2006).

[196] 2003 CAFO Rule, 68 Fed. Reg. at 7239.
[197] 40 C.F.R. § 503.13.

Research increasingly demonstrates that CAFO NMPs and other BMPs do not minimize pollution to the degree previously assumed. NMPs are designed to optimize crop yield, by specifying agronomically optimal nutrient goals, and therefore are not designed to minimize runoff to surface and ground water. Even when nutrient management planners have created site-specific nutrient application standards, inaccuracies in estimates of water delivery and utilization by crops and differential nutrient uptake rates by plants limit NMP effectiveness.[198] As a result, the NMP approach alone does not achieve the rates of pollution reduction required by the CWA.

Moreover, while EPA and states have identified certain nutrient management practices known to harm water quality (*see infra*, section B.b.iv), the federal regulations stop short of prohibiting these practices. These shortcomings weaken the efficacy of the CAFO regulatory program, and have resulted in a patchwork of state regulations pertaining to CAFOs with widely varying degrees of effectiveness. While some variation in land application restrictions may be appropriate due to varying climates, soils, crops, and other site–specific characteristics that will affect which practices will best protect water quality, EPA must reduce its reliance on state–based nutrient management planning. A stronger baseline of nationally–applicable standards is needed to make water quality protection, rather than crop yield, the primary consideration of CAFO nutrient management, and to ensure that states do not engage in a regulatory "race to the bottom."[199]

For CAFOs that land apply wastes, the ELGs require states to establish technical standards for nutrient management. Technical standards must address the form, source, amount, timing, and method of application of nutrients on each field, based on a field-specific assessment of the potential for nitrogen and phosphorous transport from the field to waterways.[200] These standards are supposed to be calculated to achieve realistic production goals while minimizing nitrogen and phosphorous movement to waters of the U.S.[201]

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[198] *See, e.g.*, EPA, *Transport and Fate of Nutrients and Indicator Microorganisms at a Dairy Lagoon Water Application Site: An Assessment of Nutrient Management Plans* 66 (Mar. 2011), http://nepis.epa.gov/Adobe/PDF/P100DOTV.pdf.

[199] *See, e.g.*, Stacy Sneeringer & Regina Hogle, *Variation in Environmental Regulations in California and Effects on Dairy Location*, 37 Agric. & Res. Econ. Rev. 133, 135 (2008) (surveying academic articles that have tested and supported the hypothesis that environmental regulations influence the location of dairies).

[200] 40 C.F.R. § 412.4(c)(2) (determination of application rates).

[201] *Id.*; *see also* Permit Writers' Manual at 6-12. EPA relies on the NRCS, a branch of USDA, to develop technical standards for nutrient management. *See* 2003 CAFO Rule, 68 Fed. Reg. at 7209 (allowing permitting authorities to rely on NRCS practice standards to meet required technical standards); 2008 CAFO Rule, 73 Fed. Reg. at 70430 (reiterating that permit applicants may rely on NRCS' technical guidance for CNMPs to fulfill NMP eligibility requirements).

Research has demonstrated, however, that "just having a NMP does not reduce excess nutrient application nor does it guarantee improvements in water quality."[202] The dual goals, expressed in EPA's regulations and state technical standards, of maximizing production and minimizing pollution are often incompatible, and when in doubt, state standards typically authorize operators to over–apply animal wastes and other supplements in order to ensure that crops have sufficient nutrients to ensure optimal growth.[203] As one researcher explained, "it cannot be assumed that there is a direct relationship between the soil test calibration for crop response to [nutrients] and surface runoff enrichment potential . . . . At what levels should recommendations for [nutrient] application change from being agronomic to environmentally based?"[204] Under the current regulations, states have too much discretion in balancing these competing interests.

Nutrient management requirements typically rely on the idea of a nutrient budget, limited either by nitrogen or phosphorous, in order to determine how much animal waste or other fertilizer can be applied to a crop.[205] NMPs should consider all nutrient input sources, and compare these to volatilization, mineralization, and plant uptake rates, as well as factors affecting the risk of loss, such as slope, in order to determine the amount of additional nutrients that can be added to a crop.[206] After taking all of these factors into account, "nutrient management planners [] assume that if waste is applied in accordance with an NMP, all CAFO contaminants will be taken up, inactivated, retained, or degraded in the root zone, so that surface and groundwater are inherently protected."[207] But while these calculations seek to consider relevant factors and involve some direct measurement of nutrient concentrations, they also rely on assumptions about the movement of water and physical and chemical interactions that may or may not reflect actual conditions.[208] As a result, these simplified models of nutrient uptake and transport ultimately fail to achieve environmentally optimal results.

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[202] R. Shepard, *Nutrient Management Planning: Is it the Answer to Better Management?*, 60 J. Soil and Water Conservation 171, 176 (2005).

[203] USDA, Nitrogen in Agricultural Systems: Implications for Conservation Policy 4, 46 (Sept. 2011), https://www.ers.usda.gov/webdocs/publications/err127/6767_err127.pdf?v=41056 (describing simultaneous environmental and economic optimization of nitrogen management as "a juggling act" and noting that reducing application rates may increase farmers' perceived risk of reduced yields); Robert Flynn, *Regulatory vs Agronomic Protection of Groundwater in New Mexico: A Case Study in Nutrient Management* 6 Western Nutrient Mgmt. Conference 165, 168 (2005) (noting that farmers "are not likely to allow crops to become deficient in nitrogen"); Andrew Sharpley, *Agricultural Phosphorous, Water Quality, and Poultry Production: Are They Compatible?* 78 Poultry Sci. 660, 668 (1999) (noting the importance of measuring the phosphorus content of both manure to be applied and that is already in the soil because "there is a tendency among farmers and their advisors to underestimate the fertilizer value of manure without these determinations.").

[204] Andrew Sharpley, *Agricultural Phosphorous, Water Quality, and Poultry Production: Are They Compatible?* at 668.

[205] EPA, *Transport and Fate of Nutrients and Indicator Microorganisms at a Dairy Lagoon Water Application Site: An Assessment of Nutrient Management Plans* at 5.

[206] *Id.*

[207] *Id.* at 7.

[208] *Id.*

Current nutrient management planning approaches also often allow over-application of phosphorus. Because most crops require more nitrogen than phosphorous, nitrogen-based approaches to manure application are more common than phosphorus-based.[209] This "presents a special problem because the N-to-P ratio in manures is lower than that needed by crops . . . [causing] excess P [to] build[] up to environmentally harmful levels in fields that received repeated applications."[210] EPA has come to similar conclusions when considering liquid dairy waste:

> "[A] potential problem arises when the relative content of nitrogen and phosphorous in lagoon water differs from that in the crop. In this case, NMPs that are designed to meet the nitrogen requirement for crops may result in the over-application of phosphorous."[211]

Other studies, including those looking at dry litter systems, echo this problem, finding that "[b]ecause most NMPs are based on plant N requirements, this invariably means that P is over–applied relative to needs."[212] Once excess phosphorous in soil reaches a particular saturation point, it begins to leach into surface and groundwater.[213] Some states do require that NMPs include phosphorus-based plans under certain circumstances.[214] Nonetheless, these approaches are highly variable, and recent studies demonstrate that phosphorous is often over-applied with respect to crop needs even in states with phosphorus-based plans. A 2014 report by the Environmental Integrity Project found, for example, that 75% of phosphorous from poultry operations on Maryland's Eastern Shore was applied in excess of crop needs.[215]

EPA's regulations should account for the modeling and design deficiencies that undermine the effectiveness of NMPs, rather than assuming that optimizing crop yield will also

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[209] University of Georgia Cooperative Extension, *Small Farm Nutrient Management Primer: For Un-permitted Animal Feeding Operations* 4-6 (Jan. 2006), http://extension.uga.edu/publications/files/pdf/B%201293_5.PDF; L.M. Risse, et al., *Land Application of Manure for Beneficial Reuse* at ii.

[210] L.M. Risse, et al., *Land Application of Manure for Beneficial Reuse* at ii.

[211] EPA, *Transport and Fate of Nutrients and Indicator Microorganisms at a Dairy Lagoon Water Application Site: An Assessment of Nutrient Management Plans* at 8. *See also* University of Georgia Cooperative Extension, *Small Farm Nutrient Management Primer: For Un-permitted Animal Feeding Operations* at 4-6; Risse, et al., *Land Application of Manure for Beneficial Reuse* at 18 ("Nutrients applied from animal manure should match the needs of the crop, but the ratios of N, P, K, and the various micro nutrients excreted by animals are generally different from crop requirements.").

[212] University of Kentucky Research Foundation, *Demonstration of Enhanced Technologies for Land Application of Animal Nutrient Sources in Sensitive Watersheds: Final Progress Report* 2 (2008), http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044927.pdf.

[213] Chesapeake Bay Foundation, *Manure's Impacts on Rivers, Streams, and the Chesapeake Bay* 8 (July 28, 2004), http://www.cbf.org/document.doc?id=137.

[214] *Id.* at 8-9 (noting that Virginia, Delaware, Pennsylvania, and Maryland all require that NMPs account for crop phosphorus needs to some extent).

[215] Environmental Integrity Project, *Manure Overload on Maryland's Eastern Shore* 8 (Dec. 8, 2014), http://dcpgonline.org/uploads/EIP_POULTRY-REPORT_-_Manure_Overload.pdf.

"minimize nitrogen and phosphorous movement to waters of the U.S."[216] At a minimum, EPA must expressly require the use of phosphorous-based plans, rather than nitrogen-based plans, where phosphorus is the limiting nutrient. However, even phosphorus-based plans fail to minimize the over–application of harmful manure constituents like *E. coli* and other pollutants, and EPA must commit to regularly strengthening CAFO nutrient management requirements as the science develops, including by analyzing the results of the requested land application monitoring data discussed *supra*. Put simply, the CWA mandates that EPA and states tip the scales in favor of water quality protection, not crop yield, requiring appropriate technology-based effluent limitations as mandated by the Act. The current NMP regulations fail to do so.

Stronger NMP regulations are also necessary to effectuate the Act's requirements that permits include stricter limits as needed to comply with water quality standards[217] and that permitting authorities may not issue a NPDES permit to a newly constructed or modified facility if discharges from that facility would cause or contribute to the violation of water quality standards.[218] Of course, the current permitting scheme discourages CAFO operators from obtaining permits in the first place, and as a result undermines the Act's mandate to protect water quality through more stringent permits when technology-based permits do not suffice. But even where CAFOs are required to obtain NPDES permits, the legal fiction that NMPs designed to maximize crop yield will also achieve minimal or zero discharge makes it unlikely that a permit writer will seek to establish more stringent requirements when a receiving water is impaired or the CAFO may cause or contribute to a violation of water quality standards.

Even in the case of land application, where EPA's ELGs merely require a few BMPs in addition to the NMP, there is nothing in EPA's rules to enable a permit writer to derive practices sufficiently protective to reduce loadings and ensure the discharge will not cause or contribute to water quality standards violations. Because many discharges under this scheme are assumed to be non-existent or not subject to regulation, and NMPs are already assumed to minimize the potential for runoff, there is no mechanism for permit writers to establish water quality-based permit limits where a receiving water is already impaired. Absent effective regulations that reflect the reality that NMPs are not zero discharge plans and that require discharging CAFOs to obtain permits in the first place, permitting authorities will continue failing to impose WQBELs to protect the uses of individual waterbodies.

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[216] *See* 40 C.F.R. 412.4(c)(2).

[217] *See* 33 U.S.C. § 1311(b)(1)(C) (NPDES permits must include "any more stringent limitations . . . necessary to meet water quality standards"); 40 C.F.R. § 122.44(d) (permitting authorities must include WQBELs for pollutants that "have the reasonable potential to cause, or contribute to an excursion above any State water quality standard").

[218] *See* 40 C.F.R. §122.4(i). *See also Friends of Pinto Creek v. EPA*, 504 F.3d 1007, 1014 (9th Cir. 2007).

iv. Technical Standards Must Prohibit Practices Known to Harm Water Quality

As written, EPA's ELGs for Large CAFOs allow CAFO operators to engage in several production and land application area practices known to cause discharges and harm water quality, undermining permits' narrative requirements to eliminate or minimize discharges, respectively. EPA's failure to promulgate CAFO technical standards that prohibit harmful practices is arbitrary and capricious, and contrary to EPA's obligations to develop guidelines sufficient to protect water quality and make progress towards the Act's goal of eliminating pollution.

The CAFO industry has grown and consolidated significantly since EPA conducted its BPT, BCT, BAT, and NSPS analyses for the CAFO ELGs, and its considerations of both the availability of better technologies and the industry's ability to afford certain practices has become outdated. EPA also knows far more now about the impacts of certain CAFO practices than it did in 2003, and should revisit the appropriateness of its current requirements and prohibitions. Moreover, EPA's prior analysis gave outsized consideration to the economic affordability factor; the mounting evidence that the existing ELGs cannot adequately control CAFO pollution, rendering EPA incapable of meeting its CWA obligations, dictates that the agency must reconsider its analysis with a greater focus on achieving acceptable water quality outcomes. Under such an updated and appropriately balanced analysis, the Petitioners believe that the proposed revisions are affordable for the industry as a whole and are appropriate for both new and existing CAFOs. Petitioners specifically request that EPA supplement the requirements of 40 C.F.R. § 412.4 (Best management practices for land application of manure, litter, and process wastewater) to prohibit the practices discussed below.

1. Manure Storage in Unlined and Inadequately Lined Lagoons and Impoundments

Studies have documented the fact that storage of manure in unlined lagoons and impoundments pollutes surface waters through hydrologic discharges,[219] and there is sufficient evidence to support a CAFO ELG provision that prohibits storage of manure and other animal wastes in lagoons without impermeable synthetic liners. While groundwater is not regulated as a

[219] *See, e.g.*, S. Koike, et al., *Monitoring and Source Tracking of Tetracycline Resistance Genes in Lagoons and Groundwater Adjacent to Swine Production Facilities over a 3-Year Period*, 73 Applied Envtl. Microbiology 4813, 4822 (2007) (noting that animal waste seepage from unlined lagoons at two swine CAFOs was associated with the spread of antibiotic resistance genes in bacteria found in groundwater near the facilities); Shai Arnon, et al., *Transport of Testosterone and Estrogen from Dairy-Farm Waste Lagoons to Groundwater*, 42 Envtl. Sci. & Tech. 5521, 5525 (2008) (concluding that clay lining of lagoons "cannot efficiently protect the groundwater environment from waste lagoon leachates under long-term exposure," where a study demonstrated potential seepage of hormones and inorganic contaminants from CAFO waste lagoons to deep groundwater, even where thick layer of clay was present).

water of the U.S., pollution of groundwater often leads to pollution discharges into jurisdictional surface waters through hydrologic connections. As discussed *supra*, such hydrologic discharges of groundwater to jurisdictional waterways are so prevalent that EPA has previously proposed establishing a presumption that CAFO lagoon discharges to groundwater will have a hydrologic connection to surface waters.[220]

The current CAFO rules essentially ignore this discharge pathway, and put the burden on citizens to demonstrate that a CAFO waste structure will cause a jurisdictional discharge. In its Permit Writers' Manual, EPA does recommend that Large CAFOs near a waterbody listed "as impaired due to nutrients, dissolved oxygen or bacteria," or in areas where there is a "reasonable potential" that anticipated discharges will violate water quality standards, should use more protective practices like "installing an impermeable lining in a lagoon or storage pond."[221] This effectively presumes that such facilities will discharge via their lagoons in the absence of effective liners. However, the water pollution risks from unlined lagoons indicate that a mere recommendation is insufficient. EPA must prohibit this practice in order for permitted CAFOs to actually achieve the technology-based standards of zero production area discharges in most weather conditions.

Historically, CAFO operators have not been required to line waste storage impoundments because of the belief that the animal wastes themselves create a protective lining. A recent literature review of lagoon leaching studies demonstrates, however, that leaching rates are highly variable and dependent on site–specific factors such as soil type.[222] Moreover, even where lagoons are lined with soil containing at least 10% clay, "significant leaching can occur through shrink–swell fractures in lagoon sidewalls."[223] In contrast, "[p]roperly constructed and maintained, synthetic liner systems provide excellent protection from groundwater degradation."[224] In short, "synthetic liners can protect groundwater quality, while other liners require substantial post-construction monitoring."[225]

Given current research on the effectiveness of synthetic lagoon liners, and in keeping with the requirement that EPA develop standards which reflect best available technology economically achievable, EPA must directly address hydrologic discharges by imposing technical standards that require the use of the best available synthetic liners at all existing and new waste lagoons. NRCS has extensively analyzed the seepage rates of different liner materials

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[220] 2001 Proposed CAFO Rule, 66 Fed. Reg. at 3040. Although such a presumption of hydrologic connection is not necessary to impose this BMP requirement on permitted CAFOs, EPA should nonetheless revisit this analysis to provide further evidence in support of a more general presumption of discharge by CAFOs or categories of CAFOs.
[221] Permit Writers' Manual at 4-36.
[222] Thomas Harter, et al., *Assessing Potential Impacts of Livestock Management on Groundwater*, Nicholas Institute for Environmental Policy Solutions 6 (Mar. 2014), http://nicholasinstitute.duke.edu/sites/default/files/ni_r_14-03_sr2_final.pdf (noting studies had found high leaching rates where unlined lagoons were built on sandy or gravelly soils).
[223] *Id.*
[224] *Id.*
[225] *Id.*

and the other factors that affect manure storage system discharges to groundwater, as well as their relative costs, and EPA should use this information and other recent research in deriving its technology standards.[226]

2. Ventilation of Pollutants near Waters or Conduits to Waters of the U.S.

EPA should further amend the CAFO ELGs to address pollution discharges from livestock confinement ventilation systems near waterways, ditches, or other conduits that carry pollutants to waters of the U.S. Ventilated animal houses may release significant quantities of ammonia, feathers, dust, and other pollutants. Where houses are located near waterways, these pollutants can re–deposit directly to surface waters, and where CAFO facilities contain ditches, pipes, or other conduits to surface waters, they can carry ventilated pollutants directly to waterways. The current ELGs do not account for these pollution pathways, despite the fact that EPA has affirmed that discharges of CAFO ventilation system pollutants into jurisdictional waters, or conduits to such waters, constitute prohibited point source discharges.[227]

Ammonia gas that is intentionally vented out of livestock houses provides a concrete example of how significant this uncontrolled pollution pathway can be. According to the Chesapeake Bay TMDL, atmospheric sources of nitrogen contribute roughly one-third of the total nitrogen load to the Chesapeake Bay.[228] In 2010, EPA projected that between 2010 and 2020, roughly half of the atmospheric nitrogen depositing in the Chesapeake Bay watershed was ammonia.[229] In other words, roughly 17% of the enormous nitrogen load currently impairing the Chesapeake Bay comes from atmospheric ammonia. Much of this atmospheric ammonia comes from CAFOs: according to the most recent EPA National Emissions Inventory, 55% of national ammonia emissions come from livestock waste.[230] In areas where CAFOs are concentrated, this proportion is higher. In Maryland, for example, 74% of ammonia emissions come from livestock waste.[231] In short, the emissions of ammonia from CAFOs, including emissions from livestock

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[226] *See* NRCS, Agricultural Waste Management Field Handbook Chapter 10, Appendices 10D and 10E (Aug. 2009), http://www.wcc.nrcs.usda.gov/ftpref/wntsc/AWM/handbook/ch10.pdf; NRCS Conservation Practice Standard 521A, Pond Sealing or Lining—Flexible Membrane (Sept. 2011), https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1046899.pdf.

[227] *See Nat'l Pork Producers Council*, 635 F.3d at 754-56; *see also Rose Acre Farms, Inc. v. N.C. Dep't of Env't and Natural Res.*, No. 12-CVS-10, ¶¶ 54, 55 (Jan. 4, 2013) (finding that ammonia and other pollutants that reach jurisdictional waters after being expelled by CAFO ventilation fans are subject to NPDES permitting requirements, and are not exempt as agricultural stormwater).

[228] EPA, Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment 4-33 (Dec. 29, 2010), https://www.epa.gov/chesapeake-bay-tmdl/chesapeake-bay-tmdl-document.

[229] *Id.* at Appendix L, Table L3.

[230] EPA, 2011 National Emissions Inventory, https://www.epa.gov/air-emissions-inventories/2011-national-emissions-inventory-nei-data.

[231] *Id.*

confinement ventilation systems, are directly and substantially contributing to the ongoing impairment of the Chesapeake Bay. This is not a trivial pollution pathway.

The current Large CAFO ELGs ostensibly require existing CAFOs and new dairy and cattle CAFOs to meet a zero discharge standard for the production area, except in the case of a 25–year, 24–hour storm event, and require new hog and poultry CAFOs to achieve a zero discharge production area standard regardless of storm events.[232] However, many CAFOs fail to achieve these requirements in practice, due to the regulations'—and in turn, state permitting agencies'—failure to specifically address ventilation system pollution emissions that become discharges. EPA should require all CAFOs using ventilation systems to either prevent pollutant releases with biofilters or other existing technology, or to capture all ventilated pollution and divert it into the waste containment area to prevent any prohibited discharges of manure, litter, or process wastewater pollutants. To the extent that EPA finds that these technologies cannot eliminate all ventilation system discharges, which is particularly a concern for ammonia, such a finding would only bolster this Petition's argument that CAFOs do in fact discharge, and that a presumption of discharge is necessary to carry out the Act.

3. Application on Frozen, Saturated, or Snow-Covered Ground

EPA and other agencies recognize that spreading manure on frozen, snow–covered, or saturated ground results in high risk of runoff and pollutant transport. In the NPDES Permit Writers' Manual for CAFOs, EPA says that state programs "should either prohibit application of manure and process wastewater on snow, ice, and frozen ground, or include specific protocols that CAFO owners or operators . . . will use to conclude whether application to a frozen or snow–or ice–covered field (or a portion thereof) poses a reasonable risk of runoff."[233] Similarly, NRCS, EPA's primary resource for developing technical standards,[234] advises that "[n]utrients must not be surface–applied if nutrient losses offsite are likely" and warns against spreading on "frozen and/or snow–covered soils, and when the top 2 inches of soil are saturated from rainfall or snow melt."[235] But rather than prohibiting these dangerous practices, EPA merely "strongly encourages" states to adopt such prohibitions themselves.[236] This recommendation has proven inadequate.

The increased likelihood of runoff associated with application of manure to frozen, saturated, or snow–covered ground is widely recognized by agricultural experts, including

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[232] 40 C.F.R. § 412.
[233] Permit Writers' Manual at 6-15.
[234] USDA and EPA, *Unified National Strategy for Animal Feeding Operations* Sec. 3.2 (March 9, 1990), http://www.epa.gov/npdes/pubs/finafost.pdf.
[235] NRCS Conservation Practice Standard 590, Nutrient Management 3 (Oct. 2013), https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1192371.pdf.
[236] Permit Writers' Manual at 6-16. *See also id.* at 5-30 (listing standards, including prohibiting application of manure to frozen or snow-covered ground, which permit authorities "may include" as technology-based standards).

agricultural extension program technical staff, state agencies, and EPA itself. Liquid or semi–liquid manure cannot easily permeate ground that is already saturated or that is frozen, and thus is much more likely to run off into nearby waterways, particularly when snow or frozen ground begins to melt.[237] Moreover, in areas where soils reach freezing temperatures, there are generally no winter crops available to uptake the nutrients in manure, meaning there is little to no agronomic benefit to winter applications and nutrients are susceptible to loss before any spring crop has been planted.[238] EPA's own peer–reviewed technical guidance similarly concludes that "[f]rom the dual perspectives of nutrient utilization and pollution prevention, [] winter is the least desirable time for land application."[239]

Other authorities, ranging from the state level to international, have also recognized the harms likely to result from land application in winter months and on frozen ground. The International Joint Commission, an international organization created by the Boundary Waters Treaty (ratified by the United States and Canada in 1909), recommends that to protect Lake Erie, all adjacent states should ban the spreading of manure on frozen or snow–covered ground because of the likelihood of those practices polluting surface waters.[240] The Iowa State University Extension acknowledges that "[b]roadcasting manure onto frozen, snow-covered, water-saturated soils increases the potential for nutrient losses with rainfall or snowmelt runoff to surface water systems."[241] Similarly, the Penn State Extension warns that "winter is not the best time to apply manure and should be our last choice,"[242] and the Ohio State University Extension advises that "[w]inter application should not be part of a manure management plan and it should only be viewed as a last resort."[243]

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[237] International Joint Commission, *A Balanced Diet for Lake Erie: Reducing Phosphorous Loadings and Harmful Algal Blooms* 75 (2014) [hereinafter 2014 IJC Report], http://www.ijc.org/files/publications/2014%20IJC%20LEEP%20REPORT.pdf.

[238] Ontario Ministry of Agriculture, Food, and Rural Affairs, *Winter Application of Manure and Other Agricultural Source Material*, OMAFRA Fact Sheet 10-073 (Sept. 2010), http://www.omafra.gov.on.ca/english/engineer/facts/10-073.htm#5. Similarly, in a PowerPoint presentation derived from a white paper prepared for EPA by contract company Tetra Tech, Tetra Tech noted that a "comprehensive literature review found no published research to support agronomic factors as a basis for recommending winter manure application." Tetra Tech, *Winter Manure Application and Water Quality: Overview of the Literature* 4 (Oct. 30, 2014), http://bloximages.chicago2.vip.townnews.com/auburnpub.com/content/tncms/assets/v3/editorial/f/ef/fef9f5a8-8a50-53b9-a377-eaf2a11a9362/5483213e3e237.pdf.pdf.

[239] Permit Writers' Manual at App. G-1-2, *Interim Final Technical Guidance for the Application of CAFO Manure on Land in the Winter* (noting that "[w]here there is a reasonable risk [of runoff from application on snow, ice, and frozen soil], EPA strongly prefers that technical standards prohibit application on the field or the pertinent portion thereof during times that the risk exists or may arise").

[240] 2014 IJC Report at 9.

[241] Iowa State Univ. Extension and Outreach, *Using Manure Nutrients for Crop Production* 6 (May 2016), http://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=1089&context=extension_pubs.

[242] Penn State Extension, *Winter Manure Application Considerations* (Jan. 2013), http://extension.psu.edu/plants/crops/news/2013/01/winter-manure-application-considerations.

[243] Amanda Meddles, Ohio State University Extension, *Properly Applying Manure on Frozen Ground*, Ohio's Country Journal (Jan. 24, 2012), http://ocj.com/2012/01/properly-applying-manure-on-frozen-ground/. *See also* Utah Farmstead Assessment for Ground Water and Surface Water Protection, *How to Manage Stored Manure and*

Despite the broad consensus on the dangers of winter application practices, however, many states with numerous CAFOs and severe winter conditions fail to prohibit such practices in their NPDES implementing regulations.[244] Absent a national prohibition on such irresponsible manure application practices, many operators will fail to maintain adequate storage to avoid winter application, will continue to land apply waste under high-risk conditions, and will continue to adversely impact surface water quality through preventable land application discharges. Moreover, climate change heightens the risk that applying waste under these circumstances poses to water quality. State regulators have understood for more than a decade that intermittent melting spells increase the risk of surface runoff.[245] In regions where the ground once predictably stayed frozen for the entire winter, but where such intermittent melting is now a more frequent occurrence, the relationship between season and runoff potential has changed. EPA should re–evaluate this relationship with recent data, because assumptions about winter runoff potential are likely no longer accurate.[246]

EPA must strengthen the CAFO ELGs to prohibit the spreading of manure on frozen, saturated, or snow–covered ground, or during periods of crop dormancy when such conditions are expected to occur before crop nutrient uptake occurs, because manure application under these conditions is known to lead to surface water discharges, and is therefore inconsistent with the requirement that land application be conducted in such a way that minimizes the risk of nutrient loss. In conjunction with this requirement, EPA must require adequate storage to ensure that operators may not simply dump excess stored manure on fields each spring, as that would also lead to unacceptable risk of pollution runoff. The technology to prevent these land application discharges is clearly available, and anything short of such a prohibition will continue to allow irresponsible manure disposal, rather than application calculated to best protect water quality, and fall short of what the CWA requires.

Protect Your Water 7 (Rev'd Mar. 2012), http://extension.usu.edu/files/publications/factsheet/WQFA-13.pdf (advising on proper manure handling and storage for water protection, and directing that "[m]anure should not be applied to frozen or snow covered ground unless all runoff can be controlled."); Ohio Dep't of Agric., Ohio Dep't of Natural Res., Ohio Envtl. Prot. Agency, Lake Erie Comm'n, *Ohio Lake Erie Phosphorus Task Force II Final Report* 51 (Nov. 2013), http://lakeerie.ohio.gov/portals/0/reports/task_force_report_october_2013.pdf.

[244] *See, e.g.,* Wis. Dep't of Natural Res., WPDES Permit No. WI-0063274-01: Large Dairy CAFO General Permit 3.7.4-3.7.7 (Apr. 4, 2011), http://dnr.wi.gov/topic/AgBusiness/documents/LargeDairyCAFOGP-WPDESPermit.pdf (allowing for liquid and solid manure application on frozen and snow-covered ground under various circumstances) [hereinafter Wis. CAFO Permit]; Ill. Envtl. Prot. Agency, *Considerations for Manure Application Setbacks* 2, http://www.epa.state.il.us/water/permits/cafo/documents/show/602 (providing that application to snow-covered soils is "not recommended" but may be permitted in order to address waste storage concerns); Sierra Club Michigan Chapter, *Why are CAFOs Bad?*, http://www.sierraclub.org/michigan/why-are-cafos-bad (noting that Michigan CAFOs may be permitted, either through their NMP or under an order from the state with specifications for winter application, to apply waste to snow or frozen ground).

[245] *See, e.g.*, Gregg Hoffmann, *Wintertime manure spreading under scrutiny*, WisBusiness (Apr. 7, 2005), http://www.wisbusiness.com/index.iml?Article=34685.

[246] 2014 IJC Report at 78.

4. Spray Irrigation of Manure

The CAFO ELGs should also expressly prohibit all methods of spray irrigation of manure, which threaten surface waters and present significant human health risks. Some of the unique water quality risks associated with spray irrigation relate to the fact that irrigation often takes place at night, center-pivot irrigation may occur without supervision, excessive irrigation can result in waste ponding, and dry weather discharges can occur via drift, surface runoff, and leaching.[247] Over-application via spray irrigation has been cited as a cause of water pollution in states where CAFOs use this application method.[248] Irrigation systems are also reliant on pipes and hoses to connect lagoons with sprayfields, and these can leak or break.[249]

Compared to other forms of irrigation, spray irrigation may also result in higher rates of evaporation and volatilization of a range of CAFO pollutants, including ammonia.[250] Indeed, several studies have found that where manure is not incorporated into soil, more than half of the manure ammonia is lost, likely due to volatilization.[251] This directly impacts water quality, because volatilized ammonia will re-deposit on land and water, where, as we have seen in the context of the Chesapeake Bay, it contributes to algae blooms and dead zones. In addition, spraying methods may result in liquid manure droplets drifting onto neighboring properties, roads, and other areas, where it can subsequently run off into waterways.[252] Spray irrigation is simply incompatible with the goal of agronomic use of manure nutrients, as well as with the CWA's requirements to limit and ultimately eliminate CAFO discharges to waters of the U.S.

Spray irrigation of waste also threatens public health, because it "create[s] a potentially hazardous situation as pathogens may become aerosolized and transported to downwind receptors [and] . . . could potentially be directly inhaled or ingested after they land on fomites, water sources, or food crops."[253] These bioaerosols can contain bacteria, viruses, parasites, fungi,

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[247] *See, e.g.*, Wis. Manure Irrigation Workgroup, *Considerations for the Use of Manure Irrigation Practices* 40-42 (Apr. 2016), https://fyi.uwex.edu/manureirrigation/files/2016/04/Manure-Irrigation-Workgroup-Report-2016.pdf.

[248] *See, e.g.*, Ron Seely, Wisconsin Watch, *Manure Spraying Under Scrutiny* (Apr. 27, 2014), http://wisconsinwatch.org/2014/04/manure-spraying-under-scrutiny/.

[249] NRDC, *Cesspools of Shame: How Factory Farm Lagoons and Sprayfields Threaten Environmental and Public Health* 29 (Jul. 2001) [hereinafter *Cesspools of Shame*], http://www.nrdc.org/water/pollution/cesspools/cesspools.pdf.

[250] *Id.* at 17; Iowa State Univ. Extension and Outreach, *Using Manure Nutrients for Crop Production* Table 2 (showing that spray irrigation has the highest volatilization rate of various application practices).

[251] *Cesspools of Shame* at 37.

[252] Penn State Extension, *Irrigation of Liquid Manures*, http://extension.psu.edu/plants/nutrient-management/educational/manure-storage-and-handling/irrigation-of-liquid-manures.

[253] R.S. Dungan, *Board-Invited Review: Fate and Transport of Bioaerosols Associated with Livestock Operations and Manures*, 88 J. Animal Sci. 3693, 3696, 3702 (2010), https://www.animalsciencepublications.org/publications/jas/pdfs/88/11/3693 (noting that spray irrigation methods contribute to the formation of bioaerosols at greater concentrations than found in background environments, and that there is increased potential for exposure to airborne pathogens and microbial by-products both on and off-site of CAFOs as a result of these practices).

and other microbes harmful to human health.[254] As the liquid manure is sprayed into the air, the risk of decreased droplet size and longer transport distances increases, as compared to other forms of manure application.[255] Because it poses threats to water quality as well as public health, EPA should prohibit spray irrigation methods of manure application in the CAFO ELGs.

5. Manure Application on Steep Slopes

Similarly, EPA cautions against, but fails to prohibit spreading of manure—even liquid manure—on steep slopes.[256] Steeply sloped areas often lack soil properties that foster normal plant growth, meaning that it is less likely that nutrients from manure will be fully assimilated by plants, and more likely that these excess nutrients will be transported to surface and ground waters.[257] In EPA's own literature review of academic research relating to livestock and poultry manure impacts, the Agency found land slope to be a key determinant of runoff and of the likelihood of pathogen transport.[258] Regulating this activity is clearly practicable, because several states do restrict the spreading, in winter or otherwise, of manure on sloped land above a certain grade.[259] Nonetheless, EPA and NRCS currently leave it up to the states to determine what grade is acceptable for manure spreading and what precautions, if any, CAFO owners and operators must take when spreading on sloped land.[260] This has resulted in a patchwork of state-based requirements,[261] indicating that a baseline of nationally applicable restrictions is necessary to protect water quality. For example, Illinois allows operators to apply manure to fields with slopes as high as 15%,[262] while Wisconsin does not impose any slope restrictions on manure spreading unless it takes place on frozen or snow-covered ground.[263]

EPA's failure to prohibit spreading on slopes that lead to discharges of nutrients and other pollutants renders permits incapable of achieving the narrative effluent limits in the CAFO ELGs, absent stronger state requirements. EPA has the technical expertise to determine, for various soil and manure types and percentages of solid content, the maximum slope grade

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[254] *See* Patricia D. Millner, *Bioaerosols Associated with Animal Production Operations*, 100 Bioresource Tech. 5379, 5379-80 (2009), https://pubag.nal.usda.gov/pubag/downloadPDF.xhtml?id=33386&content=PDF.
[255] Dungan, *Board-Invited Review: Fate and Transport of Bioaerosols Associated with Livestock Operations and Manures* at 3698-99.
[256] Permit Writers' Manual at 5-30.
[257] *Id.* at A-8.
[258] EPA Literature Review at 23, 25.
[259] State regulations vary widely with respect to restrictions related to land application on steep slopes. *See, e.g.*, Envtl. Law & Policy Ctr., *Cultivating Clean Water: State-Based Regulation of Agricultural Runoff Pollution* 47-51 (2010) [hereinafter *Cultivating Clean Water*], http://elpc.org/wp-content/uploads/2010/05/ELPC-Cultivating-Clean-Water-updated-May-5-2010.pdf.
[260] *See* NRCS Standard 590 at 3, which only mentions slope as a consideration factor when allowing nutrient application despite a likelihood of runoff, such as on frozen, snow-covered, or saturated soils.
[261] *See, e.g.*, *Cultivating Clean Water* at 47-51.
[262] Ill. Envtl. Prot. Agency, *Considerations for Manure Application* 2, http://www.epa.state.il.us/water/permits/cafo/documents/show/602.
[263] Wis. Admin. Code Ch. NR 243.14 (2015); Wis. CAFO Permit at Sec. 3.7.

consistent with the requirement to minimize nutrient loss and other discharges of pollutants. It should determine these and strengthen the ELGs to restrict land application accordingly.

6. Manure Storage in Exposed Stockpiles

Storage of manure in uncovered stockpiles also leads to preventable pollutant discharges to surface waters. EPA advises permit writers that "[i]deally, stockpiled manure and litter should be stored under cover on an impervious surface" to minimize pollutant runoff.[264] The EPA Office of Enforcement and Compliance Assurance also recognizes the dangers of this practice, warning that leaving manure in uncovered stockpiles is likely to result in pollutants escaping into the environment.[265] Manure stockpiles can contain vast quantities of waste and pollutants; a poultry litter stockpile generally ranges from 75 to 200 tons of waste, and precipitation events can carry pollutants from an uncovered pile to surface and ground water.[266]

As with the inherently risky practices discussed above, EPA has acknowledged the threat to water quality but has failed to impose appropriate and necessary permit restrictions. While EPA has properly defined stockpiles as part of the CAFO production area,[267] it continues to allow states to create loopholes from adequate regulation. For example, Delaware allows CAFOs to stockpile manure on application fields for up to 90 days, using the phrase "field staging" for the practice, and subsequently fails to impose a zero discharge requirement on the piles. This in effect improperly treats discharges from these piles as land application, rather than production area, discharges.[268]

All exposed stockpiles of litter are most likely to result in discharges of pollutants in the first few days after construction, when nutrients are at their highest levels.[269] As a result, even where stockpiles are considered part of the land application area, rather than the production area, they also fail to meet EPA's land application ELG requirement to "minimiz[e] nitrogen and phosphorus movement to surface waters."[270] Permitting the continued use of uncovered solid waste stockpiles, unless the CAFO operator demonstrates that all runoff and leaching from the piles will be diverted into a waste storage facility, simply fails to meet EPA's requirement to implement BMPs capable of "ensur[ing] appropriate agricultural utilization" of nutrients.[271] EPA must give effect to its zero discharge production area requirements for waste stockpiles by

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[264] Permit Writers' Manual at 5-39.

[265] EPA Office of Enforcement and Compliance Assurance, *EPA Targets Clean Water Act Violations at Livestock Feeding Operations*, 10 Enforcement Alert 1, EPA 325-F-09-001 (2009).

[266] Gregory D. Binford and George Malone, Evaluating BMPs for Temporary Stockpiling of Poultry Litter 4 (Dec. 22, 2008), http://mda.maryland.gov/SiteAssets/Pages/Manure/PL_Storage_Report_BINFORD_FINAL.PDF.

[267] 40 C.F.R. § 122.23(b)(8).

[268] Del. Nutrient Mgmt. Program, Del. Conservation Practice Standard: Temporary Field Staging (Jul. 2010), http://dda.delaware.gov/nutrients/downloads/Draft_TechStandards/Temp_Field_Storage.pdf.

[269] Gregory D. Binford and George Malone, Evaluating BMPs for Temporary Stockpiling of Poultry Litter at 12.

[270] 40 C.F.R. § 412.4(c)(2)(i).

[271] 40 C.F.R. § 122.42(e)(1)(viii).

imposing requirements to actually prevent them from discharging. Without a federal BMP specifically mandating stockpile pads and covers for all CAFOs subject to the ELGs, nutrient runoff from manure stockpiles will continue unabated.

v. State Permitting Programs Cannot Effectively Fill the Gaps Left by the Absence of Strong National Standards

Although EPA either discourages the use of these harmful practices or encourages states to prohibit the practice themselves, such suggestions are not adequate stand–ins for effective federal regulation. In a study examining state–based regulation of agricultural pollution, the Environmental Law and Policy Center examined regulatory programs in seven states—California, Delaware, Iowa, Kentucky, Maryland, Oregon, and Wisconsin—and noted that "[t]hus far, no state has demonstrated that measureable water quality improvements have resulted from its regulatory program."[272] State programs often lack adequate resources to fully implement CWA permitting programs for all sources.[273] Documenting violations of BMPs is costly and time consuming, and actions against individual producers often only address small amounts of pollution.[274] These deficiencies may lead state agencies to support interpretations of the CWA that minimize the need for regulatory oversight, rather than electing to go beyond federal requirements.[275] EPA itself has noted that states have not prioritized regulation of feedlot wastes, and that budgetary constraints make it unlikely that states will meet—much less exceed—program and permitting responsibilities under the current rules.[276]

The proliferation of "no more stringent than" laws in several states has erected an additional barrier to effective state regulation. Many states have adopted statutes or rules prohibiting administrative bodies from promulgating environmental protections more stringent than federal rules require. A study conducted by the Environmental Law Institute found that 13 states have enacted broad "no more stringent than" laws that prohibit the state from imposing

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[272] *Cultivating Clean Water* at 11 (primarily examining nitrogen and phosphorous pollution caused by the application of animal waste and chemical fertilizers to land).

[273] Clifford Rechtschaffen, *Enforcing the Clean Water Act in the Twenty-First Century: Harnessing the Power of the Public Spotlight*, Center for Progressive Reform White Paper 7 (Oct. 2004); *Animal Waste and Water Quality* at 18 ("it is unclear how state agencies will find the resources needed to carry out their responsibilities under the revised rules without reducing resources for other important activities"); Terence J. Centner, *Regulating the Land Application of Manure from Animal Production Facilities in the USA*, 14 Water Policy 319, 329 (2012) (noting that "[s]tate regulatory agencies do not have the resources to penalize producers who fail to follow BMPs").

[274] Centner, *Regulating the land application of manure from animal production facilities in the USA* at 329.

[275] Terence J. Centner, *Challenging NPDES Permits Granted Without Public Participation*, 38 B.C. Envtl. Aff. L. Rev. 1, 10-11 (2011), http://lawdigitalcommons.bc.edu/ealr/vol38/iss1/2/.

[276] *Animal Waste and Water Quality* at 24; Jillian P. Fry, et al., *Investigating the Role of State Permitting and Agriculture Agencies in Addressing Public Health Concerns Related to Industrial Food Animal Production* at 4 (survey of state policies generated response from a state agency staff member indicating that compliance inspections are only initiated "on a complaint basis" because they "don't have staff or money").

more protective requirements than the minimum required by the CWA and federal regulations.[277] An additional 23 states have adopted laws that make it more difficult to establish state standards that surpass these minimum federal requirements.[278] Consequently, many states are unable to impose additional pollution control measures, even where local conditions may necessitate them to protect water quality. Iowa has even gone so far as to specifically prohibit the state from issuing CAFO NPDES regulations more stringent than required under federal law.[279] Even if EPA had intended that states would prohibit many harmful practices on their own, it is unreasonable to expect that this will happen given numerous state laws that prohibit adoption of more protective rules.

vi. EPA's Assumptions Regarding the Frequency of Storm Events Are No Longer Accurate

To meet its obligations under the CWA, EPA must review and update its process for designating precipitation events with a probable recurrence interval to reflect new weather patterns. Large CAFOs are required to maintain waste storage capacity to contain a 25–year, 24–hour storm event.[280] EPA determines the likelihood and magnitude of such events based on a 1961 National Weather Service rainfall atlas, known as Technical Paper No. 40 (TP40).[281] The Department of Commerce published TP40 in 1961 based on 100 years of rainfall data.[282] However, more recent research calls into question whether TP40 utilizes the best available techniques and data to determine the magnitude of 25–year, 24–hour storm events. Because certain design standards for CAFOs, such as standards for storage lagoons, are based on the anticipated frequency of major storm events, accurately predicting the likelihood and magnitude of such events is critical to preventing the need for manure application at high-risk times of year, as well as storage facility failures and overflows. A method that underestimates the likelihood or magnitude of precipitation events will mean that CAFO structures are designed to fail and reach capacity more frequently.

Due to changing weather patterns, precipitation events that were rare by 1961 standards may not be so infrequent today. Climate research has demonstrated that precipitation patterns are changing, and many places are experiencing a trend towards increased frequency of extreme

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[277] Envtl. Law Inst., *State Constraints: State-Imposed Limitations on the Authority of Agencies to Regulate Waters Beyond the Scope of the Federal Clean Water Act* 1 (2013), http://www.eli.org/sites/default/files/eli-pubs/d23-04.pdf.

[278] *Id.*

[279] *Id.* at 93; Iowa Code 459.311(2).

[280] 40 C.F.R. § 412.2(i).

[281] *Id.*

[282] *See* Dep't of Commerce, Weather Bureau, *Technical Paper No. 40, Rainfall Frequency Atlas of the United States* (1961), http://www.nws.noaa.gov/oh/hdsc/PF_documents/TechnicalPaper_No40.pdf.

precipitation events.[283] The U.S. Global Change Research Program has observed an increase in very heavy precipitation events in every region of the country except Hawaii.[284] The Program found that "[t]here is a clear national trend toward a greater amount of precipitation being concentrated in very heavy events . . . ."[285] EPA has recognized this as well, stating "[t]he amount of rain falling in heavy precipitation events is likely to increase in most regions . . . ."[286] Larger and more frequent storm events mean that the current ELGs will likely be insufficient to prevent catastrophic failures, such as breached and overflowing waste lagoons.

Numerous studies indicate that newer, more accurate climate data are available to inform weather–based design standards.[287] For example, in 1992 the Midwestern Climate Center, part of the National Weather Service, in conjunction with the Illinois State Water Survey, released a Rainfall Frequency Atlas of the Midwest.[288] The study aimed to update TP40, which, even in 1992, was considered too old to be reliable.[289] New findings indicated that climate trends since TP40 changed precipitation patterns in the Midwest, and the study authors determined that TP40 did not provide sufficiently detailed spatial analysis for variations in rainfall amounts for given durations and recurrence intervals.[290]

The Southern Regional Climate Center at Louisiana State University created a Rainfall Frequency/Magnitude Atlas for the South–Central United States in 1997 for similar reasons.[291] The primary rationale for that analysis was that "[t]he rainfall frequency and magnitude patterns illustrated in TP40 need to be reexamined" in light of new data and global climate change. In addition, data limitations at the time of TP40's publication were thought to have resulted in an overgeneralized analysis of rainfall events. The authors cite specific findings that demonstrate TP40's inaccuracy, such as research indicating that "the 24-hour, 100-year value from TP40 was exceeded 3 times more often than expected in Michigan," and that both Wisconsin and Illinois had almost double the number of 100–year, 24–hour rain events that TP40 anticipates.[292] For 24–hour rainfall events, the study indicated storms may be three inches greater than TP40 predicts in

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[283] *See, e.g.* Jerry Melillo, et al., Eds., 2014: *Climate Change Impacts in the United States: The Third National Climate Assessment*, U.S. Global Change Research Program 9 (Rev'd Oct. 2014), http://nca2014.globalchange.gov/downloads.

[284] *Id.*

[285] *Id.*

[286] EPA, Climate Change Science: Future of Climate Change, https://www.epa.gov/climate-change-science/future-climate-change (last accessed Jan. 13, 2017).

[287] NOAA, an agency within the Department of Commerce, also maintains more recent data sources about precipitation frequency by location. *See* Nat'l Oceanic and Atmospheric Admin., Precipitation Frequency Data Server, http://hdsc.nws.noaa.gov/hdsc/pfds/ (last accessed Jan. 13, 2017).

[288] Floyd A. Huff and James R. Angel, Ill. State Water Survey, Bulletin 71, *Rainfall Frequency Atlas of the Midwest* (1992), https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs141p2_024033.pdf.

[289] *Id.* at 1.

[290] *Id.*

[291] Gregory E. Faiers, et al., La. State Univ. S. Reg'l Climate Ctr., *Rainfall Frequency Magnitude/Atlas for the South-Central United States*, SRCC Technical Report 97-1 (1997), http://www.losc.lsu.edu/tech97_2.pdf.

[292] *Id.* at 1.

some regions.[293] EPA must revise its ELGs to require permitting agencies to use the most up-to-date rainfall data available, to ensure that design standards accurately reflect anticipated weather events.

III. CONCLUSION

Decades after passage of the CWA, CAFOs remain a significant—and substantially unregulated—source of water pollution throughout the United States. EPA's recent efforts at imposing a workable NPDES permitting scheme for the industry have failed on two major fronts: requiring permits of all CAFOs that discharge, and requiring adequate safeguards in the relatively small number of permits issued. Petitioners are aware of the unique challenges in regulating CAFO discharges. However, courts have repeatedly established that "this ambitious statute is not hospitable to the concept that the appropriate response to a difficult pollution problem is not to try at all."[294] EPA has significant authority to revise its approach and strengthen its oversight of industrial livestock pollution, and Petitioners believe that EPA has an obligation pursuant to its CWA duties to do so without further delay.

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[293] *Id.* at 7.

[294] *NW Envtl. Advocates v. EPA*, 537 F.3d 1006, 1026 (9th Cir. 2008), quoting *NRDC v. Costle*, 568 F.2d 1369, 1380 (D.C. Cir. 1977); *see also Union Elec. Co. v. EPA*, 427 U.S. 246, 268-69 (1976) ("Allowing such [feasibility] claims to be raised . . . would frustrate congressional intent.").