**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

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| Meat and Poultry Products Industry Data Collection<br><br>86 Fed. Reg. 64,931-01 (Nov. 19, 2021) | Docket ID No.<br>EPA-HQ-OW-2021-0736 |

# COMMENTS OF THE ENVIRONMENTAL INTEGRITY PROJECT, EARTHJUSTICE, ANIMAL LEGAL DEFENSE FUND, CAPE FEAR RIVER WATCH, CENTER FOR BIOLOGICAL DIVERSITY, COMITE CIVICO DEL VALLE, ENVIRONMENT AMERICA, FOOD & WATER WATCH, THE HUMANE SOCIETY OF THE UNITED STATES, RURAL EMPOWERMENT ASSOCIATION FOR COMMUNITY HELP, WATERKEEPER ALLIANCE, AND WATERKEEPERS CHESAPEAKE

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## I. Introduction

The Environmental Integrity Project ("EIP"), Earthjustice, Animal Legal Defense Fund, Cape Fear River Watch, Center for Biological Diversity, Comite Civico del Valle, Environment America, Food & Water Watch, The Humane Society of the United States, Rural Empowerment Association for Community Help, Waterkeeper Alliance, and Waterkeepers Chesapeake (collectively, "Commenters") respectfully submit these comments concerning the Meat and Poultry Products Industry Data Collection proposal ("ICR Proposal") (Docket No. EPA-OW-2021-0736) published by the U.S. Environmental Protection Agency ("EPA" or "Agency") on November 19, 2021.[1]

The ICR Proposal summarizes EPA's plans to survey facilities within the Meat and Poultry Products Industrial Point Source Category ("slaughterhouses") to determine whether the Agency's existing regulations to control water pollution from slaughterhouses "remain appropriate."[2] As discussed in more detail below, EPA's existing regulations are not appropriate.[3] To the contrary, the existing regulations are either altogether non-existent or gravely out-of-date, and they do not adequately control water pollution from slaughterhouses. As a result, this pollution harms human health and the environment, including in vulnerable and under-resourced communities. In addition, clear data to inform revision already are available to EPA. For these reasons, Commenters strongly urge the Agency to revise and publish appropriately stringent water pollution control standards for slaughterhouses without delay.

To the extent that EPA engages in further factfinding with respect to the slaughterhouse industry, the Agency's data collection must be informed by conclusions drawn from available data: (1) slaughterhouses identified by EPA disproportionately harm people living in vulnerable and under-resourced communities; and (2) existing, affordable technology already in use at some slaughterhouses and other industrial facilities reduces pollution concentrations to levels orders of magnitude below those allowed under EPA's existing regulations. Accordingly, in working to identify the "statistically relevant subset" and "small number" of slaughterhouses on which it will focus its information-collection activities,[4] EPA must consider environmental justice and the adoption of advanced technology.

## II. Water Pollution from Slaughterhouses Identified by EPA Disproportionately Harms People Living in Vulnerable and Under-Resourced Communities.

### *i. Direct-discharging slaughterhouses disproportionately harm people living in vulnerable and under-resourced communities.*

According to EPA, 74 percent of direct-discharging slaughterhouses surveyed by the Agency "are within one mile of census block groups with demographic or environmental characteristics

[1] *See* Proposed Information Collection Request; Comment Request; Meat and Poultry Products Industry Data Collection, 86 Fed. Reg. 64,931-01 (Nov. 19, 2021).
[2] *Id.* at 64,931.
[3] *See* 40 C.F.R. pt. 432.
[4] *See* 86 Fed. Reg. at 64,931.

of concern."[5] As EPA recognizes, "[t]his indicates that such facilities may be disproportionately impacting communities of concern."[6] Indeed, as shown in Table 1 and discussed below, an analysis of 184 direct-discharging slaughterhouses reveals that many are located near vulnerable communities (*see also* Maps 1–3).[7]

**Table 1. Direct-Discharging Slaughterhouses and Vulnerable Communities[8]**

| EJSCREEN Index | Mean Percentile Across 184 Facilities | Number of Facilities ≥80th Percentile |
|---|---|---|
| National percentile for Particulate Matter (PM 2.5 in µg/m3) | 47.55 | 10 |
| National percentile for Ozone (ppb) | 42.41 | 5 |
| National percentile for NATA Diesel PM (µg/m3) | 24.68 | 1 |
| National percentile for NATA Air Toxics Cancer Risk (risk per MM) | 44.14 | 35 |
| National percentile for NATA Respiratory Hazard Index | 43.78 | 30 |
| National percentile for Traffic Proximity and Volume (daily traffic count/distance to road) | 32.47 | 3 |
| National percentile for Lead Paint Indicator (% pre-1960s housing) | 58.12 | 16 |
| National percentile for Superfund Proximity (site count/km distance) | 29.01 | 9 |
| National percentile for RMP Proximity (facility count/km distance) | 68.44 | 76 |

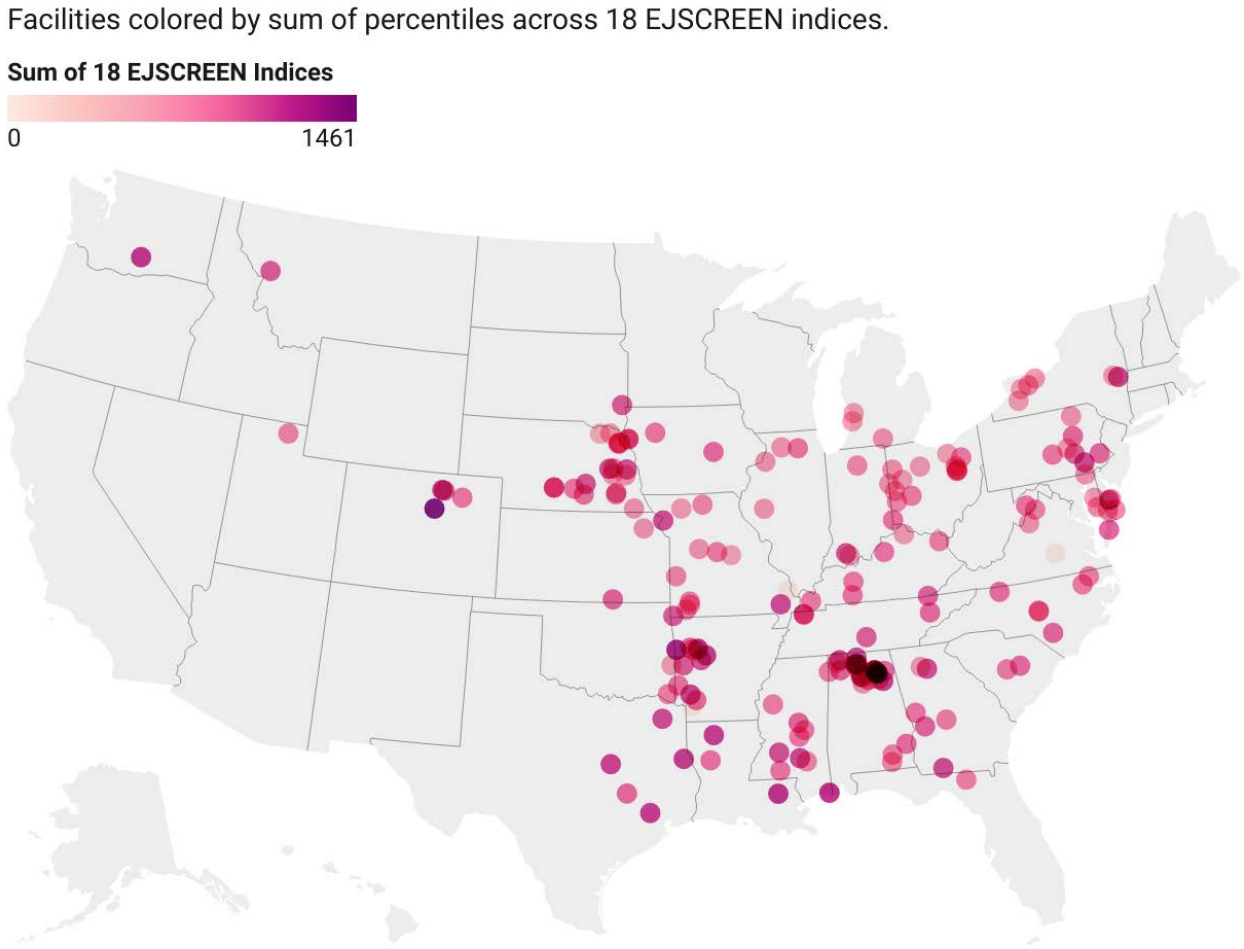
[5] EPA, Preliminary Effluent Guidelines Program Plan 15, at 6-2 (Sept. 2021) ("Preliminary Plan 15") (Attach. 1).
[6] *Id.*
[7] *See* EPA, EPA-HQ-OW-2018-0618-0489, Meat and Poultry DMR and TRI Concentration Data (2018) ("2015 National Sample of Slaughterhouse Data"), https://www.regulations.gov/document/EPA-HQ-OW-2018-0618-0489 (containing, among other things, a national sample of 97 plants with total nitrogen data and 119 plants with ammonia data); EPA, EPA-HQ-OW-2018-0618-0516, 2015 DMR Nitrogen Discharges in Chesapeake (2019) ("2015 Chesapeake DMR Data"), https://www.regulations.gov/document/EPA-HQ-OW-2018-0618-0516 (containing, among other things, the highest monthly average concentrations of total nitrogen for a list of facilities in the Chesapeake Bay watershed); EPA, EPA-HQ-OW-2018-0618-0517, 2015 DMR Nitrogen Discharges to Mississippi-Atchafalaya (2019) ("2015 Mississippi-Atchafalaya DMR Data"), https://www.regulations.gov/document/EPA-HQ-OW-2018-0618-0517 (containing, among other things, the highest monthly average concentrations of total nitrogen for a list of facilities in the Mississippi-Atchafalaya watershed).
[8] EJSCREEN was used to quantify 18 demographic and environmental indices for populations within one mile of 184 direct-discharging slaughterhouses. *See* EJSCREEN Report API Instructions, https://ejscreen.epa.gov/mapper/EJAPIinstructions.pdf; *see also* EJSCREEN Environmental Justice Mapping and Screening Tool: EJSCREEN Technical Documentation (2015), https://www.epa.gov/sites/default/files/2015-05/documents/ejscreen_technical_document_20150505.pdf#page=13.

| EJSCREEN Index | Mean Percentile Across 184 Facilities | Number of Facilities ≥80th Percentile |
|---|---|---|
| National percentile for Minority Population | 39.22 | 8 |
| National percentile for Demographic Index (Combination or minority and low-income indices) | 49.04 | 23 |
| National average for Low Income Population | 62.83 | 52 |
| National average for Linguistically Isolated Population | 58.96 | 36 |
| National average for Population with Less Than High School Education | 69.91 | 65 |
| National average for Population under Age 5 | 56.13 | 34 |
| National average for Population over Age 64 | 58.75 | 36 |
| National average for Hazardous Waste Proximity (facility count/km distance) | 27.85 | 2 |
| National average for Wastewater Discharge Indicator | 70.84 | 61 |

*Shaded rows indicate EJSCREEN indices for which the mean percentile across analyzed slaughterhouses is greater than 50, indicating a greater average exposure or demographic proportion for communities within one mile of slaughterhouses than the national average.*

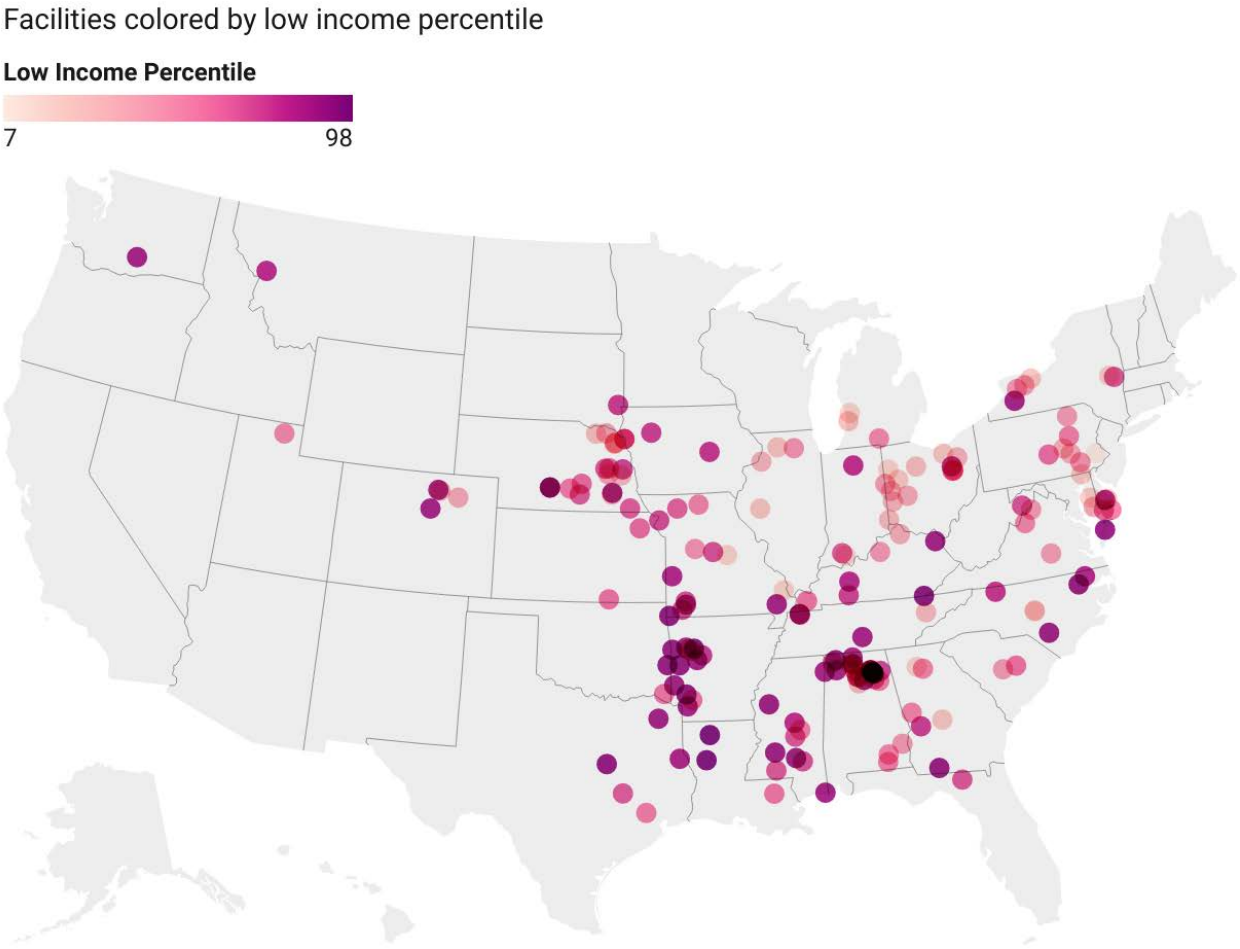
At least 34 direct-discharging slaughterhouses are located in areas where communities within one mile of the slaughterhouse rank in the 80th percentile with respect to the proportion of residents under the age of five, and at least 36 direct-discharging slaughterhouses are located in areas where communities within one mile of the slaughterhouse rank in the 80th percentile with respect to the proportion of residents over the age of 65. On average, direct-discharging slaughterhouses disproportionately harm households that EPA classifies as "low-income," meaning that the household income is less than or equal to twice the federal "poverty level," and as "linguistically isolated," meaning that no household member over the age of 14 speaks English "very well" or as an only language. And at least 65 direct-discharging slaughterhouses are located in areas where the community within one mile of the slaughterhouse ranks in the 80th percentile with respect to the proportion of residents aged 25 and over with less than a high-school degree.

**Map 1. Select Direct-Discharging Slaughterhouses and 18 EJSCREEN Indices[9]**

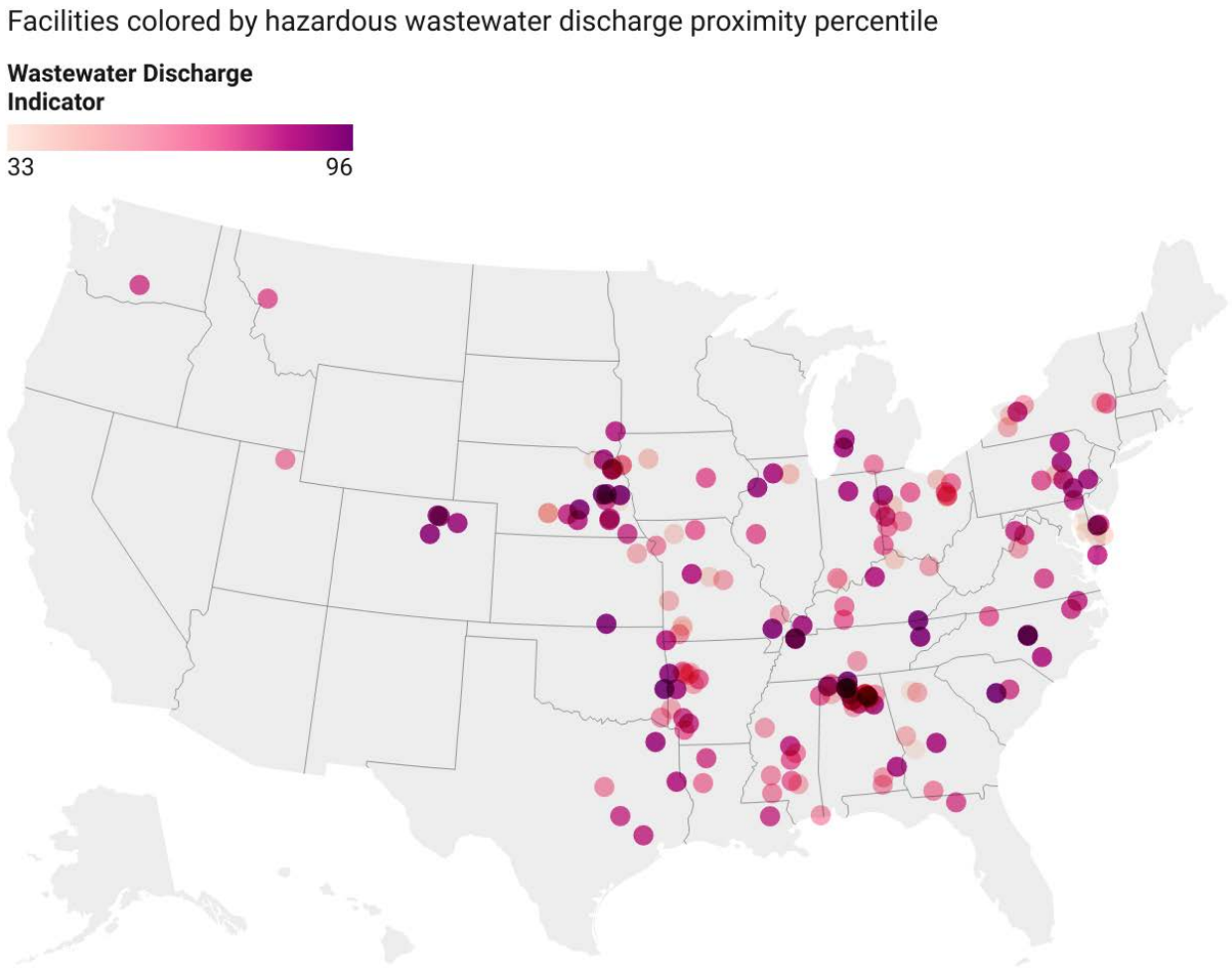



[9] See Table 1 for list of EJSCREEN indices analyzed. Maximum sum of percentiles is 1800, with higher values indicating greater potential disparity across indices.

**Map 2. Select Direct-Discharging Slaughterhouses and Low-Income Communities**



**Map 3. Select Direct-Discharging Slaughterhouses and Exposure to Toxic Wastewater Discharges**




Direct-discharging slaughterhouses included in this sample also disproportionately harm under-resourced communities. On average, people living within one mile of one of these direct-discharging slaughterhouses are at heightened risk of exposure to lead paint and chemical accidents. And, as shown in Map 3 above, at least 61 direct-discharging slaughterhouses are located within one mile of communities that rank in the 80th percentile for toxic discharges in wastewater.

Not only are these direct-discharging slaughterhouses, on average, disproportionately located in vulnerable and under-resourced communities, but several individual facilities are clustered closely together in areas where surrounding communities rank highly for multiple demographic and environmental justice indicators used by EPA to evaluate environmental justice concerns. For example, the community within one mile of the Alabama Farmers Cooperative Inc. facility in Decatur, Alabama is in the 91st percentile for lifetime cancer risk from inhalation of air toxics, meaning community members have a higher risk of cancer from air toxic exposure than 91 percent of the U.S. In addition, the community within one mile of this facility is in the 90th percentile for proximity to facilities with risk management plans ("RMPs"), meaning community

members are at higher risk of exposure to toxic releases from chemical accidents than 90 percent of the U.S. This community is over the 80th percentile in terms of exposure to respiratory hazards, proximity to high traffic, and exposure to lead paint in housing. And it is over the 70th percentile for the proportion of the population with less than a high school education, the proportion of the population with incomes less than or equal to twice the federal "poverty level," and the proportion of the population over 64.

The community within one mile of the Alabama Farmers Cooperative facility is also at heightened risk of exposure to toxic discharges in wastewater, as it ranks over the 75th percentile in terms of proximity to toxicity-weighted pollutant discharges. In addition, this community is likely to experience impacts from several other direct-discharging slaughterhouses such as the Big Heart Pet Brands facility, which is located only 0.2 miles away from the Alabama Farmers Cooperative facility. Indeed, across the country, multiple direct-discharging slaughterhouses are closely located with other direct-discharging slaughterhouses, as illustrated in Map 3, indicating the potential for overlapping impacts on already vulnerable and under-resourced communities.

ii. *Indirect-discharging slaughterhouses disproportionately harm people living in vulnerable and under-resourced communities.*

Like the direct-discharging slaughterhouses discussed above, most *indirect-discharging* slaughterhouses identified by EPA are located near vulnerable and under-resourced communities. Indeed, as illustrated in Table 2 below, of 308 indirect-discharging slaughterhouses identified by EPA,[10] 170 slaughterhouses scored in the 90th percentile or above for at least one of nine EJSCREEN indices analyzed, and 260 slaughterhouses scored in the 80th percentile or above for at least one index.

On average, communities within one mile of one of these indirect-discharging slaughterhouses include high percentages of "low-income" and "minority" households. Indeed, 133 indirect-discharging slaughterhouses identified by EPA are within one mile of a population that is in the 80th percentile or above for low-income. In addition, 136 indirect-discharging slaughterhouses identified by EPA are within one mile of a population that is in the 80th percentile or above for minority population.

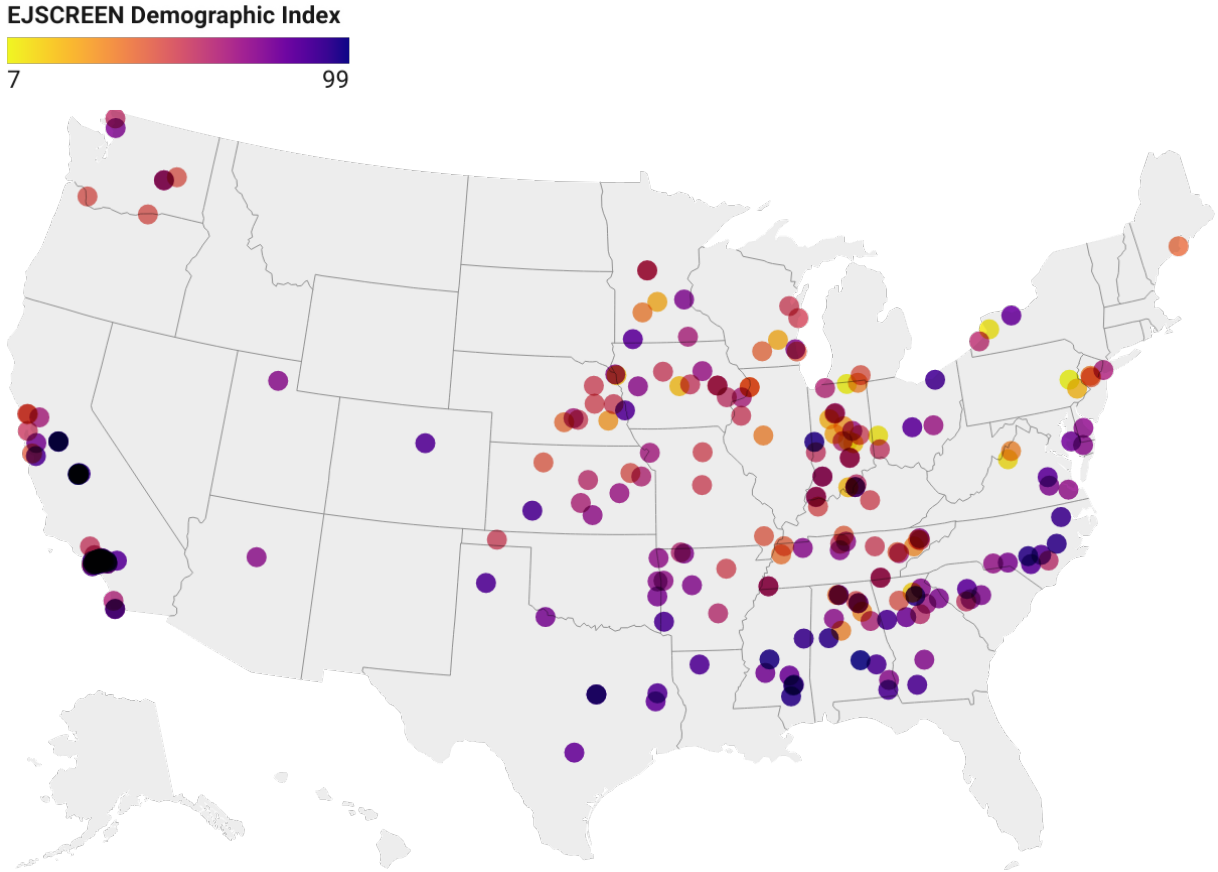
[10] EPA's MPP Facility List (MPP00118), included in Docket No. EPA-OW-2021-0736, identifies 8,063 slaughterhouses through various sources, including the Integrated Compliance Information System National Pollutant Discharge Elimination System, Publicly Owned Treatment Works Annual Reports ("POTW Annual Reports"), and the Toxic Release Inventory ("TRI"). This list includes 156 facilities identified as indirect-discharging slaughterhouses through POTW Annual Reports, 132 facilities identified as indirect-discharging slaughterhouses through TRI, and 20 facilities identified as *both* direct- and indirect-discharging slaughterhouses through TRI.

**Table 2. Indirect-Discharging Slaughterhouses and Vulnerable Communities**

| EJSCREEN Index | Mean Percentile Across Facilities | Number of Facilities ≥80th Percentile |
|---|---|---|
| National percentile for Minority Population | 66.6 | 129 |
| National percentile for Demographic Index (Combination or minority and low income indices) | 71.6 | 136 |
| National average for Low Income Population | 72.4 | 133 |
| National average for Linguistically Isolated Population | 71.6 | 125 |
| National average for Population with Less Than High School Education | 76.5 | 159 |
| National average for Population under Age 5 | 62.0 | 58 |
| National average for Population over Age 64 | 43.9 | 26 |
| National average for Hazardous Waste Proximity (facility count/km distance) | 62.5 | 126 |
| National average for Wastewater Discharge Indicator | 75.4 | 167 |

EPA's EJSCREEN tool also provides a demographic index, which combines the minority and low-income indices. As illustrated in Map 4 below, on average, populations within one mile of one of the indirect-discharging slaughterhouses identified by EPA were in the 72nd percentile for EPA's demographic index, suggesting greater representation of low-income and minority populations in the areas surrounding these facilities. Seventy-seven indirect-discharging slaughterhouses—largely concentrated in California, Mississippi, Alabama, and North Carolina—rank above the 90th percentile for demographic index. These include facilities such as the Koch Foods of Alabama Facility, and several facilities in Vernon, California and Fresno, California, such as Smithfield Packaged Meats Corp., CLW Foods, LLC and Zacky & Sons Poultry, LLC.

**Map 4. Indirect-Discharging Slaughterhouses and Demographic Index**



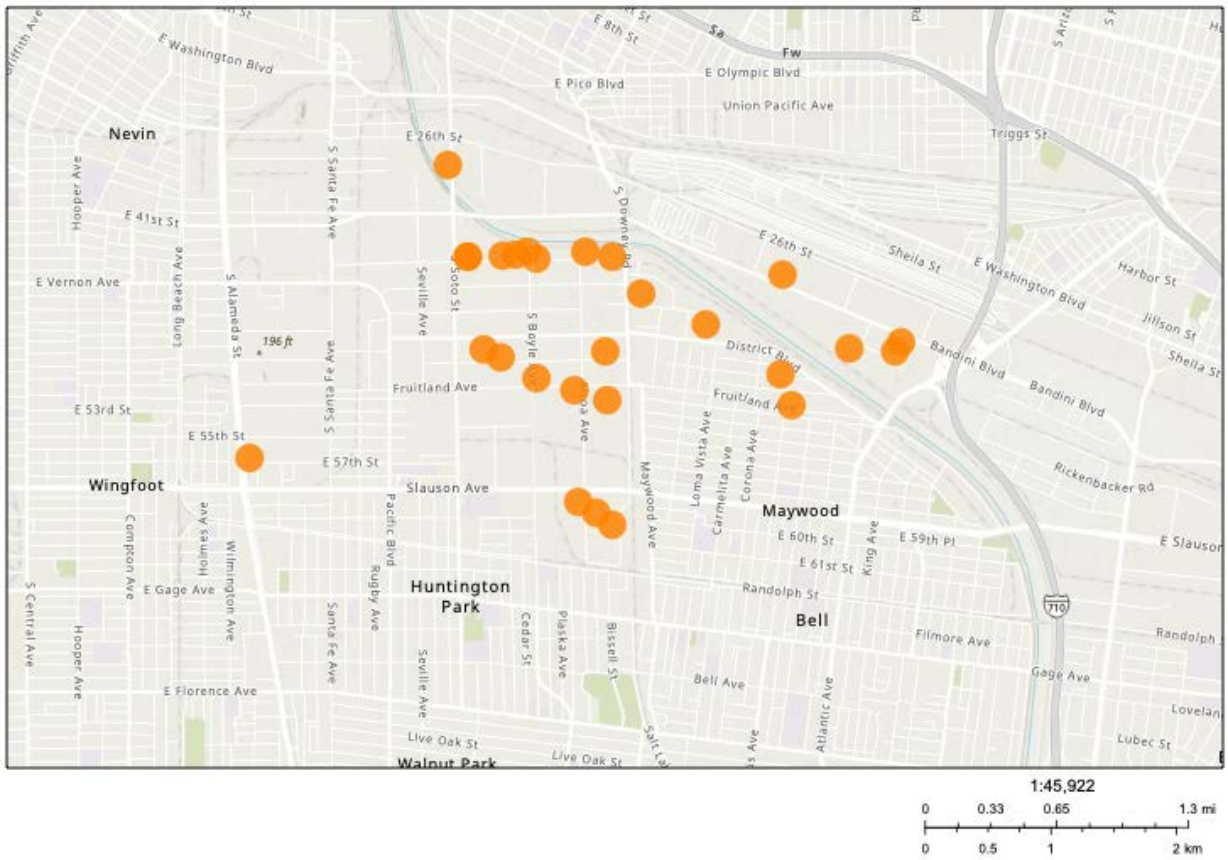

Populations within one mile of indirect-discharging slaughterhouses identified by EPA also rank highly with respect to several environmental indices. On average, populations within one mile of these slaughterhouses are at heightened risk of exposure to toxic discharges in wastewater and rank in the 75th percentile for EPA's wastewater discharge indicator.[11] Of the 308 indirect-discharging slaughterhouses identified by EPA, 167 slaughterhouses are located in regions where the population within one mile is in the 80th percentile for greatest proximity to toxicity-weighted pollutant discharges, meaning that the population within one mile of these facilities is in the top 20 percent in terms of proximity to toxicity-weighted pollutant discharges.

Many indirect-discharging slaughterhouses are located within one mile of populations that rank highly based on multiple EJSCREEN indices, meaning that these facilities raise multiple environmental justice concerns. Some of these facilities are located close to one another, with the potential to discharge to the same POTW. For example, the B.T. Bros Inc. facility is less than 0.2

[11] *See EJSCREEN: Environmental Justice Screening and Mapping Tool: Frequent Questions about EJSCREEN*, EPA, https://www.epa.gov/ejscreen/frequent-questions-about-ejscreen ("The wastewater discharge indicator takes the pollutant discharge information reported from facilities to EPA and assigns it to the streams and rivers which receive those discharges. This complex mapping process includes toxicity-weighted results, [which give] more weight to the pollutants that cause greater harm to human health. It also must account for dilution as these pollutants move downstream. Following this, the indicator ranks Census block groups based on the proximity to these stream segments and the toxicity-weighted pollutant discharge.").

miles from the Rosemeat Processing Meats facility in South El Monte, California. Both facilities score above the 90th percentile in terms of multiple EJSCREEN indices, including indices representing linguistic isolation, less than high school education, minority populations, and proximity to toxic discharges in wastewater. Similarly, there are 27 indirect-discharging slaughterhouses in Vernon, California, in a community that ranks above the 90th percentile in terms of several EJSCREEN indices, as illustrated below.

**Figure 1. Indirect-Discharging Slaughterhouses in Vernon, California**

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In identifying the slaughterhouses on which it will focus its information-collection activities, EPA must consider a wide range of environmental justice indicators. As described above, most slaughterhouses identified by EPA threaten vulnerable and under-resourced "communities of concern." However, the EJSCREEN indices that identify these populations as communities of concern vary, and EPA must ensure that its sampling approach is comprehensive enough to capture this variation.

## III. EPA Must Ensure the Agency Evaluates Modern Technology When Considering Options for Best Available Technology.

For facilities that discharge pollutants directly into surface waters, Congress directed EPA to promulgate pollution limits in the form of national, industry-specific effluent limitation guidelines ("ELGs"), which form the basis of specific effluent limitations included in individual

wastewater discharge permits.[12] The CWA requires EPA to revise ELGs "at least annually," if appropriate.[13] EPA's annual decision about the appropriateness of revising ELGs is "unambiguous[ly] . . . constrained by the [CWA's] mandate as to what 'such regulations' 'shall' accomplish."[14] With respect to pollutants such as ammonia, total nitrogen, and total phosphorus from existing facilities, ELGs "shall" identify the degree of pollution reduction achievable through application of the "best available technology" or "BAT."[15] BAT represents "the gold standard for controlling water pollution from existing sources."[16] As explained further below, to ensure the Agency meets its CWA mandates, EPA must evaluate current advanced technology available to reduce pollutants used by the best-performing slaughterhouses as well as technology already adopted by other industries.

### A. EPA Must Analyze Technology Used by the Best-Performing Slaughterhouses to Determine Best Available Technology Effluent Limitations.

EPA must base BAT, at a minimum, "on the performance of the single best-performing plant in an industrial field."[17] "In setting BAT, EPA uses not the average plant, but the optimally operating plant, the pilot plant which acts as a beacon to show what is possible."[18] Based on these statutory requirements, EPA must review the technology in use by the best-performing facilities in the slaughterhouse industry to determine BAT limits.

EPA should review existing DMR data to identify the slaughterhouses that are able to best reduce the pollution in their wastewater effluent and analyze the technology installed at those facilities. EPA has explained that DMRs are "the most comprehensive data source quantifying pollutants discharged directly to surface waters" and characterized DMR data as "robust and reliable."[19] DMR data provide ample, robust, and reliable evidence demonstrating that slaughterhouses are capable of significantly reducing the level of nutrients in their wastewater. Along with Preliminary Plan 14, EPA released 2015 slaughterhouse DMR data gathered and analyzed during the Agency's previous 2016, 2017, and 2018 reviews containing total nitrogen discharge data from 97 direct-discharging slaughterhouses and ammonia discharge data from 119

[12] Effluent limitations are "restriction[s] . . . on [the] quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from [any discernable, confined, and discrete conveyance, such as a pipe] into navigable waters." 33 U.S.C. § 1362(11); *id.* § 1314(b) (directing EPA to publish regulations establishing ELGs "[f]or the purpose of adopting or revising effluent limitations"); *id.* § 1311; *see also Tex. Oil & Gas Ass'n v. EPA*, 161 F.3d 923, 927 (5th Cir. 1998) (explaining that Congress designed the CWA to eliminate water pollution "through a series of [] effluent limitation guidelines").
[13] 33 U.S.C. § 1314(b).
[14] *Our Children's Earth Found. v. EPA*, 527 F.3d 842, 851 (9th Cir. 2008).
[15] 33 U.S.C. § 1314(b)(2)(B); *see Sw. Elec. Power Co. v. EPA*, 920 F.3d 999, 1006 (5th Cir. 2019) (explaining that "BAT . . . has applied to existing, direct discharges of toxic and non-conventional pollutants since March 31, 1989").
[16] *Sw. Elec. Power Co.*, 920 F.3d at 1003, 1006 (quoting *Chem. Mfrs. Ass'n v. EPA*, 870 F.2d 177, 226 (5th Cir. 1989)).
[17] *Id*.
[18] *Kennecott v. EPA*, 780 F.2d 445, 448 (4th Cir. 1985).
[19] EPA, EPA-HQ-OW-2018-0618-0569, Review of Nutrients in Industrial Wastewater Discharge (2019), at 2-2–2-3.

direct-discharge slaughterhouses.[20] A closer look at this data for the best-performing group of slaughterhouses shows not only the high level of nutrient reduction that the industry is capable of achieving, [21] but also that slaughterhouses *can* consistently achieve this high level of nutrient reduction.[22]

Further, EIP released a 2018 report examining, among other things, DMR data from January 2016 through June 2018 for 98 large slaughterhouses (i.e., facilities discharging 250,000 gallons per day or more of wastewater).[23] The report found that more than half of slaughterhouses discharged at less than a third of the applicable total nitrogen ELG monthly average limit for poultry plants (103 mg/L).[24] A review of 2020 DMR data for the same slaughterhouses identifies those facilities that have significantly reduced the amount of nitrogen pollution in their wastewater compared to others in the industry.[25] In this analysis, EIP ranked the facilities using the mean of the total nitrogen monthly average concentrations discharged by each slaughterhouse that year, from lowest to highest.[26] Table 3 displays the ten slaughterhouses with the lowest reported mean total nitrogen monthly averages in 2020, along with the ranges reported by each facility that year.[27]

**Table 3. Ten Slaughterhouses with Lowest Mean Monthly Average Total Nitrogen Concentrations in 2020**

| Slaughterhouse Name | Location (City, State) | Product Type | NPDES Permit No. | Mean Total Nitrogen Concentration (mg/L) | Total Nitrogen Concentration Ranges (mg/L) |
|---|---|---|---|---|---|
| Peco Foods | Pocahontas, AR | Poultry | AR0052451 | 2.38 | 0.8 – 3.3 |
| Empire Kosher Poultry | Mifflintown, PA | Poultry | PA0007552 | 2.83 | 2 – 4 |

[20] *See* Preliminary Effluent Guidelines Program Plan 14, 84 Fed. Reg. 57,019, 57,019 (Oct. 24, 2019) (explaining that EPA summarizes the Agency's annual reviews from 2016, 2017, and 2018 in Preliminary Plan 14).

[21] The best-performing quartile of meat plants discharged an annual average concentration of *1.8 mg/L of total nitrogen* (74 times lower than the existing 134 mg/L total nitrogen monthly average ELG for meat plants) and *0.12 mg/L of ammonia* (33 times lower than the existing 4 mg/L ammonia ELG). Likewise, the best-performing quartile of poultry plants discharged an average concentration of *6.3 mg/L of total nitrogen* (16 times lower than the existing 103 mg/L total nitrogen ELG for poultry plants) and *0.16 mg/L of ammonia* (25 times lower than the existing 4 mg/L ammonia monthly average ELG). *See* 2015 National Sample of Slaughterhouse Data; *see also* 2015 Chesapeake DMR Data; 2015 Mississippi-Atchafalaya DMR Data.

[22] A review of these data shows that the monthly average total nitrogen discharges of the best-performing quartile of meat plants never exceeded 2.4 mg/L in any month in 2015. Meanwhile, the monthly average total nitrogen discharges of the best-performing poultry plants never exceeded 6.2 mg/L in any month that year. *See* 2015 Chesapeake DMR Data; *see also* 2015 Mississippi-Atchafalaya DMR Data.

[23] *See* Env't Integrity Project, *Water Pollution from Slaughterhouses* (2018) ("EIP Slaughterhouse Report"), https://environmentalintegrity.org/wp-content/uploads/2018/10/Slaughterhouse-report-2.14.2019.pdf (Attach. 2).

[24] *Id.* at 29.

[25] *See* Env't Integrity Project, 2020 DMR Total Nitrogen Analysis for Large Slaughterhouses (2021) (Attach. 3).

[26] *Id.*

[27] *See id.* for full list of slaughterhouses.

| Slaughterhouse Name | Location (City, State) | Product Type | NPDES Permit No. | Mean Total Nitrogen Concentration (mg/L) | Total Nitrogen Concentration Ranges (mg/L) |
|---|---|---|---|---|---|
| Tyson Farms | Temperanceville, VA | Poultry | VA0004049 | 3.38 | 1.8 – 4.9 |
| Conagra Foods | Quincy, MI | Meat | MI0003042 | 3.59 | 2.1 – 4.7 |
| George's Chicken | Edinburg, VA | Poultry | VA0077402 | 4.01 | 1.8 – 5.6 |
| Tyson Farms | Glen Allen, VA | Poultry | VAN040089 | 4.06 | 2.3 – 6.5 |
| Cargill | Wyalusing, PA | Meat | PA0111759 | 4.49 | 1.9 – 13.9 |
| Hillshire Brands | New London, WI | Meat | WI0023094 | 4.91 | 2.1 – 9.4 |
| Johnsonville Sausage | Sheboygan Falls, WI | Meat | WI0001759 | 6.25 | 4.4 – 9.4 |
| Perdue Foods | Accomac, VA | Poultry | VA0003808 | 7.79 | 2.3 – 12.3 |

EPA should collect information on the technology installed at these best-performing slaughterhouses when evaluating BAT limits. The DMR data clearly show that slaughterhouses can consistently attain pollution levels orders of magnitude less than the concentrations currently allowed under the existing ELGs. The monthly average total nitrogen concentration discharged by the best-performing poultry plant was as little as 0.8 mg/L and never exceeded 3.3 mg/L that year.[28] Likewise, the monthly average total nitrogen concentration discharged by the best-performing meat plant ranged from 2.1 mg/L to 4.7 mg/L.[29] The DMR data provide EPA with robust and reliable information necessary to revise the ELGs.

In fact, permit records and discharge data for four slaughterhouses listed above—Tyson Farms in Temperanceville, VA; George's Chicken in Edinburg, VA; Tyson Farms in Glen Allen, VA; and Cargill in Wyalusing, PA—provide some examples of how much treatment technology has improved and how other facilities nationwide can, at a minimum, adopt this technology. Wastewater treatment technologies that can achieve pollutant concentrations much lower than the existing ELGs include, among other things, Enhanced Nutrient Removal ("ENR") and Biological Nutrient Removal ("BNR").[30] BNR is not necessarily BAT, as ENR (which has been adopted by many POTWs, as discussed in greater detail below) can achieve even greater reductions—but BAT must clearly be at least as stringent as BNR. EPA has known about BNR technology for over 20 years.[31] The scientific literature includes descriptions of this technology

[28] *Id.*
[29] *Id.*
[30] In addition to piping effluent directly into waterways and sending it to a local POTW, slaughterhouses also dispose of wastewater by spraying it on land. Spraying wastewater on land can contaminate drinking water wells and Commenters are by no means advocating for spraying to serve as an alternative to discharging it to waterways. *See* EIP Slaughterhouse Report at 4, 9–11, 22–24.
[31] *See, e.g.*, EPA, *Wastewater Technology Fact Sheet: Sequencing Batch Reactors* (1999), https://www3.epa.gov/npdes/pubs/sbr_new.pdf.

applied to meat processing from at least 18 years ago.[32] Thus, these systems represent a lower boundary for a revised BAT determination.

Table 4, below, displays the level of total nitrogen in 2020 reported by these four slaughterhouses that have already installed more advanced nutrient removal technology. The four slaughterhouses, which are by no means an exhaustive inventory of high-performing facilities, are further discussed below. To summarize:

- At least two poultry plants in Virginia currently employ BNR, which uses activated sludge and sequencing batch reactors to achieve average total nitrogen discharge concentrations of 7 mg/L or less, compared to the current total nitrogen ELG limit of 103 mg/L for poultry plants and 134 mg/L for meat plants.
- A third poultry facility in Virginia achieves comparable discharge concentrations using what appears to be a BNR treatment system.
- Meanwhile, a beef slaughterhouse in Pennsylvania is also meeting comparable discharge concentrations. Similar to the slaughterhouses in Virginia, the slaughterhouse in Pennsylvania adopted more advanced technology to treat its nitrogen discharges in order to meet requirements set forth under the Chesapeake Bay Total Maximum Daily Load program ("TMDL").

The fact that these slaughterhouses were able to implement these technologies shows that these advanced treatment systems are available to the industry to reduce its nutrient pollution. Therefore, EPA should review the technology for these four slaughterhouses as well as the other best-performers in the industry when evaluating BAT.

**Table 4. 2020 Monthly Average Total Nitrogen Discharge Data for Four Slaughterhouses with Nutrient Removal Technology[33]**

| Slaughterhouse Name | Location (City, State) | NPDES Permit No. | Annual Average Total Nitrogen Concentration (mg/L) | Total Nitrogen Concentration Ranges (mg/L) |
|---|---|---|---|---|
| Tyson Farms | Temperanceville, VA | VA0004049 | 3.38 | 1.8 – 4.9 |
| George's Chicken | Edinburg, VA | VA0077402 | 4.01 | 1.8 – 5.6 |
| Tyson Farms | Glen Allen, VA | VAN040089 | 4.06 | 2.3 – 6.5 |
| Cargill | Wyalusing, PA | PA0111759 | 4.49 | 1.9 – 13.9 |

Tyson Farms in Glen Allen, Virginia

The Tyson Farms poultry slaughterhouse in Glen Allen, Virginia treats its wastewater with a "four stage Bardenpho biological nutrient removal (BNR) process followed by [] tertiary

[32] *See, e.g.*, Nagalingam Thayalakumaran et al., *Biological Nutrient Removal From Meat Processing Wastewater Using a Sequencing Batch Reactor*, 47 Water Sci. Tech. 101 (2003).
[33] *See* Attach. 3: Env't Integrity Project, 2020 DMR Total Nitrogen Analysis for Large Slaughterhouses.

filtration."[34] The permit for this facility has an annual average limit on total nitrogen of 6 mg/L and a monthly average ammonia limit of 2 mg/L.[35] 2020 DMR data show that the total nitrogen monthly average discharge concentration has never exceeded 6.5 mg/L, and has a mean value of 4.06 mg/L.[36]

George's Chicken in Edinburg, Virginia

The George's Chicken facility in Edinburg, Virginia is a 60-year-old poultry processing plant.[37] The wastewater treatment facility for the plant has a design flow of 1.7 million gallons per day. Although the treatment facility accepts process wastewater from a nearby rendering facility and a small amount of residential sanitary wastewater, 90 percent of treated wastewater is from poultry first processing at the facility.[38] The BNR technology at George's Chicken was installed in roughly 2002, and modifications continued through at least 2016.[39] 2020 DMR data show that the total nitrogen monthly average discharge concentration has never exceeded 5.6 mg/L, and has a mean value of 4.01 mg/L.[40]

Tyson Farms in Temperanceville, Virginia

The Tyson Farms poultry slaughterhouse in Temperanceville, Virginia also appears to have a BNR treatment system,[41] a 6 mg/L annual limit on total nitrogen, and seasonal ammonia limits no higher than 2.7 mg/L. 2020 DMR data show that the total nitrogen monthly average discharge concentration has never exceeded 4.9 mg/L, and has a mean value of 3.38 mg/L.[42]

Cargill Meat Solutions in Wyalusing, Pennsylvania

Performance well below the ELGs is not limited to the poultry industry. For example, the Cargill Meat Solutions beef slaughterhouse in Wyalusing, Pennsylvania has permit limits consistent with existing ELGs,[43] but recently upgraded its treatment facility (circa 2014[44]) and now consistently discharges total nitrogen concentrations that are far lower than existing permit limits and ELGs.

[34] Va. Dep't of Env't Quality, VPDES Permit No. VA0004031, Permit Fact Sheet for Tyson Farms Inc., Glen Allen, Va. (Jan. 11, 2016), at 7 (Attach. 4).
[35] *Id.* at 4.
[36] *See* Attach. 3: Env't Integrity Project, 2020 DMR Total Nitrogen Analysis for Large Slaughterhouses.
[37] *See* Va. Dep't of Env't Quality, VPDES Permit No. VA0077402, Fact Sheet for George's Chicken, LLC (Apr. 2015), at Introduction p. 4 (Attach. 5).
[38] *Id.* at App. C p. 5.
[39] *Id.* at Introduction p. 5.
[40] *See* Attach. 3: Env't Integrity Project, 2020 DMR Total Nitrogen Analysis for Large Slaughterhouses.
[41] *See* Va. Dep't of Env't Quality, VPDES Permit No. VA0004049, Permit Fact Sheet for Tyson Farms Inc., Temperanceville, Va. (Oct. 6, 2015), at 6-6 (Attach. 6).
[42] *See* Attach. 3: Env't Integrity Project, 2020 DMR Total Nitrogen Analysis for Large Slaughterhouses.
[43] *See* Pa. Dep't of Env't Protection, NPDES Permit No. PA0111759 for Cargill Meat Solutions, Inc. (Oct. 1, 2012) (Attach. 7).
[44] A compliance schedule in the 2012 permit for Cargill shows that the facility was scheduled to complete upgrades by 2014. *Id*. at 20.

2020 DMR data show that the total nitrogen monthly average discharge concentration has never exceeded 13.9 mg/L, and has a mean value of 4.49 mg/L.[45]

### B. EPA Should Collect and Evaluate Information on Nutrient Removal Technology Employed by Other Industries to Determine Best Available Technology Effluent Limitations.

Given that "[n]utrient pollution is one of the most widespread, costly, and challenging environmental problems impacting water quality in the United States" and slaughterhouses discharge "the *highest* phosphorus levels and the *second highest* nitrogen levels of all industrial categories,"[46] it is imperative for EPA to review technology in use by other industries and that can be applied to treat slaughterhouse effluent, even if not yet used by the slaughterhouse industry, as "[p]rogress would be slowed if EPA were invariably limited to treatment schemes already in force at the plants which are the subject of the rulemaking."[47] Although the slaughterhouse examples discussed above use BNR to treat their wastewater, newer and more effective denitrification technology than BNR may serve as the technology basis for updated ELGs.

For instance, many POTWs have reduced the amount of nutrient pollution in their wastewater using ENR technology, which is related to, but goes beyond, BNR.[48] For instance, the State of Maryland required POTWs to upgrade their treatment technologies to ENR in order to meet Chesapeake Bay TMDL targets.[49] These facilities are expected to discharge total nitrogen concentrations of *3 mg/L or less* and total phosphorus concentrations of *0.3 mg/l or less* after these upgrades are installed.[50] As of October 2021, 64 major POTWs and 9 minor POTWs have installed and are fully operating their ENR treatment technologies.[51] The permits and fact sheets for these facilities are attached hereto as Attachment 8.[52] Moreover, as EPA noted in Preliminary Plan 14, the Water Environment Research Foundation has identified a combination of technologies that can achieve total nitrogen concentrations of less than 2 mg/L.[53] Other

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[45] *See* Attach. 3: Env't Integrity Project, 2020 DMR Total Nitrogen Analysis for Large Slaughterhouses.
[46] Preliminary Plan 15 at 6-2.
[47] *See Kennecott*, 780 F.2d at 453 (explaining that "Congress . . . asked EPA to survey related industries and current research to find technologies which might be used to decrease the discharge of pollutants.").
[48] *See, e.g.*, Iowa Dep't of Agric. & Land Stewardship et al., Nutrient Reduction Strategy, at Section 3 p. 2 (2017), https://www.nutrientstrategy.iastate.edu/sites/default/files/documents/2017%20INRS%20Complete_Revised%202017_12_11.pdf (discussing "three tiers of nutrient removal" and describing "Enhance Nutrient Removal" as "BNR with chemical precipitation and granular media filtration").
[49] *See The Evolution to Enhanced Nutrient Removal*, Md. Dept. of the Env't, https://mde.state.md.us/programs/Water/BayRestorationFund/Pages/evolution_enr.aspx.
[50] *Id.*
[51] *See* Md. Dept. of the Env't, *Bay Restoration Fund Targeted Wastewater Treatment Plants* (2021), https://mde.state.md.us/programs/Water/BayRestorationFund/Documents/October%20File.pdf.
[52] Complete Attachment 8 pts. 1–48 is available at https://www.dropbox.com/sh/1lvsizmfdxlqmnm/AAAGXBgSec8H6wZqE0HcrwTna?dl=0.
[53] *See* Preliminary Plan 14 at 3-8–3-9 (showing a "Level 5" treatment level with a "treatment level objective" of less than 2 mg/L for total nitrogen).

technologies applied to slaughterhouse wastewater include, for example, membrane bioreactors[54] and aerobic granular sludge.[55]

Industries other than POTWs have also successfully utilized denitrification technology to drastically reduce their nutrient wastewater discharges. For example, Prince Specialty Products, LLC (formerly known as Prince Erachem, Inc.), a manganese ore refining facility located in Baltimore, Maryland, "re-designed [its] denitrification process by minimizing water use, and capturing, separating, filtering, evaporating, and recycling any water containing nitrogen."[56] Prior to the denitrification upgrade, the facility discharged 317,389 pounds of total nitrogen in 2011; after the installation of the denitrification system sometime in 2016, the facility reduced its total nitrogen load to 7,915 pounds that year.[57] Now with the denitrification system fully optimized, the facility further reduced its total nitrogen loads, discharging about 1,546 pounds of total nitrogen annually in 2019 and 2020 (with a mean total nitrogen monthly average of 5.26 mg/L during those two years).[58] Overall, Prince Specialty Products achieved a *99.5 percent* nitrogen load reduction by upgrading its wastewater treatment technology to denitrification.

The technology discussed above have demonstrably achieved dramatic reductions in the concentration of nutrients discharged by facilities in their wastewater. Therefore, it is essential for EPA to analyze ENR and denitrification treatment technology when evaluating and setting BAT limits for slaughterhouses.

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Thank you for considering our comments.

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[54] *See, e.g.*, Levent Gürel & Hanife Büyükgüngör, *Treatment of Slaughterhouse Plant Wastewater by Using a Membrane Bioreactor*, 64 Water Sci. Tech. 214 (2011).
[55] *See, e.g.*, EPA, Emerging Technologies for Wastewater Treatment and In-plant Wet Weather Management at 3-38–3-40 (2013), https://www.epa.gov/sites/production/files/2019-02/documents/emerging-tech-wastewater-treatment-management.pdf.
[56] Md. Dep't of Env't, NPDES Permit No. MD0001775, Permit Fact Sheet for Prince Erachem, Inc., Baltimore, Md. (Oct. 19, 2017), at 7 (Attach. 9).
[57] *Id.*
[58] Information based on Prince Specialty Products, LLC DMR data obtained from EPA's Enforcement and Compliance History Online ("ECHO") website (last accessed Jan. 10, 2021), https://echo.epa.gov/effluent-charts#MD0001775.