

U.S. Environmental Protection Agency
Attn: Steve Whitlock, Engineering and Analysis Division, EPA Office of Water
EPA Docket Center, Office of Water Docket
Mail Code 28221T
1200 Pennsylvania Avenue NW
Washington, DC 20460

Re: Comments by the Meat and Poultry Products Industry Coalition Regarding the U.S. Environmental Protection Agency’s Proposed Clean Water Act Effluent Limitations Guidelines and Standards for the Meat and Poultry Products Point Source Category (89 Fed. Reg. 4,474, January 23, 2024); Docket ID No. EPA–HQ–OW–2021–0736

Dear Mr. Whitlock:

The Meat and Poultry Products Industry Coalition (MPP Coalition or Coalition) submits the following comments in response to the U.S. Environmental Protection Agency’s (EPA) Proposed Clean Water Act Effluent Limitations Guidelines and Standards (ELGs) for the Meat and Poultry Products (MPP) Point Source Category (89 Fed. Reg. 4,474, January 23, 2024).

For the reasons set forth below, EPA should take the following actions in response to this proposed rule:

1. Provide additional information requested by the MPP Coalition, including studies that could readily be conducted to confirm the various bases for its proposal, correct errors, and either:
2. focus specifically on direct discharging facilities (dropping all standards for indirect dischargers), and then publish a “Notice of Data Availability” in the Federal Register with an additional 90-day comment period; or
3. Withdraw the proposed rule completely and reissue a new, corrected proposed rule in the future regarding appropriate revisions, if any, to the 2004 MPP ELGs nationally appropriate technology-based standards applicable to direct discharging facilities.

I. INTRODUCTION

A. MPP Coalition Participants

The U.S. Poultry & Egg Association (“USPOULTRY”) is the world’s largest poultry organization, whose membership includes producers of broilers, turkeys, ducks, eggs, and breeding stock, as well as allied companies. USPOULTRY focuses on research and education, as well as communications to keep members of the poultry industry current on important issues.

The Meat Institute is the United States’ oldest and largest trade association representing packers and processors of beef, pork, lamb, veal, poultry, and processed meat products. The Meat Institute has 330 general members, operating more than 800 facilities subject to daily federal inspection by the U.S. Department of Agriculture’s (USDA) Food Safety and Inspection Service (FSIS). Some of our members also operate facilities that are subject to oversight by the Food and Drug Administration (FDA). Our members include not only the largest meat and poultry processors in the United States, but also many small businesses.

The North American Renderers Association (NARA) represents the interests of the North American rendering industry to regulatory and other governmental agencies, promotes the greater use of animal byproducts, and fosters the opening and expansion of trade between foreign buyers and North American exporters. In addition to its U.S.-based headquarters, the association maintains offices in Mexico and Hong Kong, and has market consultants in strategic locations around the world. NARA publishes a bi-monthly trade magazine, *Render*. For more information, visit www.nara.org.

The National Pork Producers Council (NPPC) is an association of 43 state pork producer organizations, based in Des Moines, Iowa with a public policy office in Washington, D.C. that represents the interests of the 67,000 pork producers in the United States. NPPC advocates for the social, environmental, and economic sustainability of U.S. pork producers and their partners by fighting for reasonable public policy, defending pork producers’ freedom to operate, and expanding access to global markets to ensure that the U.S. pork industry, and the family farmers that comprise it. This includes stable and reliable access to local packer processors for producers to market their animals.

The National Chicken Council is the national, non-profit trade association that represents vertically integrated companies that produce and process more than 95 percent of the chicken marketed in the United States.

The National Turkey Federation (NTF) represents all segments of the turkey industry, including growers, processors, breeders, hatchery owners and allied companies. NTF is the only national trade association exclusively representing the turkey industry; our members account for more than 95 percent of all U.S. turkey production.

The American Farm Bureau Federation has served for over 100 years as the Voice of Agriculture®. AFBF is the nation's largest general farm organization, with nearly six million farm and ranch member families in all 50 states and Puerto Rico, working together to build a sustainable future of safe and abundant food, fiber and renewable fuel for our nation and the world.

B. Executive Summary of Arguments

Before addressing the merits of EPA's proposed rule, the MPP Coalition objects to the Agency rulemaking process to date which has not provided the industry with a sufficient opportunity to evaluate critical information and provide meaningful public comment on the proposed rule. EPA did not disclose for review hundreds of pages of detailed analyses in its development documents and more than 600 other supporting documents in the rulemaking docket until after the proposed rule was published in the Federal Register.

Additionally, with one business day remaining in the comment period, EPA provided a memorandum to the record in response to an information request on the proposed MPP guidelines. By any standard, these failures to provide adequate time for meaningful review require the Agency to either extend the period for review and comment or withdraw the proposed rule completely and reissue a new, corrected proposed rule in the future based on the newly disclosed information.

The legal support for the proposed rule is flawed. EPA's failure to make data and relevant information available is contrary to long established law on the Administrative Procedure Act (APA) requiring federal agencies must make available data and relevant information that

underlie the content of proposed rules. Additionally, EPA's cited authority in support of the rule, Section 307(b) of the Clean Water Act, 33 U.S.C. § 1317(b), applies to toxic pollutants rather than the conventional pollutants the rule is focused on and cannot serve as the legal support for the proposed rule.

Turning to the merits of EPA's proposed rule for the MPP source category, the proposed rule is unnecessary because the MPP industry is already effectively regulated by federal, state and local programs and the rule would be harmful to many large and small municipalities and communities by putting an added burden on them with little or no corresponding benefit. The proposed rule would also upset the current successful relationship between MPP indirect dischargers and the POTWs they discharge to and EPA has not considered the impacts of those changes.

EPA's engineering and loading analyses contain a number of calculation errors that make the proposed MPP ELG limits unreasonably restrictive and essential information is missing from the docket that is critical to allow the coalition to analyze EPA's findings and approach to determine how it derived the limits.

EPA's cost model suffers from numerous errors. Initially, the CAPET model EPA uses is unreliable because it was intended for very different treatment systems than those at MPP facilities. As such, the model significantly underestimates costs. The Agency's misuse and misapplication of the CAPDET model could cause serious unnecessary impacts upon MPP facilities and require facilities to unnecessarily build additional costly treatment systems which may not be possible to build in some locations. EPA's Compliance Costs Methodology for the MPP Proposal Rulemaking (Doc MP00301) contains many errors as well, all outlined below.

Additional errors EPA appears to have made in estimating compliance costs include: (1) EPA appears to substantially underestimate other direct and indirect capital costs, (2) EPA should account for land costs in a different manner than the Agency has proposed, (3) EPA must justify the Agency's unusually long assumption for the useful life of capital equipment, and (4) because the MPP rule will impose compliance obligations perpetually, not for only 40 years, EPA should estimate costs accordingly.

The economic impact and environmental analyses supporting the proposed rule also suffer from a number of deficiencies. EPA underestimated the facility closures and the direct, indirect and associated job losses likely to occur from the proposed rule. The community in which an MPP facility is located will suffer severe impacts from a regulation-induced closure of that facility. EPA should have evaluated affordability of the rule relative to typical or average economic conditions for the industry and should not have based it largely on analysis of the very atypical conditions prevailing in the pandemic year of 2021. EPA also fails to provide quantitative information indicating how often MPP indirect discharging facilities contribute meaningfully to water quality impairments and how often they do not.

Finally, EPA should also recognize that many MPP facilities are the largest employers in many rural communities, and they provide significant benefits which must be taken into account and balanced with other goals. Also, related to community impacts, we believe the MPP ELG proposal appears to work at cross purposes with and could thwart the Administration's priority to expand the number and competitiveness of independent small and medium-sized meat and poultry processing operations.

II. GENERAL POLICY ARGUMENTS

A. **The Proposed Rule Is Unnecessary Because the MPP Industry Already Is Effectively Regulated by Federal, State and Local Programs.**

Under existing ELGs and where additional controls are appropriate, the MPP industry has successfully achieved a level of environmental protection that demonstrates advancements in technologies and water quality protections. These achievements have resulted from a combination of programs that include, for direct discharging facilities, the increasingly stringent National Pollutant Discharge Elimination System (NPDES) permit program administered by EPA and the states, and stringent implementation of the 2004 MPP ELGs.

Moreover, EPA has continued its progress in implementing a national program to address site specific water quality concerns through the Total Maximum Daily Load (TMDL) and other Clean Water Act Section 303 programs. Local POTWs have focused on water quality concerns not readily addressed at a national scale and provide yet another layer of regulations and a safeguard for MPP discharges. Furthermore, indirect discharging MPP facilities in many local jurisdictions have a unique relationship with POTW operators, often through significant financial

investments in maintaining and upgrading the POTW or shouldering major surcharges for the POTW's continued operation and maintenance, which reduce public treatment costs for residential ratepayers and improve the quality of local and downstream waters.

In sum, both the industry and POTWs can demonstrate why this proposed rule is unnecessary, harmful to many large and small municipalities and communities, and an unnecessary burden on the meat production value chain and will result in inflationary pricing of meat products to the American consumer. This includes, in particular, the small MPP businesses that EPA was trying to protect from adverse impacts from new ELGs.

B. The Proposed Requirements for MPP Indirect Dischargers Would Upset Successful, Established Relationships Between Them and Their POTWs.

The great majority of POTWs are now operating with constructive relationships with their MPP indirect dischargers. MPP indirect dischargers operate under pretreatment permits and local limits set by POTWs and control authorities to protect POTW operations and contribute to POTW compliance with their NPDES permits, which are water quality-based and/or technology-based to the extent necessary to protect receiving water bodies.

MPP indirect dischargers pay substantial amounts in sewer charges and sometimes surcharges to cover their share of POTW's operating and maintenance expenses and sometimes contribute to capital costs. POTWs have optimized their operations and planned their capital budgets based on expected hydraulic and pollutant loads from domestic sources and important industrial users, including MPP facilities. The proposed ELG requirements for MPP indirect dischargers would upset these successful relationships in many instances.

First, MPP facilities provide significant loadings, but readily treatable, BOD effluent to their POTWs. If these loads were substantially reduced as required under the proposed standards, many POTWs with operations optimized for their current set of domestic and industrial users would have difficulty meeting their BOD and TSS percent removal compliance requirements.

Second, the carbon load now provided by MPP indirect dischargers is advantageous to POTWs that both nitrify and denitrify provide biological phosphorus removal. The proposed regulation would greatly reduce the carbon input from regulated MPP indirect dischargers, causing these advanced treatment POTWs either to purchase replacement carbon (perhaps

methanol) or to make other costly changes to their operations. Use of this external carbon would result in additional greenhouse gas emissions and additional biosolids production that the US EPA has apparently not factored into its MPP rulemaking process. This lesson has been learned throughout the nation, where POTWs had historically sought to reduce BOD inputs, but have now realized that BOD inputs are critical to their operational and financial efficiency.

Third, the potential required sharp reduction in MPP indirect discharger pollutant loads and concentrations will reduce POTW revenues they obtain from surcharges and from sewer user charge revenues, without a corresponding reduction in POTW operating costs. POTWs will need to seek additional revenues through rate increases for domestic (the public) and/or other industrial users. This expected loss in revenue would come at a time that POTW's are facing significant financial pressures for meeting other new environmental regulatory requirements (e.g., new lead and copper rule, lead and copper rule improvements, pollutant removal requirements for new/emerging contaminants). Again, this lesson has been realized in many communities where the POTW had adopted strict pollutant loadings on an MPP facility, only to realize that their treatment efficacy and cost structure was compromised. In many cases, the POTW has raised rates both on the MPP and residential users to offset the loss in revenue.

Fourth, some POTWs with suitable influent, probably several hundred in number, treat and land apply their effluent rather than discharge. For these POTWs, the influent flows from MPP indirect dischargers are beneficial in supporting better growth of cover crops on the land application fields and reducing the likelihood of nitrate-N to groundwater. These benefits would be greatly reduced if the ELG were to require nitrification and denitrification by indirect MPP facilities. LAS systems are also commonly beneficial for groundwater recharge. The cost of replacement nutrients would impact the beneficial relationship between the farmer and POTW.

Fifth, closure of an MPP industrial discharger that is unable to comply with EPA's proposed ELG would entail even larger negative impacts in each of these areas.

The National Association of Clean Water Agencies (NACWA) does not support any of EPA's proposed options for indirect dischargers for virtually the same reasons set forth above. The combination of sophisticated POTWs treatment, pretreatment, water quality and general understanding regarding their community's needs, including related MPP facilities, demonstrates that expanding the MPP ELGs to include nationally applicable pretreatment standards is

unnecessary, unreasonable and without merit. The lack of regulating indirect MPP discharges will not impact water quality because the existing framework is providing the type of water quality protection envisioned by the Clean Water Act. We support NACWA's comments.

C. Recommendation to Reject Options 2 and 3, and Potential Corrections to Option 1.

The industry is opposed to the MPP proposed rulemaking in its current form for all Options, including the egregious and wide-ranging impacts and consequences resulting from Options 2 and 3. However, Option 1 may be made more acceptable and workable for industry with certain changes. Currently, the proposed limits in Option 1, according to industry's analysis, are not readily achievable by the candidate technologies. At minimum a one-size-fits-all approach is incorrect. For example, a beef slaughter facility's BOD, TSS and FOG loading is multiple higher than a poultry slaughter facility; a poultry further processing facility may well use marinades and other substances that contribute soluble BOD loadings, which the candidate technology is unable to remove. We urge EPA to revisit its current approach, reanalyze and correct deficiencies and revise the proposed limits so they are – at all levels – clearly achievable by the proposed technologies.

Additionally, we urge EPA to drop indirect discharging MPP facilities from the scope of the rule entirely, including in Option 1. Indirect discharging facilities are quite well-regulated in a cost-efficient manner through a combination of pretreatment permits and local limits, and NPDES permits for POTWs that include water quality-based effluent limits (WQBELs) as determined by TMDLs and as necessary to achieve water quality standards. The national POTW community has similarly informed EPA during public hearings on the proposed rule that new MPP requirements for indirect dischargers are not needed and not a priority for POTWs. MPPs that discharge to POTWs that use LAS systems also should be eliminated from the list.

III. LEGAL ANALYSES

A. EPA has not Provided an Adequate Opportunity to Evaluate and Provide Meaningful Public Comment to the Proposed Rule.

The Agency's work on the MPP effluent guidelines has proceeded under an unreasonably tight timeframe, particularly in light of the more "typical" comment period afforded to many of the prior ELG rulemakings. Making matters more challenging, EPA did not make available

hundreds of pages of detailed analyses in its development documents and more than 600 other supporting documents in the rulemaking docket until after the proposed rule was published in the Federal Register.

EPA's assertions that the comment period was necessarily dictated by a federal consent decree that has mandated that the Agency meet strict proposed rulemaking and final action deadlines is illusory. The consent decree contains multiple provisions and reasons for extending its deadlines, which are legitimate here, and EPA has a history of missing CWA Section 304(m) deadlines with no direct or significant liabilities, even if challenged in court.

From our review of the massive rulemaking docket, our concerns are wide ranging, including, but not limited to:

- the high degree of technical complexity associated with strict new limits contained in the proposed rule;
- the potentially more than ten-fold expansion of the scope of the proposed rule under the most stringent Option to more than a thousand additional facilities across the nation that were not previously regulated by MPP ELGs;
- of critical concern, EPA continues – through the public comment period and even extending past the comment period – to seek further clarification from the MPP industry on certain parts of the rule, including, but not limited to, a request for financial information from well over 100 MPP facilities that is due March 25, 2024, the same date as the close of the comment period;
- the potential for significant new economic burdens on the MPP industry, including significant facility closures and other economic impacts on small businesses;
- one set of nutrient limits that are applied across the various types of MPP facilities, which do not take into proper account the influent nutrient limits, as was done in the current ELGs; and
- the likelihood of major disruption to current and advantageous MPP industry facility relationships with their local POTW that benefit the facility, the POTW operators, and the neighboring communities that rely on the POTW's services.

Despite these and other important considerations, such as the Agency’s solicitation of comments on entirely novel and undefined mechanisms intended to provide flexibility for MPP facilities (“conditional limits” and “waivers”), EPA has provided only a 60-day public comment period. This timeframe is woefully inadequate to digest the proposal itself, determine its impacts and properly evaluate the extensive – and often opaque – analytical work in the massive docket underpinning support for new limitations, their accompanying technology requirements, and the resulting business implications for company operations. This is even more problematic as the specific requirements for certain options have not been provided.

In addition, because EPA has not provided a timely response to industry stakeholder requests for greater transparency and further detail on EPA’s technical and analytical work supporting the Agency’s conclusions, it is impossible to provide a comprehensive set of comments to address what are apparent significant deficiencies in the proposal. Some of the Agency’s failures during the comment period to answer fundamental questions about its work are due to concerns over releasing Confidential Business Information (CBI). EPA’s inability to mask important data needed for review behind CBI tags and lengthy Freedom of Information Act reviews further supports the need for an extended comment period.

The MPP Coalition believes that in many instances that the Agency’s claim of CBI is not appropriate and not consistent with Agency CBI policy and regulations. In other instances, the Industry Coalition has suggested “workarounds” to the Agency. For example, the Industry Coalition suggested that EPA aggregate CBI information into summaries, totals, subtotals, or “crosstabs” so that key portions of EPA’s analysis can be better understood and commented on without revealing any individual CBI data point. EPA’s difficulty in providing greater transparency and detail regarding the Agency’s underlying analyses has severely limited the public’s ability to properly evaluate the agency’s work and assess the accuracy of the justifications for EPA’s proposed rule.

Finally, while EPA knew what information it would rely upon for the Proposed MPP ELGs, it did not develop and make available to the public its “User Guide” to the MPP docket, describing how to access the docket, figure out what documents are publicly available and which ones are masked as “CBI” etc. until February 16, 2024 – almost half-way through the 60-day comment period. EPA provided no announcement of the document’s availability or reasoning why it was not included when the ELGs were proposed.

B. EPA has Inadequately Developed and Justified the Proposed Rule.

Despite the challenges the industry has experienced attempting to understand the basis and rationale for EPA's proposed rule, as set forth above, we have been able to identify that the Agency has committed consequential errors, applied faulty analyses, and used questionable data in the proposed rule's development. Appendix A of these comments is the MPP Coalition's request for a comment deadline extension that also contains the 43 specific questions or solicitation of comments/more information EPA identified as critical to developing a final MPP ELG.

For example, EPA requests comment on "conditional limits" and "waivers" but does not explain or propose how such conditional limits or waivers would or could work under the circumstances or NPDES regulatory framework. There are many variations of conceptual conditional limits or waivers and if EPA pursues either, it will have to separately propose and seek comment on such an approach. This is just one example of how EPA rushed to propose the MPP ELG revisions, should have sought an extension under its consent decree for actually proposing the rule, and should have a more complete proposal on which the public may submit comments.

Judicial review of agency actions under the Administrative Procedure Act (APA) has long ago established that federal agencies must make available data and relevant information that underlie the content of proposed rules. In *Connecticut Power & Light v. NRC*, 673 F.2d 525 (DC Cir. 1982), the DC Circuit set forth the general obligations for federal agencies in this regard, stating:

In order to allow for useful criticism, it is especially important for the agency to identify and make available technical studies and data that it has employed in reaching the decisions to propose particular rules. To allow an agency to play hunt the peanut with technical information, hiding or disguising the information that it employs, is to condone a practice in which the agency treats what should be a genuine interchange as mere bureaucratic sport. An agency commits serious procedural error when it fails to reveal portions of the technical basis for a proposed rule in time to allow for meaningful commentary. *Id.* at 530-32.

The MPP Coalition believes that EPA has not provided adequate notice of various aspects of this proposed rule for the public to adequately comment, and it has not adhered to its

obligations to disclose important data and information during the far too abbreviated 60-day public comment period for a rule containing such a high level of complexity.

C. EPA's Basis for Promulgating Pretreatment Standards for Indirect Dischargers Based on Pollutants that Pass Through POTW Operations is Contrary to the Clean Water Act.

1. Section 307(b) applies to Toxic Pollutants, Not Conventional Pollutants.

In its description of its legal authority to support the proposed rule, EPA states that Clean Water Act section 307(b) authorizes it to promulgate nationally applicable pretreatment standards that restrict pollutant discharges from categories of indirect dischargers for those pollutants in wastewater from indirect dischargers that may passthrough POTW operations. (89 Fed. Reg. 4478; 33 U.S.C. 1317(b)). However, while EPA cites to CWA Section 307(b) for its authority, CWA 307(b) applies to toxic pollutants, rather than the conventional pollutants EPA seeks to regulate in this proposal. Thus, the legal underpinning for EPA's proposal to impose pretreatment standards for indirect discharges is flawed.

EPA also cites to the legislative history of the 1977 Clean Water Act amendments in its legal background section but rather than supporting EPA's approach of regulating conventional pollutants, the legislative history clarifies that section 307(b) was intended to apply only to toxic pollutants:

“Under the amendment to section 307(b) the Administrator would establish national pretreatment standard for toxic pollutants based on the best available technology economically achievable, or any more stringent effluent standards under section 307(a).” (Conf. Rep. No. 95-830, at 87 (1977), reprinted in U.S. Congress, Senate Committee on Public Works (1978), *A Legislative History of the CWA of 1977*, Serial No. 95-14 at 271 (1978)) (emphasis added).

In addition, the legislative history also confirms that the primary method of discharge control of effluents was to be regulated by close coordination between the States under the NPDES system and regulations on direct dischargers, including POTWs. Pretreatment standards for indirect dischargers, if any, were intended to be extraordinary and not common practice for industrial wastewater discharges to POTWs.

CWA 307(b)(1) also requires that to become effective, pollutants for which pretreatment standards are required must be “determined not to be susceptible to treatment by such treatment

works or which would interfere with the operation of such treatment works.” The proposed rule also does not “take into account the toxicity of the pollutant, its persistence, degradability, the usual or potential presence of the affected organisms in any waters, the importance of the affected organisms and the nature and extent of the effect of the toxic pollutant on such organisms, and the extent to which effective control is being or may be achieved under other regulatory authority” as required by 307(a)(2).

To our knowledge, EPA has not established pretreatment standards for any conventional pollutants based on a pollutant passing through a treatment works. EPA has established pretreatment standards for conventional pollutants, but in those instances, it has been due to interference. For example, in the Petroleum Refining ELGs, EPA controls the conventional pollutant, oil and grease to serve as indicators for slugs of oils and greases and the standards were based on pollutant interference. The following passage from EPA’s Permit Writers’ Manual, September 2010, explains the that unique instance in which a conventional pollutant is used as an indicator for potential “interference,” not pass through:

EPA typically does not establish pretreatment standards for conventional pollutants (e.g., BOD5, TSS, oil and grease) because POTWs are designed to treat such pollutants, but EPA has exercised its authority to establish categorical pretreatment standards for conventional pollutants as surrogates for toxic or nonconventional pollutants or to prevent interference. For example, EPA established categorical pretreatment standards for new and existing sources with a one-day maximum concentration of 100 mg/L oil and grease in the Petroleum Refining Point Source Category in Part 419 based on “the necessity to minimize [the] possibility of slug loadings of oil and grease being discharged to POTWs.” See, EPA’s *NPDES Permit Writer’s Manual* at 5-17 (<https://www.epa.gov/npdes/npdes-permit-writers-manual>).

There are no other references EPA cites related to conventional pollutants and passthroughs.

2. EPA Arbitrarily Changed the Existing Regulatory Definition of Pass Through Without Any Justification for the Change.

The general pretreatment regulations for existing and new sources are set forth at 40 C.F.R. Part 403. The existing regulatory definition of “pass through,” codified in 1981 after notice and comment rulemaking is:

The term *Pass Through* means a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or

in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation). 40 C.F.R. § 403.3(p).

In the proposed rule, EPA has substituted a new definition of “pass through” but failed to provide any justification or explanation as to why the existing regulation should be changed. In its attempt to set aside the existing straight-forward definition (a pass through is a discharge that causes of violation of the POTW permit), EPA instead proposes, without justification, the following complex definition:

Passthrough: A pollutant is determined to passthrough POTWs when the median percentage removed nationwide by well-operated POTWs is less than the median percentage removed by the Best Available Technology Economically Achievable/New Source Performance Standards (BAT/NSPS) technology basis. (Technical Development Document, December 2023, Glossary, p. xi).

In this rulemaking, EPA has expressed a new approach to how it determines whether a pollutant passes through a POTW. What the agency has not done is explain or justify that approach. It is a fundamental concept of administrative law and a requirement of the Administrative Procedure Act that an agency must explain and justify a change from current regulations. *See, Motor Vehicle Manufacturers Association v. State Farm Auto Mutual Insurance Co.* 463 U.S. 29, 42 (1983) (an agency “must examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choices made.”). *Motorcars, LLC v. Navarro*, 136 S. Ct. 2117, 2125 (2016) (“Agencies are free to change their existing policies as long as they provide a reasoned explanation for the change.”). EPA’s new approach to its passthrough analysis (see Meat and Poultry Products POTW Passthrough Analysis, Memorandum dated November 7, 2023; DCN MP00309) must be set aside until EPA presents a satisfactory explanation for the change which is supported by facts and data.

IV. ENGINEERING AND LOADINGS ANALYSES

A. EPA's Analyses of Pollutant Loadings are Inconsistent with Its Cost Analyses.

The MPP industry's review of EPA's pollutant loadings analyses reveals that EPA has estimated a high level of pollutant loadings being removed by MPP facilities, while underestimating the cost of necessary treatment systems that would be required to meet the proposed limits. In determining the baseline pollutant loadings, EPA states it has utilized results from its industry survey that collected information about raw waste concentrations before any treatment occurs, including screens, settling tanks, and DAF. But in the costing model, EPA assumes all facilities have some existing form of treatment already in place.

By inflating pollutant removals and minimizing treatment costs, EPA is making the proposed rule appear more cost-effective. Stated differently, EPA is (intentionally or not) taking credit for pollutant removals that are already occurring, making its findings inaccurate. In the Agency's development documents, EPA sets forth how the loadings analysis was performed, but fails to provide sufficient detail or calculations that would allow more precise comments. The MPP industry has requested more detailed technical/engineering information from EPA to determine how the loadings data and calculations have been performed as a basis for more stringent limits under the proposed rule and how the costs to meet these proposed limits have been estimated for specific facilities. However, EPA has not provided this information for public and industry stakeholder verification in a timely way due to the Agency's Confidential Business Information concerns.¹

Industry has also requested more information of a different sort from EPA – mostly asking for further detail on the Agency's questionnaire responses and on the Agency's economic impact analyses. Appendix B provides this list of additional requested information items. The MPP Coalition requested this additional material from EPA in February and provided suggestions for how EPA might provide this information without raising CBI concerns. EPA responded with a memorandum to the record providing much of the requested economic impact/questionnaire information on March 21, 2024. While we very much appreciate EPA's

¹ MPP Commenters reserves the right to file additional comments once EPA provides the requested information.

effort in providing this information, its late date has left us with insufficient time to take this information into account for these comments.

EPA has not, however, provided any of the technical information that we requested regarding how loadings, limits and compliance costs were estimated. We request that EPA provide this technical information immediately. In any event, EPA should provide the industry with at least 60 days after releasing any information for the MPP Coalition to analyze the information and submit revised comments that EPA has the discretion to consider.

B. The Proposed MPP ELG Limits Are Too Restrictive

The MPP industry has reviewed the limited amount of data and information the Agency used to calculate the proposed limits for the various subcategories. EPA has committed errors in its calculations. Based on EPA's analyses, some well-designed and well-operated MPP facilities that currently employ the prescribed treatment technologies in the proposed rule would not be able to fully comply with the proposed limits. This seems particularly true for the proposed TN limits and for renderers. Many MPP facilities that are designed for full nitrification/denitrification would not be able to achieve the proposed TN limits. Other calculation errors that EPA makes would result in well-operated treatment systems exceeding proposed limits for BOD, TSS, TP, Fecal Coliform, and E. coli, even with the proposed technologies in place. Some indirect dischargers with appropriately sized and well operated screens, equalization and DAF would not meet the BOD and TSS limits.

These errors underlie the fundamental purpose of EPA developing ELGs and the Agency's obligation to ensure that facilities with EPA's prescribed technologies can otherwise comply with the final ELG limits associated with those specific technologies. In short, EPA's proposed limits are unreasonably restrictive for sites that implement EPA's preferred technologies.

The docket appears to be missing important information regarding various facilities' treatment technology/schematics, flow rates, unit operations sizes/ retention times, pollutant loadings, laboratory analytical QA/QC of the data, and more. The MPP Coalition has requested these data, but EPA has contended that much of this information is classified as CBI and thus has not yet provided it. That information is critical for the industry to review to analyze EPA's

findings, especially since the MPP Coalition has already discovered mistakes in EPA's other calculations and approaches.

EPA also seems to fail to account for nutrient removal treatment mechanisms and associated processes (denitrification occurring under "anaerobic conditions" and methanol may need to be added to keep the microbes healthy"). Denitrification occurs under anoxic conditions, and methanol or another carbon source is required in many cases to provide the carbon required for conversion of nitrate-nitrogen to nitrogen gas. In order to meet very low total nitrogen limits when starting out with a wastewater containing elevated nitrogen as compared to BOD, external carbon feed is absolutely necessary. Similarly, removal of phosphorous via biological mechanisms also requires sufficient carbon for the anaerobic treatment zone.

EPA must be transparent in how it derived the proposed rule and related effluent limitations and provide the public with the opportunity to trace the steps in EPA's analysis for actual facilities (appropriately masked to protect CBI) so as to confirm the accuracy of the Agency's assumptions, calculations and conclusions. Again, this information has been requested but has not been provided. The coalition will be able to submit a more detailed analysis after the comment period once EPA provides the appropriate information on how it derived the limits for the proposed rule.

The Technical Development Document (TDD) on page 117-135 and the "Evaluation of Technology Basis and Identification of BAT Facilities" (DCN MP00304) address how EPA chose facilities and data to be used to calculate the proposed limits. Contrary to existing ELGs, it appears that EPA used DMR data from a few chosen facilities and other data from 308 surveys to calculate the proposed limits. It appears that the Agency did not visit or perform a detailed critique of all of these facilities and the laboratory QA/QC of the data that underlie the proposed limits.

Historically, EPA has only used data to calculate limits from facilities that Agency staff have actually sampled (and the details of the sampling events), as well as overseen laboratory analytical testing, and QA/QC of the results. If EPA followed its normal ELG procedures, EPA would have sampled many more MPP facilities for each of the proposal process categories in the proposed rule. We note that it is difficult to confirm how EPA actually derived all of the

proposed limits because important details related to selecting specific facilities, as well as the data to be used to calculate the limits, has not been made public because EPA claims such data are CBI.

For its statistical analysis, EPA erred because it did not take into account autocorrelation of the effluent data used to calculate the proposed limits (see TDD at 123-124). EPA's failure is contrary to previous ELGs and, if it had been conducted properly, would result in higher variability factors (VFs), long-term averages (LTA), and thus, higher proposed limits. Again, this is a serious error by EPA which was caused by the failure to collect an adequate database because EPA only sampled, perhaps, six facilities for four to five days each.

For example, most of the data used to calculate the very low TN limits are based on DMR monthly average data, which should not be used to calculate VFs (see TDD at 156)(Limitation Submittal Data DCN MPP00210). The data clearly demonstrate higher TN in treated effluents from rendering facilities and others with high influent pollutant loadings. For these facilities, the TN limits from the well-designed and operated treatment systems should be at least two to three times higher than EPA's proposed limits. Where EPA used daily effluent data, it states that it aggregated daily data into monthly averages to calculate the VFs and limits. It is unclear how the daily VFs and limits were calculated based on the limited amount of data. This information has been requested from EPA and it has not been received.

In proposing low PSES BOD limits that would rely on treatment with screens and DAF, EPA did not take into account that many facilities have high concentrations of dissolved BOD, which will not be removed by screens and DAF. The proposed BOD limits, therefore, are unreasonably low and cannot be achieved with the proposed treatment. This error must be corrected by EPA.

The proposed limits for E. Coli are lower than the laboratory quantitative concentration (LQC). Permit limits as proposed will cause permit violations almost every time there is a reportable result. Fecal coliform would likely have the same issue. The proposed Fecal coliform and E. Coli limits are significantly below the levels that are generally used by state regulators. The proposed levels are significantly below the limitations for even the most stringently

controlled watersheds within the US (*i.e.* Chesapeake Bay Watershed). EPA has failed to explain why its proposed limits are necessary or achievable.

C. EPA Should Not Regulate Chlorides.

EPA seeks comment on potential effluent limitations on chlorides, perhaps including separation and zero discharge requirements for “high chloride waste streams.” The industry opposes such requirements because costs would be high and widespread throughout the industry with minimal environmental benefits. Control of MPP chloride discharges should not be required across the board for the industry, but instead should only be set where needed from a water quality perspective and accomplished through WQBELs in direct discharger and POTW NPDES permits.

A large majority of MPP facilities have what might be considered “high chloride waste streams.” (This term is exceptionally ambiguous. Without defining the term, it is not possible for the public to assess and comment on the impacts and costs of regulating these waste streams.) To produce a safe quality food product, the MPP industry must soften certain water streams. Nearly every MPP facility uses a softener to produce at least boiler makeup water and a high chloride stream results from the softener regeneration process. Replacing softeners with Reverse Osmosis (RO) systems, for instance, would occur at each facility. RO systems at best yield only 80 percent of produced water, resulting in a waste stream of 20 percent of water processed.

The consequences of the proposed rule cannot be overlooked. Other processes such as marinating and brining also produce potential “high chloride waste streams” and separating the high concentration streams from other wastewater and then collecting the commingled high chloride streams for treatment would be difficult and costly. We recognize that the ELG is partly based on BAT, but EPA must realize that depending on the ultimate receiving waterbody, elimination of “high chloride waste streams” would result in absolutely negligible (ie ppb) chloride reduction to the environment, but at a multi-million-dollar cost for the MPP facility, increased GHG emissions, and utilization of limited valuable real estate.

Practicable treatment or disposal options for high chloride streams are rarely available to MPP facilities. For the few facilities that have the option of hauling to a treatment or disposal facility (perhaps most often a POTW), the cost is high, and, from experience, the receiver can

shut the option off as quickly as they allowed it. With this new Rule as proposed, offsite disposal at a POTW is eliminated as an option, as the receiving POTW would have to enforce the ELG. As such, EPA cannot recognize POTWs (whether local or out-of-state) as a viable option to comply with the Rule. EPA appears to have underestimated the costs for evaporation ponds, forced circulation evaporation or crystallization, and some other very limited-availability options. The true capital and ongoing operational costs of a forced circulation system, its energy used and GHG emissions produced far outweigh EPA's conclusions.

V. COST ANALYSES

A. EPA's Cost Model Is Not Appropriate for Estimating Capital and O&M Costs for MPP Facilities.

There are a number of reasons why EPA's Cost Model cannot be relied upon for estimating capital and operation and maintenance costs (O & M) for MPP facilities. Initially, EPA's use of the CAPDET model in its proposed rule is problematic and unreliable for estimating capital and O&M costs for MPP facilities. The model was not intended or designed to be used as EPA has done in this proposed rule. Moreover, modifications made to CAPDET by EPA are not justified, appropriate or adequately explained in the docket.

The CAPDET model was developed to estimate the cost of POTW biological treatment systems that typically have low influent contaminant loadings, such as BOD concentrations ranging from 200 to 400 mg/l. Meat and poultry processing wastewater has concentrations typically 10 to 20 times higher than these levels, and rendering in particular has concentrations even several times higher than that. EPA states that it has made changes to the model to account for the higher wastewater influent loadings but has made no attempt to compare the model to the "real world" cost of treatment systems at MPP plants.

Next, the model significantly underestimates costs, but without more information, the industry cannot precisely identify the degree of underestimation or suggest particular fixes EPA could apply to the model. Hence, we are prevented from providing more detailed comments during the comment period. EPA's claim of data as CBI and the general lack of public transparency normally afforded during ELG rulemaking development, prevent the Coalition from providing meaningful input. We have requested the detailed analyses that underlie EPA's

decision-making, but EPA has not provided anything. The Coalition will be able to submit a more detailed analysis after the comment period has ended once EPA provides appropriate information on how it derived and calculated the proposed rule's final costs. EPA leadership has indicated that they will accept and consider such comments in the future.

We believe the Agency has underestimated costs by at least a factor of two for many MPP facilities. Industry experts have estimated this based on their experience in designing and constructing BAT and pretreatment facilities. In the Compliance Cost Methodology for the MPP Proposal Rulemaking – Doc MP00301, pages 30 through 40 – EPA provides the CAPDET output capital and O&M costs in tables for each process category and for each of the proposed three options. In Appendix C of these comments, we have provided tables with the cost curves that we have generated from them. In comparing these costs to a few MPP facilities, the “real world” actual and budgeted costs are many times higher than what EPA has concluded in the proposed rule. We are continuing to gather further cost information from the MPP facilities and intend to provide this information to EPA after the comment period.

EPA's Compliance Cost Methodology for the MPP Proposal Rulemaking – Doc MP00301 – also suffers from the following errors:

- In the following paragraphs (that discuss Table 1 through 4), EPA has depicted the concentrations in the effluent that they used in the CAPDET Model to determine the size of the treatment system and the resulting costs. EPA refers to these as treatment targets. Many of these effluent concentrations are higher than the statistical long-term averages (LTA) used to calculate the proposed limits. This is contrary to customary design and operation of treatment systems. To assure compliance with the statistically calculated limits, the targeted effluent concentrations should be significantly lower than the LTA.
- Table 1, Page 3, P with Partial N Treatment for Direct Dischargers Target Effluent Pollutant Concentration – This table depicts inputs into the CAPDET model for the system to treat effluent down to a certain concentration for the various contaminants. Total Nitrogen (TN) is shown in the table to be higher than the statistical calculated long-term average (LTA) of limits, and for some other analytes the “treatment

- targets” are also higher than the proposed limits. In essence, because EPA is predicting less treatment than would actually be required to comply with the proposed limits, the CAPDET cost is much lower than the MPP real world costs would be.
- Table 2, Page 4, P with Full N Treatment for Direct Dischargers Target Effluent Pollutant Concentration – Consistent with Table 1, the effluent target for TN and P are shown to be higher for Meat and Rendering than the calculated LTA. For example, the LTA for TN is 6.50 mg/l and the target effluent number for Meat First and Meat Further is 15.2 mg/l and for Rendering is 26.2 mg/l. As in Table 1, the Capdet cost in Table 2 is also considerably lower than the MPP real world costs would be.
 - Table 3, Page 4, Indirect BOD, O&G, and TSS Target Effluent Pollutant Concentration – Similarly, the BOD and TSS for Meat First and Rendering in Table 3 are much higher than the calculated proposed LTA. For example, the LTA for BOD is 903 mg/l and the CAPDET target effluent number for Meat First is 1,420 mg/l and for Rendering is 3,090 mg/l. Once again, EPA’s CAPDET cost estimate is significantly lower than the MPP real world costs would be.
 - Table 4, Page 5, P with Full N Treatment for Indirect Dischargers Target Effluent Pollutant Concentration – The target TN and P are shown to be higher for Meat First and Meat Further than the long-term average. For example, the LTA for TN is 6.50 mg/l and the target effluent number for Meat First and Meat Further is 15.2 mg/l and for Rendering is 26.2 mg/l. This results in the CAPDET cost underestimating the actual MPP real world costs. There would be no significant BOD or TSS in effluent if TN is required for indirect dischargers. This would be a major problem for many POTWs and would likely result in passthrough of pollutant loads from other dischargers and/or interference in POTW treatment system operations.
 - Section 2.2, Page 5, High Chloride Wastewater – Zero discharge evaporation is not practical for most MPP facilities. EPA discusses arid areas of the country that could utilize natural evaporation systems. EPA states that an option is deep well injection that can be used, however these options would rarely be available in the vast majority

of areas in the country. The other options of forced circulation evaporation and crystallization system should not be considered as a practical or reasonable option for most MPP operations.

- Table 9, Page 15, Untreated Wastewater Characteristics for MPP Process Wastewaters by Type of Processing Used in CAPDET – EPA has not provided any details how these concentrations were determined. When comparing Table 9 to Table C-1. Influent Long-term Average Concentrations for the Loading Analyses of the document Pollutant Loadings and Removals Methodology for the Meat and Poultry Products Proposed Rulemaking DCN MP00302, there is no consistency in the concentrations of the pollutants. For many parameters such as BOD, the concentrations used to calculate the loadings are significantly higher than the concentrations used by the CAPDET to estimate the costs. This appears to result in EPA estimating a high level of pollutant loading being removed while estimating cost of the treatment systems to be lower. Because the backup data and calculations are claimed to be CBI, we have no way of checking to perform an evaluation of how this was done. This inconsistency must be corrected.
- Table 11, Pages 16-18, - CAPDET Costs Data for MPP Process Wastewater Technology Systems – This table identifies modifications that were made to the CAPDET by EPA, and many of the modifications are not justified in the docket. An example is that EPA has presented percent removals for a DAF based on different process categories. EPA has not provided detailed information or support documents on how these were developed.
- Section 4.1.4, Page 19, Other Direct and Indirect Costs - EPA has used Plant Design and Economics for Chemical Engineers (Peters, 1991) to estimate the other direct and indirect costs to be added to the capital costs estimated by CAPDET. CAPDET appears to provide the direct costs of purchased equipment delivered and installed, and further capital costs are estimated pursuant to a table in a 1991 reference. EPA appears to make substantial errors in following the reference to build toward total capital investment. We discuss this issue in detail in the next section of our comments.

- Appendix 1, Pages 30 – 52, CAPDET Output: Capital and O&M Cost Equations - EPA presented general predicted cost from CAPDET for model facilities but did not show how the cost was calculated for any actual facility. EPA has claimed this information to be CBI, yet this information is highly important to the development of meaningful comments.

B. The Impacts of EPAs Misuse of the CAPDET Model Will Be Severe for the MPP Industry.

The industry expects that the problems with the Agency's misuse and misapplication of the CAPDET model could be far-reaching for the industry. Among the specific and most egregious examples of this is EPA's adjustment of the model to have only a 1-day retention time in an anaerobic treatment lagoon. One day retention in an anaerobic lagoon would not provide any treatment benefits. Based on the heavy pollutant loads from the MPP facilities the anaerobic systems in today's well designed and operated plants typically range from 10 to 20 days of retention time. For a one million gallon-per-day facility, this would equate to a 10 to 20 -million-gallon capacity in this treatment unit.

Since EPA references the treatment units possibly being 12 or 15 feet deep, a typical facility today would have to expand its retention area by 2.5 to 5 acres to accommodate the anaerobic system itself. EPA's cost estimates do not appear adequate to include all the cost of obtaining neighboring properties or reallocating a facility's use of its own land, assuming either of these options were even possible. If necessary new land was available for purchase in an urban area, it could easily cost several hundred thousand dollars per acre to acquire. Also, the additional cost of simply building a 10-to-20-million-gallon anaerobic lagoon could easily be three to five million dollars, which EPA has not considered.

Many MPP indirect dischargers subject to the proposed PSES requirements are located in urban areas, and they will not have the space available on site or for purchase within the next couple of years. Many also would face land use or setback restrictions in seeking to establish a larger wastewater treatment lagoon on their or adjacent property in an urban area. Also, the ability of a private party to secure easements for force main or gravity sewer line to transfer wastewater to another site is difficult at best. This also will be the case for some directly discharging facilities.

The industry believes the Agency has failed to account for all that will be necessary for MPP facilities to meet the proposed treatment limits. The Agency has undersized some of the treatment units, failed to recognize the need for additional treatment units, and failed to account for all the associated O&M costs. We estimate that these errors in EPA's analysis would increase estimated compliance costs by at least a factor of two.

C. Four Additional Ways in Which EPA Underestimates Compliance Costs.

The following are additional errors EPA appears to have made in estimating compliance costs:

1. EPA appears to substantially underestimate other direct and indirect capital costs.

EPA's terse description on page 19 of the Compliance Cost Methodology paper on how the Agency estimated these costs is difficult to follow. We have obtained the reference (Peters, 1991) and Table 17 in that reference, from which EPA derived many of the Agency's other direct and indirect capital cost factors. We have reproduced Table 17 and included it as Appendix D to these comments. Our discussion on how EPA has used this reference to estimate other direct and indirect capital costs will be easier for the reader to follow if s/he reads our discussion side-by-side with Table 17 in Appendix D.

We assume that EPA used the figures from the "Fluid processing plant" column in the reference, as that seems to be a much more similar sort of plant to the wastewater treatment plants that EPA is costing than the solid or solid-fluid sorts of plants that are also addressed in the reference. We have the following questions or observations about EPA's procedures in using the figures given by the reference for a Fluid-processing plant. With regard specifically to Other Direct costs:

- EPA states that the Agency applies adjustment factors to the CAPDET model costs for the other direct costs so to account for "instrumentation and controls, piping, electrical and land", four of the eight sorts of other direct costs given in the reference. EPA makes no mention of the other four categories of direct costs cited in the reference: installation, buildings, yard improvements and service facilities.

- CAPDET does apparently include costs for installation and for buildings, but not for yard improvements and service facilities (see “Construction” section at bottom of page 13 of the Cost Methodology paper indicating what CAPDET covers). As the Peters reference describes in the pages previous to Table 17 what yard improvements and service facilities represent, they will clearly be needed for a new and potentially large wastewater treatment system. In our view, EPA must include the cost factors for yard improvements (10% cost increase over PEC, purchased equipment cost, delivered) and service facilities (70% cost increase over PEC) or explain why the Agency is choosing to use some portions of the cost factors that the reference recommends and not others. If EPA believes in fact that yard improvements and service facilities are not needed and can justify this, then the 10% and 70% figures for these two items cannot be included in the denominator from which EPA estimates that the four yet-to-be-added sorts of other direct costs (instrumentation and controls, piping, electrical and land) account for only “approximately 26% of the direct capital costs”.
- Assuming that CAPDET includes PEC, installation and buildings (total of 165% as per the reference table 17), then the to-be-added additional sorts of other direct costs (instrumentation and controls for an additional 18%, piping for 66%, electrical for 11% and land for 6%) plus yard improvements (10%) and service facilities (70%) would add 181/165 or 110%, not 26% as the Agency estimates, to the capital costs estimated by CAPDET. Or, if EPA wishes to pick and choose from the agency’s reference and contends that yard improvements and service facilities are not needed, then the four additional sorts of other direct costs that the Agency does believe should be included would add 101/165 or 63 % -- again much more than 26% -- to the capital costs estimated by CAPDET.
- We believe that land should be treated differently (and the updated 2003 version of the Peters reference does indeed treat it differently) and will discuss it separately in the next portion of these comments. Omitting land from the Other Direct costs calculation, the costs to be added, including yard improvements and service facilities, would add 175/165 or 106% to the capital costs estimated by CAPDET. This contrasts with the Agency’s figure of adding only 26%.

EPA then makes additional questionable decisions in adding indirect and other costs to the total direct costs:

- EPA apparently agrees that engineering and supervision, construction expenses, contractor's fee and contingency should be added to the total direct capital costs, as the reference suggests. EPA states that adding these four varieties of indirect costs will add 43% to the direct capital costs. Although EPA does not provide this figure, we believe the Agency therefore calculates the total capital investment as:

$$(CAPDET\ costs\ x\ 1.26)\ x\ 1.43 = 1.64\ x\ CAPDET\ costs$$

- We do not understand why the Agency does not also include the working capital expense that the reference states will add another 15% to the total fixed-capital investment. We agree with the reference – design and construction costs will need to be financed during the year-plus that design, contracting, ordering, delivery and construction is assumed to take. Fifteen percent is a reasonable estimate for the cost of this construction financing and the reference's assumption that financing will occur via working capital rather than a construction loan is reasonable also. We believe that 15% for construction financing should be added, as the reference indicates.
- We then suggest adding indirect costs as follows. Using the figures provided by the reference, CAPDET costs include 100 for PEC delivered plus installation (47) plus buildings (18) for a total of 165. To this we have already added 175 in other direct costs, including instrumentation and controls (18), piping (66), electrical (11), yard improvements (10) and service facilities (70) for a total direct costs total of 340.² To this total we add 33 for engineering and supervision and 41 for construction expense, bringing the total direct and indirect costs to 414. The estimated total direct and indirect capital costs are thus $414/165 = 2.51$ times the capital costs estimated by CAPDET.
- Further costs are then estimated by the reference as additional percentages to be added to the total direct and indirect capital costs. The contractor's fee adds an additional 5% and

² Matching the subtotal of 346 shown in the reference as total direct plant cost, less the 6 for land which we suggest addressing separately.

contingency adds an additional 10%. This brings the fixed-capital investment that we estimate to be 1.15 x total direct and indirect capital costs, or $1.15 \times 2.51 = 2.89$ times the capital costs estimated by CAPDET.

- Finally, we add the working capital cost as the reference suggests at 15% of fixed-capital investment, bringing the total capital investment to $1.15 \times 2.89 = 3.32$ times the capital costs estimated by CAPDET.

In summary, excluding land, EPA apparently includes other direct capital costs and indirect capital costs in a manner so as to calculate total capital investment as 1.64 x CAPDET costs. This figure calculated by EPA is much lower than is indicated by EPA's reference, as discussed in the preceding paragraphs. We suggest instead including the larger set of other direct and indirect capital costs consistent with what EPA's reference indicates, bringing total capital investment to 3.32 times the capital costs estimated by CAPDET.

This set of changes to EPA's procedures for adding other direct and indirect capital costs alone would slightly more than double EPA's capital cost estimates, increasing them by a factor of 2.02 ($3.32/1.64$).

2. EPA should account for land costs in a different manner than the Agency has proposed.

The Peters, 1991 reference included land costs in Other Direct capital costs in an amount equal to 6% of Purchased Equipment Cost, and EPA apparently adopted this approach in the Agency's cost estimate. This approach is far from adequately representing what will often be substantial land costs when MPP facilities make the capital investments involved in constructing the required wastewater treatment facilities. Some of EPA's anticipated treatment technologies such as anaerobic lagoons or chloride crystallization areas can require several acres for a high flow MPP facility. The costs of acquiring additional land or the implicit cost of dedicating already-owned land for these purposes must be recognized and accounted for in a reasonable manner.

EPA has sufficient information with which to generate a realistic estimate of land cost for each treatment technology needed by each MPP facility for which the Agency develops an individual cost estimate. CAPDET and other sources can provide estimates for the amount of

land needed for each treatment technology as a function of the facility's process wastewater flow.³ EPA knows the exact location of each facility and can judge whether the location is urban, rural or something in between. Many sources are available that can provide average values per acre for land of different types in different locations. For example, USDA provides estimates for the value of farmland in each State, and Albouy, Ehrlich and Shin estimate the value of land in many urban areas in a paper in *The Review of Economics and Statistics* (2018).

A recent listing of more than 5,000 industrial lots around the U.S. found an average asking price of about \$65,000 per acre (<https://www.landsearch.com/industrial/united-states>). Another national study by CBRE found that sales prices in 2017 for industrial/commercial lots suitable for warehousing near metropolitan areas exceeded \$500,000 per acre. Or, if EPA were to believe that a general reference of this sort is not available with which to value the land needed in some particular location, the Agency could access the implied market value for land based on the assessed value assigned by the local taxing authority.

EPA also knows from responses to the detailed MPP survey questionnaire whether a facility already owns sufficient land for additional wastewater treatment or would need to acquire such land or in some cases would be unable to buy and devote additional land to a wastewater treatment facility because setback requirements or some sort of local ordinance. EPA could assign a price per acre that includes transactions costs in instances where the facility would need to purchase additional land, and a value that does not include transactions costs as the shadow price of land for a facility that would need to devote some of its currently owned land to wastewater treatment. EPA perhaps should assume some land cost per acre that is much higher than the local market value in cases where a local ordinance makes expanding the wastewater treatment plant difficult, yet the new system must be in place and operational within the 3-year compliance deadline.

Without access to EPA's questionnaire response information on land availability for MPP facilities and sufficient time for analysis, we cannot estimate how much our more accurate approach to land costs would increase the Agency's capital cost estimates, but we expect the

³ Note that in many instances we believe there will need to be more or larger treatment units than EPA estimates in order to meet the proposed effluent limits. For example, we believe that 10 to 20 days of retention time will often be needed for anaerobic lagoons, in contrast to EPA's assumption that one day of retention time will suffice. WE thus believe in this instance that 10 to 20 times as much land will be needed as EPA estimates.

impact would be substantial. For example, EPA includes land costs in total capital costs at a rate of only \$6 in land costs for every \$164 in total capital costs, or 3.7% (see our discussion in the previous section about how EPA builds total capital costs starting with purchased equipment costs).

3. EPA must justify the Agency's unusually long assumption for the useful life of capital equipment.

EPA assumes that 70% of the capital equipment installed in order to comply with the regulation will have a useful life of 20 years and 30% will have a useful life of 40 years. The 40-year useful life assumption for a portion of the capital investment is unusually long. In our experience, we have seen useful life estimates exceeding 20 years only for exceptionally long-lived sorts of capital equipment such as storm and sanitary sewer mains which will not be a part of the compliance investment by MPP direct or indirect dischargers. EPA should justify the 40-year portion of the Agency's assumption or adopt the much more traditional assumption of 20-years for all capital equipment.

The Agency indicates on page 3-3 of the Regulatory Impact Analysis that the 20/40-year assumption is "As explained in the TDD". We cannot locate in either the TDD or the more detailed Compliance Cost Methodology paper any discussion of the Agency's useful life assumptions. We would appreciate knowing EPA's rationale.

Note that a 20-year useful life assumption for 100% of capital will increase annualized capital costs by about 12% at the 3% social rate of discount that the Agency applies, relative to EPA's assumption of 20 years for 70% of capital investment and 40 years for 30%.⁴ Absent a persuasive justification by EPA for the assumed 40-year useful life for 30% of capital equipment, we would suggest assuming a 20-year useful life for 100% of capital equipment and thereby increasing the Agency's estimated capital costs (at a 3% discount rate) by 12%.

⁴ The capital recovery factor – CRF – for a 40-year useful life at 3% interest rate is 0.0433. The CRF for a 20-year useful life at 3% interest rate is 0.0672. The weighted average CRF, 70% for 20 years at 3% and 30% for 40 years at 3%, is 0.0600. The CRF for 20 years at 0.0672 is about 12% greater than the weighted average CRF of 0.0600.

4. The MPP rule will impose compliance obligations perpetually, not for only 40 years. EPA should estimate costs accordingly.

EPA extends the Agency's cost analysis only 40 years into the future, thus ignoring the costs that will occur in years farther into the future. This chosen cutoff date conveniently avoids accounting for the large slug of capital costs that will occur beginning in year 41 to replace the 40-year useful life capital equipment and to replace for a second time the 20-year useful life capital equipment. Ignoring future costs in this manner is not appropriate. The regulation will not require compliance and thereby impose costs for only 40 years, it will require costs perpetually and impose costs perpetually. EPA should estimate costs accordingly.

It is not difficult to estimate the impact of EPA omitting compliance costs that will occur after year 40. Table 3-2 in the Regulatory Impact Analysis provides the necessary information. For Option 1, for example, EPA estimates the present value of 40 years' worth of costs at \$5,359.4 billion and the corresponding annualized cost figure to be \$231.9 million per year. If instead this annualized cost of \$231.9 million per year were to be incurred perpetually, it would have a present value of \$7.73 billion.⁵ This \$7.73 billion present value cost for a perpetually applicable regulation is 44% higher than EPA's present value of \$5,359.4 billion for an Option 1 regulation that expires at the end of 40 years.⁶

D. Combined Impact from the Multiple Ways EPA Underestimates Compliance Costs.

In sum, we believe that EPA has underestimated compliance costs in at least five ways:

- Costs will be at least double what EPA estimates, to account for more and larger equipment that will actually be needed to meet EPA's limits (Section V.A. and V.B. above)

⁵ \$231.9 million/0.03 = \$7.73 billion

⁶ The percentage increase to EPA's estimated annual costs that would occur upon properly reflecting the perpetual, not time-limited, compliance obligation imposed by the regulation will differ from option to option as a function of the relative balance for each option between capital and O&M costs. For Option 2, for example, extending the compliance cost analysis in perpetuity rather than cutting it off at 40 years would increase estimated costs by 45% rather than the 44% for Option 1.

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- Capital costs should be increased by a further 102% (slightly more than doubled) to account for EPA’s errors in failing to reflect other direct and indirect costs as the Agency’s reference indicates should occur. (Section V.C.1. above)
- Land costs are likely underestimated, but we cannot estimate by how much without more time and access to further key information from EPA. (Section V.C.2. above).
- Correcting EPA’s unusual assumption about the useful life of capital equipment would increase capital costs by a further 12%. (Section V.C.3. above).
- Total social costs of compliance (combining both capital and O&M costs) should be an additional 44% higher to reflect the fact that compliance with the regulation is required forever rather than ending after 40 years. (Section V.C.4. above)

In table form:

Reason for Change to EPA Cost Estimates	Factor to Multiply By	Costs to Apply to	
		Capital	O&M
1. More and larger equipment needed to meet proposed limits	At least 2	Yes	Yes
2. Correct other direct and indirect capital costs per EPA reference	2.02	Yes	
3. Accurately estimate land costs	Unknown	Yes	
4. Assume 20-year useful life for all compliance capital investment	1.12	Yes	
5. Estimate costs for continuing required compliance, not for only 40 years	1.44	Yes	Yes

Applying these factors to the capital costs that EPA has estimated, we believe that capital costs will be at least 6.5 times what EPA estimates ($2 \times 2.02 \times 1.12 \times 1.44 = 6.52$). Operating and maintenance costs will be at least 2.88 times what EPA estimates ($2 \times 1.44 = 2.88$). The degree to which EPA has underestimated total costs then depends on the fraction of total costs accounted for by each of capital and O&M costs. EPA has not provided information in an easily accessible manner on the amounts of costs individually for capital and for O&M, nor has the Agency provided information on the proportion of total costs accounted for by each. If we assume, though, that capital costs account for half of total costs and O&M costs for the other half, then total costs for compliance with the regulation might be about 5 times what EPA has

estimated for total costs ($\frac{1}{2} \times 6.5 + \frac{1}{2} \times 2.88 = 4.7$). We will use this factor of five applied to EPA's estimated compliance costs in projecting in the next section of these comments the economic impacts that will likely result from these costs.

VI. ECONOMIC ANALYSES

A. EPA Has Underestimated Facility Closures and Job Losses from the Proposed Rule

The Agency's economic impact analysis should be improved to better simulate the likely tax status and financial decision-making process by the owners of a facility that has lower profitability and that may be threatened with closure by the projected costs to comply with the proposed rule. We suggest specifically that EPA modify the analyses leading to the Agency's facility closure estimates – the cost-to-revenue (CTR) comparisons and the discounted cash flow closure tests – to reflect two changes:

- First, the Agency should assume that a lower profitability and financially vulnerable facility for which the owners are seriously considering closure due to regulatory compliance costs will enjoy no tax shield from compliance spending.
- Second, when deciding whether to make a long-term investment in the wastewater treatment capital equipment needed to comply with the ELGs and continue operating a financially vulnerable facility, the owners will apply a risk premium -- a hurdle rate of return that is significantly higher than the weighted average cost of capital for the MPP industry generally.

We suggest these changes so as realistically to portray a facility owner's decision process as it would be in the circumstances under which closure of the MPP facility is a real possibility.

A facility that installs and operates wastewater treatment equipment will report lower taxable income resulting from the annual depreciation of the capital investment, from interest paid on any debt used to finance the capital investment, and from the annual expenses to operate and maintain the equipment. These compliance-related accounting costs will shield some of the facility's income from taxation. But if the facility has relatively low profits and is economically vulnerable such that it could perhaps close as a result of compliance costs, the facility will likely

not have enough taxable income to use the potential tax shield from compliance spending. The conservative way for EPA to perform both the facility-level screening analysis and the discounted cash flow closure analysis would be to assume no tax shield from compliance spending. Said another way, the best way for EPA to assess whether a facility might close due to regulatory costs is to simulate the facility closure decision given the near-zero profitability conditions under which the facility really might close due to regulatory costs.

EPA has argued in the economic analysis for other effluent guidelines that the full tax shield is likely to be available for a profitable corporation that owns multiple facilities even though one of the facilities may be vulnerable to closure. The potential tax shield generated by compliance spending at the vulnerable facility can be used to reduce taxable income at the corporate level. We do not believe this possible justification for assuming a tax shield in closure analysis for facilities owned by multi-facility corporations should apply for the MPP closure analysis for two reasons:

- The great majority of MPP facilities do not have an “ultimate parent” owner that differs from the immediate owner of the facility. The great majority of MPP facilities – likely 80% or more -- are “stand-alone” economic entities⁷ where there are no other facilities under the same ultimate ownership across which the tax shield from compliance spending at the vulnerable facility might be used.
- Even for the minority of MPP facilities that are owned by a multi-facility ultimate parent, there will be a strong tendency for the ultimate parent to evaluate the potential closure of a facility on a stand-alone basis. A multi-facility company will not likely use the profits from other facilities to subsidize a facility that seems on its own to warrant closure unless that facility somehow provides important

⁷ For the 3,879 MPP facilities that EPA estimates discharge process wastewater, there are 3,114 ultimate parent economic entities (corporations, partnerships, LLCs, etc.) that own them. (See Table 4-3 in the RIA.) We calculate that the lowest possible number of “stand-alone” MPP facilities is thus 2,349 or 61% of all the MPP facilities. (The lowest possible number accrues if 765 entities each own 2 facilities – thus 1,530 facilities owned by a multifacility owner.) Given that there seem to be at least a dozen companies that own 20 or more MPP facilities and therefore that at least 240 facilities are not “stand-alone”, we would ballpark guess that 80% of more of EPA’s 3,879 discharging MPP facilities are “stand-alone”.

corporation-wide benefits that are not reflected in the individual facility's economics.

We estimate that the value of the tax shield that EPA applies in the CTR screening analysis, and the closure analysis might be somewhere around 10% of annualized pre-tax compliance costs. EPA does not provide sufficient information in Sections 3 and 4 of the Regulatory Impact Analysis for one to determine the exact impact of the tax shield alone. EPA's estimated after-tax compliance costs shown in Table 4-1 are about 7 to 10 percent lower than the estimated pre-tax total social costs shown in Table 3-1 and about 7 to 8 percent lower than the pre-tax social costs estimated using a 7% discount rate shown in Appendix A of the RIA. We presume that nearly all of the difference between the pre-tax and after-tax figures shown in these tables is likely due to the tax shield.

In sum, we suggest that the post-tax shield facility compliance costs that EPA applies in the CTR and discounted cash flow closure analysis should be increased by about 10% to reflect the fact that no potential tax shield will be relevant when an owner makes a comply or close decision for an economically vulnerable facility.

A second issue that EPA should consider when simulating decision-making about the potential closure of a vulnerable, lower profitability facility is the risk premium that the owner will demand in order to make a long-lived capital investment in such a facility. When asked about this, several MPP financial executives from different companies said they would apply a hurdle rate of return in evaluating such investments that is well above the company's average cost of capital. The highest response was 20%/year.

If we assume that a facility owner considering a long-lived compliance capital investment at a vulnerable facility will apply a discount rate of 12%, then the annualized capital costs of the compliance investment will increase by about 40% relative to the annualized capital costs that would be figured for the same investment when considered for a routinely profitable, non-vulnerable facility. Note that we are not saying that actual capital costs will increase by 40%, but instead that the risk premium the decision-maker will apply in considering the compliance investment in a baseline vulnerable facility might be roughly equivalent to increasing the compliance capital costs in the decision-maker's analysis by about 40%.

The combined impact of these two changes to better simulate decision-making for a vulnerable facility threatened with potential closure would be to increase the compliance costs that are applied in the CTR and closure analyses by about 30%. This approximately 30% figure consists of an increase of 10% to account for unavailability of the tax shield and 40% for the risk premium applied to capital costs, and then assuming again that capital costs are about half of total compliance costs.

We estimated in Section IV of these comments that compliance costs are likely to be roughly five times the amounts that EPA has estimated. This factor of five increase applies for compliance costs measured as social costs at a discount rate of 3%. This is the manner in which EPA estimates the compliance costs that are reported in the preamble and in most other places in EPA's supporting documents. However, the compliance costs that EPA enters into the CTR and discounted cash flow closure-related analyses are different, representing the compliance costs as they would be faced by the owners of an MPP facility, and these are estimated at a private discount rate of 7.6% per year rather than at the social discount rate of 3%/year. Two adjustments that are included in our estimated 5 x factor need to be revised downward to reflect the higher discount rate at which the closure analyses involving private costs is conducted:

- The 12% capital cost increase that we calculated to result at a 3% discount rate from reducing the useful life assumed for capital equipment would decline to a 6% capital cost increase at a 7.6% discount rate.
- The 44% increase in total costs that we calculated at a 3% discount rate to result from switching from a 40-year time-limited compliance cost analysis to an analysis that assumes a perpetual compliance obligation would decrease to a 5.6% cost increase at a 7.6% discount rate.

For the closure analyses involving private costs and conducted at a 7.6% discount rate, we calculate that EPA should increase the estimated costs for each facility by a factor of 4.6.⁸

⁸ This figure is calculated as follows.

For capital costs, we previously calculated in Section IV that EPA's estimated capital costs should be increased by a factor of 6.52. For the capital costs to be applied in the CTR and closure analyses, however, incorporating a discount rate of 7.6%/yr, we now modify this further by applying factors of 1.1 (reflecting unavailability of the tax

How might increasing the costs entered into these analyses by a factor of 4.6 change the projected numbers of MPP facility closures and near-term job losses that would result from the proposed ELGs? There are likely some non-linearities and discontinuities in the relationships between the compliance cost inputs to these analyses and the resulting projected output numbers of closures and job losses.

We have requested EPA to provide specific additional detail for public review on some interim steps and on the conclusions of these analyses that would allow us to better understand these relationships and how projected impacts would change with revised cost inputs. EPA provided this requested further detail on March 21 in a memorandum to the record that the Agency has placed in the Docket. This information became available to us only four days before the close of the public comment period, after our analysis of EPA's proposal had been completed and after nearly all of our comments had been prepared. We greatly appreciate EPA's effort to clarify and expand on the Agency's analysis with this additional information.

However, we are obviously not able in the time available before the close of comments to review and analyze this important additional information and reflect our analysis in our comments by the March 25 deadline. We intend to analyze this information and provide further supplementary comments to the Agency after March 25 but within the next several months. In our view, the fact that EPA did not include this important information in the Agency's supporting documents for the regulation and/or the original Docket submittals and then needed nearly the

shield) x 1.4 (reflecting the risk premium) x 0.946 (1.06/1.12 to correct for the lesser impact of reducing the useful life assumptions at a discount rate of 7.6% instead of at a discount rate of 3%) x 0.733 (1.056/1.44 to correct for the lesser impact of estimating costs extending forever rather than stopping at 40 years at a discount rate of 7.6% instead of at a discount rate of 3%). The result is a factor of 6.96 to apply to EPA's estimated capital costs for use in the CTR and closure analyses.

For O&M costs, we previously calculated in Section IV that EPA's estimated O&M costs should be increased by a factor of 2.88. For the O&M costs to be applied in the CTR and closure analyses, however, incorporating a discount rate of 7.6%/yr, we now modify this further by applying factors of 1.1 (reflecting unavailability of the tax shield) x 0.733 (1.056/1.44 to correct for the lesser impact of estimating costs extending forever rather than stopping at 40 years at a discount rate of 7.6% instead of at a discount rate of 3%). The result is a factor of 2.32 to apply to EPA's estimated capital costs for use in the CTR and closure analyses.

The result when we combine the factor of 6.96 for capital costs and 2.32 for O&M costs and assume that capital and O&M costs each constitute half of total costs, is a factor of 4.64 that should be applied to the compliance costs that EPA estimates for each MPP facility for use in the CTR and discounted cash flow closure analyses.

entire comment period to provide it represents further indication of the insufficiency of the 60-day comment period.

Absent any realistic possibility of reviewing this additional important information before filing our comments, we will assume simply that multiplying the cost inputs to the CTR and discounted case flow analyses by a factor of 4.6 would similarly multiply the numbers of resulting projected facility closures and job losses by the same factor of 4.6. Making this assumption, the projected number of MPP facility closures for Option 1 without chlorides would go from 16 that EPA estimates now to 74, representing about 9% of the MPP facilities that exceed the production thresholds for Option 1. The projected number of near-term job losses directly associated with these facility closures would increase from nearly 17,000 that EPA estimates in the Regulatory Impact Analysis to nearly 78,500.

The projected closures and direct job losses for the more stringent regulatory options would increase similarly. For Option 2 with chlorides, for example, the projected number of facility closures would increase from 30 to 139, nearly 15% of all the MPP facilities that exceed the production thresholds for Option 2.

Based on a detailed review of the results of EPA's closure analysis, we suspect that EPA may have projected that Option 1 would result in closure for one or more unusually large MPP facilities. The 16 facilities that EPA projects to close account for nearly 17,000 FTE/employees, an average of more than 1,000 employees per facility. This seems to us to be a high number. It may be possible that the 58 additional Option 1 facility closures that we project upon increasing compliance costs by a factor of 4.6 would not involve a similar proportion of unusually large facilities.

If we assume that these additional 58 closures average 250 employees each rather than more than 1,000 each, we would get a direct employment loss of 14,500 among these additional closures, bringing the total direct employment loss for all 74 facility closures to 31,500 (17,000 that EPA projects for the 16 closures that the Agency projects, plus 14,500 for the additional 58 closures).

We thus project that Option 1 will result in:

- Compliance costs for the MPP industry of about \$1.16 billion per year;
- Closure of 74 facilities (about 9% of the facilities that exceed the Option 1 production thresholds); and
- Direct loss of between 31,500 and 78,500 jobs.

The reduced economic activity and loss of direct jobs provided by the MPP facilities that would close if Option 1 were promulgated will also cause a loss of economic activity and jobs among:

- Suppliers to the closed MPP facilities. These losses among suppliers are known as “Indirect impacts”
- Businesses at which the employees of the closed MPP facilities would have spent or saved their incomes. These losses are known as “Induced impacts”.

The indirect and induced impacts from a direct loss of economic activity are commonly estimated by researchers by using large input-output models of the entire U.S. or regional economies. An input-output model simulates the input and output interrelationships among all the industries and sectors (households, government) comprising the economy. For any given industry, the input-output model will provide multipliers that project the indirect and the induced impacts on supplier and customer industries and sectors per dollar of economic activity in the subject industry. One well-respected input-output model is IMPLAN.⁹ IMPLAN gives the following approximate multipliers for jobs in the MPP industry. For every direct job lost in the industry, there will also be:

- 1.79 indirect jobs lost among suppliers to the MPP industry and
- 1.24 induced jobs lost among businesses with which the former MPP direct employees transacted,

⁹ IMPLAN Group, LLC. IMPLAN Application. Huntersville, NC. IMPLAN.com

- for a total of 3.03 additional jobs lost.

Applying these jobs multipliers to the projected 31,500 to 78,500 direct jobs lost from the Option 1 plant closures, we arrive at a total loss of 127,000 to 316,000 jobs throughout the entire US economy.

Summary Economic Impacts Projected from Option 1

Compliance costs	\$1.16 billion/yr
MPP facility closures	74
Direct jobs lost	31,500 to 78,500
Total jobs lost	127,000 to 316,000

B. The Surrounding Community Will Suffer Severe Impacts When an MPP Facility Closes Due to the Rule.

EPA estimates MPP facility closures due to the rule ranging from 17 (with nearly 17,000 direct jobs lost) for Option 1 without chlorides to 54 (20,300 direct jobs lost) for Option 3 with chlorides. We believe that closures and direct job losses from these two options – from EPA’s least stringent option to the Agency’s most stringent option -- will range more realistically from 74 to 340 (31,500 to 93,300 direct jobs lost). The negative economic and civic impacts to the communities surrounding these closed facilities will be severe. Negative impacts will include:

- **Direct impacts.** The loss of economic activity and jobs directly attributable to the closed facility. The lost revenues generated by the facility and the lost jobs provided by the facility.
- **Indirect impacts.** The loss of business and jobs among the former suppliers to the MPP facility, including farms, feed companies, utilities, equipment makers, a wide range of service providers (personnel, advertising, accounting, financial, consulting, health care, etc.) and more. Most of these indirect impacts will occur locally while some will occur regionally and a little will occur far away.
- **Induced impacts.** The loss of business and jobs that result from lost income and spending by the former employees of the facility and lost income and spending by those employees of supplier industries to the extent that they no longer supply

goods and services to the facility. The induced impacts will also be concentrated locally but a little will be dispersed over a wider area.

- Tax revenue losses. The direct, indirect and induced reductions in economic activity will all result in reduced tax revenues for local, State and Federal governments, including property taxes, sales taxes, corporate income taxes, personal income taxes and more.
- What we term as “civic losses”. The closed MPP facility and its owners and former employees will likely no longer engage in and support local civic affairs to the extent they did previously, including such activities as organizing local civic events, contributing to local charities, sponsoring ball teams and picnics, participating in the PTA and so forth.
- When the closed MPP facility was an indirect discharger, the closure will very often result in harmful impacts to the discharger’s former POTW, as detailed in section II.B of these comments.

The first four of these varieties of negative impacts from MPP facility closure can be quantified using input-output models of the US and regional economies such as IMPLAN, as discussed in the previous section. IMPLAN and other leading input-output models can be constructed to model the economic relationships between industries and sectors at varying geographic scales – typically for the entire U.S. economy, for sub-national regional economies or for State economies. The multipliers developed in these models relating indirect and induced impacts to direct impacts will decline as the geographic scale of the model shrinks.

The narrower the geographic scale at which the modeling occurs, the higher the proportion of indirect and induced effects that will “leak out” of the study areas. In modeling the impacts of a facility closure on the economy of the State in which the facility was located, some of the former suppliers of the closed facility are located within that State while some are located in other States. The indirect impact of the closure will be somewhat less within the State than it is within the nation as a whole. Later in this section, we use a State-specific version of IMPLAN to quantify some of the impacts within that State that likely resulted from a historical closure of

an MPP facility. This facility serves as a case example of the severe impacts that closure will bring.

Before getting to the case study, we note another important sort of negative impact that occurs when the MPP facility that closes is a third-party regional rendering plant. First and further processing MPP facilities, particularly smaller ones, restaurants and some other businesses within shipping distance of the rendering plant depend on the rendering plant to accept and beneficially process their waste organic materials. If the rule causes the closure of a rendering facility, the impacts to the MPP facilities within the region will be multiplied. MPP facilities, restaurants and other businesses will then be forced to dispose of their organic materials at the regional landfill (assuming the landfill allows for organic material disposal) at a typically higher price and adverse environmental impact.

A case example of the negative impacts from an MPP facility closure in rural Arkansas

In 2008, a medium-sized poultry first and further processing facility in Clinton, Arkansas shut down due to market conditions. This was not a regulatory closure, but the impacts from this closure were likely the same as they would have been had this been a regulatory closure.

The impacts of this MPP facility closure are detailed in a paper written by Mr. Edgar Whillock, a chicken farmer and former manager with the closed facility. Mr. Whillock has submitted his paper as a comment to the Docket for this rulemaking. We endorse his comment and in our comments here we will both summarize and extend his identification of the negative impacts from closure of this facility:

- The facility had a few more than 500 employees, representing about 25% of the population of the city, 40% of the city's workforce and more than 1/8 of the jobs now in the entire Van Buren County.
- No large MPP facility has returned since 2008 to the city. The city's population remains economically-disadvantaged, with median household income now at only slightly more than half of the national median.

- Approximately 150 local poultry farms lost their main market and source of income when the MPP facility closed. Only about 1/3 of the farmers were able to switch companies within four months. It took 18 months for Mr. Whillock’s father’s farm to contract with a new processing company. Banks and other lenders stopped guaranteeing farm loans on poultry houses, and many growers had their poultry houses foreclosed, declared bankruptcy and had their property sold. Lending stopped for almost ten years until other food producing companies got involved.
- The poultry company in 1985 had signed a 40-year contract with the city to improve the city’s failing water system. Over the subsequent years before closing the plant, the company and successive owners provided substantial tax revenues and utility payments – both water and wastewater – to the point where at the time of closure the owner company then was providing more than 60% of the city’s revenues. Since the plant closure, the city’s water and wastewater facilities have been oversized and have encountered serious operational difficulties.

We estimate using IMPLAN coefficients for Arkansas that closure of a 500 FTE poultry processing facility such as the one in Clinton would result in the following economic losses within the State:¹⁰

Economic Losses in Arkansas from Closure of an MPP Facility

	Direct	Supplier	Induced	Total
Jobs (FTE)	500	581	459	1,540
Wages	\$22,502,841	\$39,168,006	\$25,405,189	87,076,036
Economic Impact	\$178,838,266	\$133,077,500	\$66,417,120	378,332,886

Total losses, including to suppliers and to all the Arkansas businesses with whom the former poultry plant workers spent their paychecks, are some 2 to 4 times the direct loss of jobs and business when the plant closed.

¹⁰ See: What is the poultry industry’s impact in your community? At <https://www.poultryfeedsamerica.org/>

These economic losses from a MPP facility closure vastly exceed the value of any water quality improvements the local residents or residents of the State might receive as a result of EPA's proposed MPP ELGs.¹¹ We expect that most residents of the communities around an MPP facility employer would much prefer to keep the jobs than to have the water quality benefits of the proposed regulation but run the risk of facility closure and loss of those jobs.

C. EPA Provides Weak Environmental Justification for the Proposed Rule.

EPA has provided no quantitative information indicating how often MPP indirect discharging facilities contribute meaningfully to water quality impairments and how often they do not. We believe MPP indirect dischargers rarely if ever contribute meaningfully to water quality impairments or to generate pollutants that passthrough or interfere with POTWs.

EPA cites a 2021 study in which the Agency reviewed 220 indirect discharging MPP facilities and 112 POTWs that received process wastewater from them. The study found that 73 percent of these POTWs had violations of permit limitations for pollutants found in MPP wastewater, including N, P, TSS, BOD, O&G, chloride, total residual chlorine, fecal coliform bacteria and metals. EPA did not investigate the seriousness of the violations, nor the degree to which MPP indirect dischargers might have actually contributed meaningfully to the violations. Many of the POTW – MPP indirect discharger pairs appear to involve large POTWs and small MPP dischargers, which probably means that the MPP indirect discharger was unlikely to have been a significant contributor of pollutants to the POTW's permit violations. Other situations common in EPA's list and analysis involve large POTWs with sophisticated, approved

¹¹ These calculations are very "back of the envelope". EPA estimates in the Benefit-Cost Analysis monetized benefits of \$96 million per year nationally for Option 1. Assuming a U.S. population of 334 million, these benefits amount to about \$0.29 per individual per year. With a population of a little more than 3 million, Arkansas in total might receive water quality benefits of about \$0.87 million per year for Option 1.

Or we might think about benefits in Arkansas in terms of the State's share of the national total number of MPP facilities rather than population. 94 of the 6975 MPP facilities listed in the USDA/FSIS MPI Directory are located in Arkansas, roughly 1.3% of the national total. Based on this, Arkansas' 1.3% share of total national Option 1 benefits might be about \$1.25 million per year for Option 1.

If Option 1 will cause 54 MPP facility closures in total as we have estimated, then $1.3\% \times 54 = 0.7$, which would be the expected number of MPP facility closures in Arkansas. 0.7 times the wage loss or economic activity loss shown in the table above for an MPP facility closure in Arkansas would be far larger than the water quality benefits from Option 1 for the State of either \$0.87 or \$1.25 million per year.

pretreatment programs that are very unlikely to have unresolved issues with MPP discharges of conventional pollutants or nutrients.

One particular instance cited by EPA is identified as CA0053813, the massive Joint Water Pollution Control Plant in Carson, CA, which receives wastewater from 70 of the 220 MPP dischargers on EPA's list, as well as from many more industrial indirect dischargers in the Los Angeles Basin. This POTW has a very sophisticated pretreatment program, and its discharges pursuant to an NPDES permit to the Pacific Ocean. It generally has a good compliance record. One can say with confidence that the 70 indirect MPP dischargers to this system cause no significant environmental challenges for the POTW. The POTW, in fact, has been testing the addition of food waste to improve treatment in its anaerobic lagoons and the MPP effluents are likely beneficial to that treatment rather than harmful.

In our view, EPA cannot simply assume, without conducting a more detailed study, that the further restrictions on MPP discharges in this proposed rule would have any significant positive impacts on POTW's compliance. EPA would need to complete a more thorough, more definitive quantitative investigation of the relationship between MPP indirect dischargers and the POTW's other indirect dischargers to identify the source of any significant negative influent. We intend to perform a statistically representative stratified random sample survey of MPP indirect dischargers' relationships with their POTWs to investigate quantitatively whether there is any significant adverse effect on water quality or POTW operations. We do not believe there is any. Once the survey is completed, we will file additional comments on the results of the survey and expect that EPA will take those comments into consideration before finalizing any rulemaking.

We have also requested data and assistance from EPA in creating the sample frame of MPP indirect dischargers from which to select facilities for this survey, but the Agency has declined to assist us in this effort. The abbreviated public comment period and lack of willingness by EPA to provide data and other assistance are the reasons why we have not yet been able to perform this survey investigation.

We believe that MPP indirect dischargers very rarely, if ever, cause or contribute significantly to any POTW interference or passthrough. Of the eight historical "damage" cases

cited in the Environmental Assessment by EPA, in which MPP facilities were alleged to have caused POTW permit violations, none would have been prevented had the proposed ELG been in effect. The damage cases all involved spills, leaks, accidents, upsets, groundwater pollution and/or gross negligence. They did not result from inadequate treatment of conventional pollutants and nutrients in MPP wastewater.

EPA's study of water quality impairments downstream of indirect MPP dischargers that is reported in Table 4-4 of the Environmental Assessment finds that impairments downstream of POTWs with MPP indirect dischargers are more often attributed to pollutants that do not originate in any significant quantities from MPP dischargers. Note that the largest percentage of downstream impairments shown in Table 4-4 are due to pathogens. Pathogen impairments downstream of POTWs with MPP indirect dischargers are extremely unlikely to have anything to do with the MPP indirect discharges. Downstream pathogen impairments are most likely due to nonpoint sources. POTWs almost universally disinfect their effluent, and pathogens from MPP indirect dischargers, therefore, would not be discharged by such POTWs.

EPA lacks data and information to demonstrate meaningful passthrough or interference with POTWs from MPP facilities. In fact, POTWs are designed to treat and rely upon conventional pollutant loads from MPP indirect dischargers to ensure consistent and efficient operations and overall pollutant removal. While not providing any actual justification for regulating indirect MPP facilities, EPA thus also lacks legal authority and technical justification to regulate such entities for conventional pollutants.

D. EPA should evaluate affordability of the rule relative to typical or average economic conditions for the industry. Basing the analysis largely on 2021 alone is not appropriate.

EPA must use a broader range of years to portray the average economic conditions in the industry. A regulatory impact analysis should use data from typical or average years in the past to develop a forecast of the future baseline conditions in the regulated industry, against which the analysis will compare projected future conditions as they will be after compliance with the proposed regulation. Economic conditions for the MPP industry during the pandemic certainly were not typical. Much of EPA's economic impact analyses depend on data from 2021 alone, while some depends on data averaged across 2017, 2019, and 2021. EPA must choose a broader

set of years with which to represent the future baseline that is projected to exist without the regulation.

We are not able at this time to recommend a specific set of years that might be considered typical. We cannot make such a recommendation now in this set of comments because EPA has not made available until very recently some key information that we believe is needed to understand exactly how the Agency has used past years' data in constructing the Agency's affordability analyses. We appreciate the effort the Agency has made in developing this further information and making it available publicly, but it was provided only five days before the comment deadline. This has allowed much less than adequate time for industry and other interested parties to review and analyze this information and then comment appropriately after having assessed it.

Some of the key information that that Agency has only very recently provided includes information on the average revenue per pound of production that EPA uses to estimate revenues for the great majority of MPP facilities, the number of baseline closures the Agency has estimated, and the numbers of actual facilities with usable information for the discounted cash flow analysis in each of the Agency's 30 process/size class/discharge type categories. We plan to review this important information the Agency has recently made public and will provide supplementary comments in the coming months on how EPA might conduct its affordability analyses in a more accurately representational manner. In the meantime, we offer several observations.

EPA's affordability analyses are conducted largely based on 2021 economic conditions for the industry. EPA intended to base the cost-to-revenue (CTR) comparisons on 2021 data exclusively, though for 626 MPP facilities that were missing 2021 revenue information, 2020 information was obtained instead and assumed to represent 2021 revenues. EPA intended to base the discounted cash flow (DCF) closure analysis on the average of 2017, 2019 and 2021 information, but these three years' worth of data were obtained for only about 5% of the 3,113 in-scope MPP facilities, and the Agency then needed to rely on the 2021-based CTR information in order to extrapolate the small number of three-year DCF analyses to the full universe of in-scope facilities.

2021 was a very unusual, atypical year for the MPP industry. The MPP industry’s profitability and its resulting ability to bear compliance costs depends substantially on the spread between the price per pound at which meat products companies buy livestock and the wholesale price at which they sell their products. The following table shows the farm to wholesale price spreads for beef and pork for the years since 2010 (source: USDA, Economic Research Service).

Farm to Wholesale Price Spreads (cents per pound)

Year	Beef	Pork
2010 - 2016	37.4	52.1
2017	56.3	68.0
2018	69.1	61.0
2019	84.1	62.4
2020	122.0	73.6
2021	156.5	84.9
2022	90.5	78.0
2023	71.0	67.5

It is quite clear that 2021 was an outlier year, with a record high spread and likely unusually high profitability for both red meat and pork facilities. The spread has declined sharply toward more normal levels since 2021.

Similar price spread data are not available for poultry processing, since there is effectively no farm price for poultry. The vast majority of broilers are produced under contracts, where the integrator (poultry slaughter company) usually supplies chicks and feed and pays growers a per-unit fee for the birds they produce (USDA, ERS). Despite the lack of regularly collected price spread data for poultry, poultry market observers report similarly as for beef and pork that 2021 was an exceptionally good year that far exceeded typical industry profitability:

From spring 2021 until spring 2022, the integrators were in the driver’s seat. LEAP Market Analytics – comparing prevailing spot market values for products to transparent cost metrics available for feed and other inputs

necessary to the production process – estimates industry-wide net returns averaged more than 25 cents per pound on a ready-to-cook (RTC) basis during that period. The cycle peaked in May 2022, with an industry average profit of nearly 50 cents per pound. By the winter, however, integrators were suffering losses of more than 30 cents per pound. This was due to a demand collapse for key product categories. Input costs are down some, but the domestic broiler industry remains deep in the red due to persistent sluggishness in the boneless, skinless breast meat and wing markets. May 2023 might represent nine consecutive months of losses for the broiler industry. Losses are close to 15 cents per pound. Conditions haven't been this dire since at least 2011. (WATTPoultry)

Given the very atypical character of 2021 and EPA's limited amount of MPP facility revenue information for any year other than 2021, the Agency might think about pursuing some additional and different ways to assess affordability of the regulation. Perhaps EPA could collect revenue information for 2023, a year that seemed to be approaching more normal conditions.

Another point that EPA should be aware of and should reflect in the Agency's affordability analyses is the very low profit margins that MPP companies typically have. Pretax profit margins in the MPP industry usually amount to only three, four or five percent of revenues, in contrast to the much higher margins in other manufacturing industries. Traditional EPA rules of thumb about the levels of pollution control costs that might be tolerable (e.g., thresholds for concern over small business impacts beginning only when pollution control costs reach 1 percent or 3 percent of revenues) should be reassessed for such a low-margin industry.

VII. ADDITIONAL COMMENTS

A. The Meat and Poultry Products ELG Threatens to Disrupt the Biden Administration's Top Priority Initiative for Small and Medium-Sized Meat and Poultry Processors.

In its current form, the MPP ELG proposal appears to work at cross purposes with the Administration's priority to increase the number and competitiveness of independent small and medium-sized meat and poultry processing operations. The US Department of Agriculture has launched a major effort with a planned investment exceeding \$1 billion to achieve this objective. The Small and Medium-Sized Processor Initiative has aimed to help processors, particularly in rural areas, gain access to capital, infrastructure, technical assistance and other resources.

USDA has identified an urgent need to accomplish a range of important outcomes through its ambitious program, including:

- diversifying the processing industry;
- creating stable, well-paying jobs in rural regions;
- increasing producer income; and
- providing the nation’s consumers with a more resilient food supply chain.

We believe that the proposed ELG would thwart the Biden administration’s efforts and limit or reverse these outcomes for small processors, rural job creation, producer livelihoods and a resilient food supply chain.

USDA/FSIS defines meat and poultry establishments or facilities into size classes as shown in the table below. Establishments with 500 or more employees are classified as large, those with fewer employees are classified as small or very small. The table also shows for each size class the number and percentage of the 6,121 facilities in the FSIS Meat, Poultry and Egg Inspection Directory (MPI)¹² for which size information is available.

MPI Establishments by Size Class

Establishment Size	# Employees	# of Establishments	% of Establishments
Very small	< 10	484	7.9%
Small	10 to 499	2,795	45.7%
Large	≥ 500	2,842	46.4%
Total:		6,121	

USDA’s initiative aims to increase the number and competitiveness of meat and poultry processors that are smaller than 500 employees. However, EPA’s proposed size thresholds for applicability of the ELG requirements extend far into the smaller facilities/establishments in the MPI Directory. The table below shows how small (in USDA terms) the facilities would be that

¹² The MPI has been one of the most important data sources that EPA has used to develop the Agency’s comprehensive national list of MPP facilities that might be regulated under the ELGs. More than 2,200 of EPA’s ultimate estimates of 5,055 MPP facilities were found only via the MPI and were not identified in any of the other data sources that EPA used in compiling the Agency’s total.

would be caught up by the rule and regulated under EPA’s proposed Option 1 because they exceed the Agency’s Option 1 thresholds.

Process Type	Applicability Threshold (million lbs/yr)	Avg. Labor Productivity (lbs/yr/employee)*	Avg. Size of Facility at Threshold (# employees)
Meat first	50	600,000	83
Meat further	50	300,000	167
Poultry first	100	500,000	200
Poultry further	7	90,000	78
Rendering	10	197,000	51

* Estimated from the average labor productivity figures shown in Table 7-1 in the Regulatory Impact Analysis for a facility of each process type at the threshold production level

To appropriately interpret this table, we assume that EPA’s average figures for labor productivity (lbs/yr/employee) by process type and production size, for “meat first” facilities the Agency’s Option 1 regulatory applicability threshold of 50 million lbs/yr of production (live weight killed) would extend down so far into USDA’s small facilities as to catch and regulate facilities with as few as 83 employees. For each of the other 4 MPP process types, EPA’s Option 1 thresholds would similarly extend well into what USDA considers to be small facilities. EPA’s Option 3 thresholds – uniformly 5 million lbs/yr for each of the five processes – would extend even deeper into the USDA small facilities.

EPA does not need to set the proposed thresholds as low as the Agency has elected to do. The following table that we have constructed using information in the Agency’s Technical Development Document pages 22-32 shows that EPA could increase the applicability thresholds very substantially for each of the five process types yet still regulate the great majority of production for each process type.

Impact of Alternate Thresholds

Process Type	Option 1 Applicability Threshold (million lbs/yr)	Alternate Higher Threshold (million lbs/yr)	% of Production That Would Still be Regulated
Meat first	50	200	96%
Meat further	50	100	63%
Poultry first	100	200	93%
Poultry further	7	100	74%
Rendering	10	100	95%

In summary, based on our analysis, EPA’s proposed production thresholds for the proposed rule across all 3 options, even for the least restrictive Option 1, extend substantially into the universe of what USDA Food Safety and Inspection Service (FSIS) defines as small establishments. EPA has utilized the MPI to inform its survey of the MPP industry and make assessments regarding the potential impacts on facilities of various sizes associated with Options 1 through 3. While the agency notes it has taken steps to “avoid significant impacts to small firms,” our preliminary evaluation indicates that the agency has not fully accounted for new burdens on smaller, independent establishments in key subcategories.

For nearly all the MPP ELG subcategories in Option 1, EPA’s production thresholds could impose significant burdens on small firms based on the proposed production thresholds.

CONCLUSION

For the reasons set forth above, EPA should take the following actions in response to this proposed rule:

1. Provide additional information requested by the MPP Coalition, including studies that could readily be conducted to confirm the various bases for its proposal, correct errors, and either:
2. focus specifically on direct discharging facilities (dropping all standards for indirect dischargers), and then publish a “Notice of Data Availability” in the Federal Register with an additional 90-day comment period; or
3. Withdraw the proposed rule completely and reissue a new, corrected proposed rule in the future regarding appropriate revisions, if any, to the 2004 MPP ELGs nationally appropriate technology-based standards applicable to direct discharging facilities.

The MPP Coalition would welcome a meeting with EPA to further explain and discuss the issues raised in these comments. To arrange a meeting or to answer any of EPA’s questions, please contact Paul Bredwell, Executive Vice President – Regulatory Programs, U.S. Poultry & Egg Association, Phone 678-514-1973, Email pbredwell@uspoultry.org.

February 5, 2024

Mr. Steve Whitlock
Engineering and Analysis Division, Office of Water (4303T)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington DC 20460
Whitlock.Steve@epa.gov

RE: Request to Extend the Comment Deadline for the Proposed Clean Water Act Effluent Limitations Guidelines and Standards for the Meat and Poultry Products Point Source Category; Docket No. EPA-HQ-OW-2021-0736.

Dear Steve:

For the relevant reasons set forth below, the Coalition of Meat and Poultry Products manufacturers, and other organizations representing the animal agriculture community and farmers across the nation, request a minimum of a 90-day extension of the comment period for the Proposed Clean Water Act (CWA) Effluent Limitations Guidelines and Standards (ELGs) for the Meat and Poultry Products Point Source Category (Proposed MPP ELGs); Docket No. EPA-HQ-OW-2021-0736. The Proposed MPP ELGs include the following:

- 64-page *Federal Register* notice (89 Fed. Reg. 4,474; January 23, 2024);
- 174-page *Technical Development Document for Proposed Effluent Limitations Guidelines and Standards for the Meat and Poultry Products Point Source Category* (TDD);
- 147-page *Environmental Assessment for Revisions to the Effluent Limitations Guidelines and Standards for the Meat and Poultry Products Point Source Category* (EA);
- 142-page *Benefit Cost Analysis for Revisions to the Effluent Limitations Guidelines and Standards for the Meat and Poultry Products Point Source Category* (BCA);
- 107-page *Regulatory Impact Analysis for Revisions to the Effluent Limitations Guidelines and Standards for the Meat and Poultry Products Point Source Category* (RIA); and
- a docket containing 660 documents, including 657 additional support documents that were only added on January 23, 2024.

The original 60-day proposed comment period is not a reasonable amount of time to collect comprehensive and informed public comment from this Coalition or other interested stakeholders on such a complex proposal and related docket. A minimum of a 90-day comment period extension is warranted as set forth below.

The MPP Coalition associations and their members, as well as their supply chains and the wider agriculture community, are potentially impacted by EPA's Proposed MPP ELGs, have substantial interest in ensuring that any Final MPP ELGs are promulgated consistent with CWA requirements, the Administrative Procedure Act (APA) mandates, are based on sound science and technologies appropriate to and relevant for wastewater discharges from direct and/or indirect

industry point sources, and are economically achievable and consistent with to prior ELG precedents set forth by EPA under CWA Section 304(m) rulemakings.

Throughout the Proposed MPP ELGs *Federal Register* Notice, EPA seeks specific comments on at least 43 major topics. See the Appendix to this letter. These topics include: variations on all of the options that EPA is proposing; confirmation from industry sources that EPA's assumptions or analyses are consistent with how the various industries operate; requests for data that EPA needs to assess various options or considerations; impacts on small businesses and how they should be assessed and considered; and other technical information that may vary by subindustries within the MPP umbrella. EPA's comment solicitations will take significant time (much more than 60 days) and require extensive coordination among technical, economic, environmental, and other industry stakeholders. If EPA expects to receive thoughtful and thorough responses to its solicitations, then a 60-day comment period is not reasonable or appropriate.

To put this 60-day comment period into perspective, while the APA does not specify a minimum period for comments, Executive Order 12,866 provides that most rulemakings "should include a comment period of not less than 60-days."¹ That implies that many proposals support comment periods well-exceeding 60 days. The mean page length of proposed federal regulations in the *Federal Register* between 1995 and 2000 (the most recent statistics) is 10 pages.² The Proposed MPP ELGs are more than six times that length and warrants a much longer comment period. Further, EPA fully understands the complexities and challenges associated with CWA Section 304(m) rulemakings in comparison to "typical" rulemakings, and must realize that a 60-day comment period is never reasonable or effective for most ELG rulemakings. Additional time to develop comments ultimately will benefit EPA in its review and understanding of the comments that are submitted and hopefully avoid confusion leading up to any final rulemaking.

The past experience from the prior MPP rulemaking, which started in April 2002, also supports an extension. EPA's efforts in 2002 to streamline the rulemaking process actually resulted in a much longer process than anticipated. EPA proposed MPP ELGs (with 20 comment solicitations, as opposed to the 43 solicitations in this proposed rulemaking) and provided a 60-day comment period. The Agency was then forced to extend that comment period by an additional 60 days.

One year later, EPA issued a Notice of Data Availability (NODA), reopening the comment period for the MPP ELGs and subsequently issued a comment period extension on that NODA. The final MPP ELG rulemaking was issued in September 2004, 29 months after proposal. In addition, because EPA is proposing options that could significantly expand the existing scope of the MPP ELG regulations, the Coalition believes that a similar rulemaking schedule should not be ruled out. More time for this initial comment period provides the Agency

¹ See Exec. Order No. 12,866 § 6(a) reaffirmed by Exec. Order No. 13,563, "Improving Regulation and Regulatory Review" § 2(b), 76 Fed. Reg. 3821 (Jan. 21, 2011)("To the extent feasible and permitted by law, each agency shall afford the public a meaningful opportunity to comment through the Internet on any proposed regulation, with a comment period that should generally be at least 60 days.").

² See *Federal Agencies are Publishing Fewer but Larger Regulations* at <https://regulatorystudies.columbian.gwu.edu/federal-agencies-are-publishing-fewer-larger-regulations> .

with the opportunity to pursue a more efficient and streamlined rulemaking schedule than the last MPP ELG rulemaking.

Finally, there are two other confounding factors that necessitate a significant extension of the Proposed MPP ELGs comment period – the inability for the industry to prepare for or meaningfully participate in EPA's rulemaking hearings, and the significant size of the docket that was not made available for public review until close of business on January 23, 2024. The recent hearing was conducted less than 24 hours after the docket was populated with support documents. The January 31st hearing directly conflicted with important MPP industry meetings that were scheduled well before EPA set its hearing schedule. While EPA may hold an additional hearing, the Coalition believes an adequate comment period is more important than being able to participate in EPA's hearings. Thus, the industry strongly encourages EPA to grant a comment period extension.

Next, 657 documents were added to the docket on January 23, 2024. Many are marked as confidential business information. Hence, the only way to understand what they contain is to file a Freedom of Information Act request and force EPA to defend the claim of CBI. That process will take in excess of 60 days, let alone the time to analyze the information that may be received in the future.

In sum, this rulemaking significantly exceeds the length and complexity of the average federal rulemaking proposal and warrants longer than the “minimum” 60-day comment period set forth in the Executive Orders cited above. In fact, after further analysis of the Proposed MPP ELGs, the various comprehensive development documents related thereto, and the size and complexity of the docket, the Coalition believes that a significant extension is warranted. The Coalition requests at least a 90-day comment period extension.

If you have further questions or would like to meet and discuss this request further, please contact the Coalition's counsel, Jeffrey Longworth, Earth & Water Law, at (301) 807-9685 or Jeffrey.longworth@earthandwatergroup.com.

Respectfully,

Meat Institute
National Pork Producers Council
North American Renderers Association
U.S. Poultry & Egg Association
American Farm Bureau Federation

Cc: Rob Wood, Director, Engineering and Analysis Division, EPA
Nick Goldstein, Asst. Chief Counsel, Environment, SBA Office of Advocacy

Appendix

(all cites are to 89 Fed. Reg. 4,474; January 23, 2024)

1. EPA is considering a range of options in this rulemaking. The options include more stringent effluent limitations on total nitrogen, new effluent limitations on total phosphorus, updated effluent limitations for other pollutants, new pretreatment standards for indirect dischargers, and revised production thresholds for some of the subcategories in the existing rule. EPA is also requesting comment on potential effluent limitations on chlorides for high chloride waste streams, establishing effluent limitations for E. coli for direct dischargers, and including conditional limits for indirect dischargers that discharge to POTWs that remove nutrients to the extent that would be required under the proposed pretreatment standards in certain regulatory options. Each option would result in different levels of pollutant reduction and costs. *Id.* at 4,475-6.
2. EPA requests comment on the concept of allowing POTWs, control authorities, or permit authorities to waive, under certain circumstances, the new conventional pollutant limits for large indirect dischargers. *Id.* at 4,487.
3. Additionally, POTWs that perform denitrification may want to waive BOD limits for their MPP industrial users so they can receive more carbon to support bacterial conversion of nitrates to nitrogen gas. EPA requests comment both on whether such waivers should be allowed, and the demonstration necessary to justify such waivers. *Id.*
4. In addition to the options described above, EPA solicits comment on including three additional requirements in any final rule. First, limitations on the discharge of chlorides by establishing a zero discharge of pollutants requirement for certain high chlorides wastestreams. The technology basis for this requirement is segregation of these wastestreams from other process wastewater streams and management via sidestream evaporation. EPA solicits comment on including this provision for all facilities (both direct and indirect) producing more than 5 million pounds per year with high chlorides processes. *Id.* at 4,488.
5. Second, EPA solicits comment on conditional limitations for phosphorus and nitrogen discharges from indirect dischargers under Options 2 and 3. *Id.*
6. Third, EPA solicits comment on limitations on E. coli for direct discharging facilities. *Id.*
7. In addition to some specific requests for comment included throughout this proposal, EPA solicits comment on all aspects of this proposal, including the information, data, and assumptions EPA relied upon to develop the three regulatory options, as well as the proposed effluent limitations and pretreatment standards for existing and new facilities, and additional provisions (see Section F below) included in this proposal. *Id.*
8. EPA also solicits comment on the other proposed options (Options 2 and 3), and any other permutation of these options, although they are not the preferred option in this proposed rule for the reasons discussed in section VII. E below. *Id.* at 4,489.

9. After considering all the relevant statutory factors and wastewater technologies presented in this preamble and the TDD, EPA is not proposing to establish pretreatment standards (PSES/PSNS) for nitrogen and phosphorus removal for indirect dischargers under its preferred Option 1 for the reasons discussed in Section VII.E below. However, EPA is soliciting comment on the other proposed regulatory options (Options 2 and 3) and any other regulatory options that would include such pretreatment standards for nutrients (See Section VII.D below). *Id.* at 4,491.
10. However, there may be constraints on availability of nutrient removal technologies with respect to indirect dischargers (as discussed in Section VII.E below), and EPA solicits information about such potential constraints. *Id.* at 4,492.
11. With respect to non-water quality environmental impacts of the BPT/BCT and BAT technologies under Options 2 and 3, see Section X below. EPA solicits comment on whether these proposed options – or other regulatory options based on different production thresholds or technologies – would meet the applicable statutory factors and should form the basis of any final rule. *Id.*
12. At the same time, EPA intends to consider any impact of federal financial assistance on wastewater treatment upgrades at these facilities. EPA seeks comment on whether other federal funds or other programs could reduce or minimize potential impacts of the more expansive options on the Administration's efforts to support the meat and poultry supply chain. *Id.*
13. EPA solicits additional information about production capacity for nutrient control technologies in the industry, given that the Nation is currently in the process of significant investments in water infrastructure as part of the Bipartisan Infrastructure Law. *Id.* at 4,493.
14. EPA solicits comment on how it could implement new pretreatment standards consistent with this provision recognizing that there could be supply chain issues preventing facilities from installing the treatment technologies. *Id.*
15. EPA solicits comment on such an approach, or other implementation flexibilities for indirect discharging facilities, should the Agency decide to finalize a rule based on a more expansive option than the preferred Option 1. *Id.*
16. Should the Agency decide to promulgate a rule based on a more expansive option, EPA is considering conditional limits under these options (see Section VII.F) to reduce costs and eliminate the need for redundant treatment. To better understand the potential use of such conditional limits, EPA solicits information about how many POTWs that receive MPP wastewater have nitrogen and phosphorus removal technologies that could provide an equivalent level of treatment. and whether such flexibilities may result in significant cost savings, including any relevant data on incremental cost savings or other benefits. *Id.*
17. While EPA notes that the secondary treatment regulations at 133.103(d) allow for consideration of less concentrated influent wastewater and the substitution of a lower percent removal requirement or a mass loading limit for the percent removal requirement by the Regional Administrator or State Director, which could address this issue, EPA solicits additional comments on this concern from the POTW community. *Id.*

18. In addition to seeking comment on the three proposed regulatory options, EPA solicits public comment on three additional provisions that would apply with respect to some of these options: First, with respect to the pretreatment standards for nitrogen and phosphorus that would apply to indirect dischargers under Options 2 and 3, EPA solicits comment on a provision that would allow an exemption from these limits for indirect discharging MPP facilities discharging to POTWs that provide equivalent nutrient removal as would be required under the proposed PSES/PSNS. *Id.*
19. For conditional limits applied to a MPP facility, EPA solicits comment on how to structure such a provision to include factors such as what treatment at the POTW could be considered equivalent, whether the POTW permit should contain nitrogen and phosphorus effluent limits at least as stringent as the pretreatment standards that would be required at the MPP facility, how to demonstrate compliance, how to ensure that the POTW has the capacity and ability to adequately treat such wastewaters while maintaining its design pollutant capacity reserved for the residential population, and the process by which the facility would request the conditional limits be applied and receive approval from their control authority. *Id.* at 4,494.
20. Second, EPA solicits comment on including *E. coli* as a regulated parameter for direct dischargers because the presence of *E. coli* is a more reliable indicator of pathogen pollution than the presence of fecal coliforms. *Id.*
21. Given these updates in the use of bacterial indicators for water quality, and that current disinfection technology can consistently reduce the presence of these indicator bacteria below the current MPP ELGs, EPA is soliciting comment on more stringent fecal coliform limits for direct dischargers based on BCT/BPT as well as limits for *E. coli* for direct dischargers based on BAT as part of the preferred option in this proposed rule. *Id.*
22. EPA also solicits comment on replacing fecal coliform limits with *E. coli* limits in any final rule to reduce redundancy in monitoring and limit requirements. *Id.*
23. Third, EPA solicits comment on including BAT/NSPS/PSES/PSNS chloride limits for certain wastestreams to remove salts from facility discharges in any final rule based on BAT. *Id.*
24. EPA is considering effluent limitations for chlorides for direct and indirect discharging facilities in any subcategory with production greater than 5 million pounds per year with high chlorides processes. Analysis indicates that these technologies may be available, economically achievable, and have acceptable non-water quality environmental impacts. See Section 12 of the TDD for additional details on the non-water quality environmental impacts of this provision. EPA is not including this provision as part of the preferred option in today's proposal, but rather is soliciting comment on including such a provision in any final rule. *Id.*
25. In particular, EPA solicits comment on the potential costs of such a provision, and specifically on the cost methodology and results contained in the TDD. *Id.*
26. EPA also heard concerns during the SBAR panel outreach meetings with SERs specifically related to a lack of familiarity with effluent guidelines and pretreatment standards. One of the five recommendations was for EPA therefore

- to solicit comments on what information small facilities would find beneficial (e.g., terms to know for determining applicability and compliance, information from the POTW or control authority, information on the general permitting process, wastewater operator requirements, and how to measure annual production) that could be addressed through guidance or other materials that EPA could provide should any final rule expand applicability to small firms beyond the current rule. EPA therefore solicits comment from small entities on this topic. *Id.*
27. EPA also heard from SERs about concerns related to production thresholds for applicability of the ELGs. While EPA's proposed regulatory options minimize impacts on small entities, another recommendation that EPA also solicits comment on is whether the proposed production thresholds could be adjusted to further minimize such impacts, particularly with respect to Options 2 and 3 as those options expand coverage to additional facilities as compared to Option 1. *Id.* at 4,494-5.
 28. A third recommendation that EPA also solicits comment on is for alternatives to production thresholds for determining regulation, such as water usage, specifically as a way to minimize impacts to small firms or to provide an alternative means of determining applicability to small firms that may not track production. *Id.* at 4,495.
 29. A fourth Panel recommendation that EPA also requests comment on is the inclusion of conditional limits, and specifically what documentation and approval by the POTW/control authority would be sufficient to establish conditional limits as a compliance mechanism. *Id.*
 30. The fifth recommendation was for EPA to consider and take comment on a longer or flexible timeline for small entities to meet proposed regulations. EPA requests comment from small entities on what kind of timeline flexibilities would be helpful. See the SBREFA panel report for additional details regarding these and other considerations that were raised by SERs (USEPA. 2023. DCN MP00347). *Id.*
 31. EPA also solicits comment on whether the BPT costs of conventional pollutant reductions under regulatory Options 2 and 3, as reflected in [Table VIII-1], are also not wholly disproportionate to the effluent reduction benefits. *Id.* at 4,496.
 32. EPA solicits comment on whether Options 2 and 3 would be economically achievable for the industry as a whole, based on the level of possible facility closures reflected in [Table VIII-2]. *Id.* at 4,497.
 33. Given that the BAT CTR results for options 2 and 3 show that 99.6 percent and 99.1 percent of discharging facilities would have costs less than 1 percent of revenues, respectively, EPA solicits comment on whether these options would also be economically achievable. *Id.* at 4,499.
 34. EPA is taking comment on the inclusion of chlorides removal limits. EPA is considering establishing a zero discharge of pollutants requirement for high chloride waste streams for facilities producing more than 5 million pounds per year with high chlorides processes. The technology costs considered for this requirement involve segregating the high chloride waste streams from other process wastewater and managing these high chloride streams through sidestream

- evaporation. Details on the costs and economic impacts of the chlorides removal provision can be found in the TDD and the RIA, respectively. Id. at 4,503.
35. EPA's use of EGRID values for the proposed rule analysis is conservative in that it would tend to overstate emissions associated with the increased power consumption to operate MPP wastewater treatment systems since emission factors are expected to decline in the coming decades (e.g., due to the 2022 IRA). For the final rule, EPA plans to account for these changes by using future emission factors derived using EPA's IPM model. EPA requests comment on using IPM results to estimate future emissions. Id. at 4,511.
 36. The BCA Report discusses changes in these potentially important effects qualitatively, indicating their potential magnitude where possible. EPA will continue to seek to enhance its approaches to quantify and/or monetize a broader set of benefits for any final rule and solicits comment on monetizing some of these additional benefits categories. Id. at 4,512.
 37. These findings suggest that wastewater discharge from MPP facilities differentially impacts various communities and population groups. EPA solicits comment on additional literature that discusses potential EJ concerns related to the specific changes being proposed to MPP wastewater discharges. For further discussion of the literature review, see Chapter 7 of the EA. Id.
 38. For the proposed limitations, EPA combined data sets across all MPP processes to give a single limit per analyte for the industry. As the raw materials for MPP processes are animals/animal products, composed of carbon, nitrogen, and phosphorus, EPA finds combining data from different MPP processes to be reasonable. Additionally, with the available data, EPA performed a comparison of influent from the different MPP processes and found the wastewater characteristics to be comparable. Therefore, EPA proposes to find that the combination is reasonable and solicits data to inform this analysis. Id. at 4,515.
 39. In addition to the proposed limitations, as described earlier EPA is soliciting comment on including effluent limitations for E. coli in addition to, or in place of, limitations for fecal coliform for direct discharging facilities. Id.
 40. Based on data available to EPA at the time of proposal, the monthly average limitation for E. coli would be 9 MPN or CFU per 100 mL (see the TDD for additional information). EPA solicits comment on this value as well as the data and methodology used to calculate the proposed effluent limitations in today's proposal. Id.
 41. EPA also solicits comment on including effluent limitations for chlorides, which are proposed as zero-discharge for high chlorides processes. Id.
 42. In addition to general comments related to the calculation of proposed effluent limitations, EPA also solicits comment on combining data across subcategories in developing the proposed limitations. Id.
 43. EPA also solicits additional daily and monthly data from facilities across the industry. Id.

Questions and requests regarding the sanitized database of MPP questionnaire responses, in the docket as EPA-HQ-OW-2021-0736-0649/attachment_6.xlsx

Thank you very much for pointing us to this file. It is quite helpful. We have several questions/requests about it and about expanding it to provide additional important information. We don't believe that the additional information that we hope can be added to the docket file would reveal any CBI or PII, but the Agency would need to analyze the full unsanitized database of questionnaire responses in order to prepare the additional information that we hope can be added to the publicly available sanitized database. Our questions and requests follow:

- 2829 facilities are listed in the Census Questionnaire Responses tab and 828 are listed in the Detailed Questionnaire Responses tab, for a total of 3,657 facilities that responded to the questionnaire and are included in the sanitized database file. This total differs from 5,055, the total number of MPP facilities that EPA estimates to exist in the Agency's analysis (see, for example, Table 2-4 on page 2-5 of the RIA). Could the Agency provide a crosswalk between these two differing totals? Some of the components of this difference might be facilities that did not respond to the questionnaires, facilities that responded to the questionnaire but are not listed in the sanitized database file, facilities that were operating at the time of the survey and responded to it but which are projected not to be operating at the time when the regulation might become effective, and perhaps a variety of other possibilities.
- Would the Agency provide a column in each of the Census and Detailed tab worksheets that indicates whether in the Agency's judgment the facility has been classified as a direct, indirect or zero discharger? This information is crucial to us in order to establish a sampling frame for the random sample survey we hope to do of the facilities that EPA has classified as indirect dischargers. We do not expect that any of the information in such a column would be CBI or PII, though the Agency likely did consider some information that was CBI or PII in developing the Agency's determination that a facility was a direct, indirect or zero discharger.
- For each of several questions in the census and detailed questionnaires, would the Agency provide the total numbers of facilities that provided each of the different responses to these particular survey question?

For example, Question #49 in the Detailed Questionnaire asks whether the facility has any underdeveloped area suitable for construction, such as for new or additional wastewater treatment systems. The different responses to this question as shown in this column in the sanitized database and our counts for each different response are: Yes (112 facilities), No (175 facilities), Unsure (51 facilities), Redacted (174 facilities) and blank (317 facilities – presumably these were instances where the facility did not answer this question, or perhaps did not respond to the entire survey). We would like to get the total counts for "Yes", "No" and "Unsure" across **all** the responses to this question, including those responses that are shown as "REDACTED ..." in the sanitized version of the database that is in the docket. The Agency could obtain these totals for the substantive responses, including counts derived from the underlying data for the entries shown as redacted in the sanitized database, by analyzing the unsanitized version of the questionnaire response file that the Agency has developed but cannot provide for public review

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in the docket. These totals would presumably not be CBI, nor would providing them reveal any CBI. Perhaps these grand totals for each of the different substantive responses could be shown in the appropriate column of the sanitized database in three rows just below the last row for an individual facility for public review. For the Detailed Questionnaire worksheet, where the responses for the last facility listed are shown in row # 829, the total counts for "Yes", "No" and "Unsure" could be shown in rows # 831, 832 and 833. In the three cells immediately adjoining the column for responses to this question, either to the left or right, the labels "Yes", "No" and "Unsure" would be shown also.

The particular questionnaire questions for which we hope that EPA could provide grand totals for the different responses, including in the counts any redacted and/or PII responses, are the following. In the Census Questionnaire:

- Question #10. For only the first Existing Discharge Requirement listed, the total counts for General NPDES ..., Individual NPDES..., Pretreatment Agreement ..., Surface Injection ..., Local Ordinance ..., and Other ... Also the total counts for State, POTW, Federal... and Other ...
- Question #11. The total counts for "Based on technology-based limitations" and for "Based on water quality-based limitations"
- Question #29a. The total counts for the first outfall listed (presumably the primary outfall for process wastewater), the total counts for Receiving Water, POTW, PrOTW, Land applied ..., Subsurface injection ..., Reused and for Other ...

And in the Detailed Questionnaire:

- Question #12. For only the first Existing Discharge Requirement listed, the total counts for General NPDES ..., Individual NPDES..., Pretreatment Agreement ..., Surface Injection ..., Local Ordinance ..., and Other ... Also the total counts for State, POTW, Federal... and Other ...
- Question #13. The total counts for "Based on technology-based limitations" and for "Based on water quality-based limitations"
- Question #49. As described previously, the total counts for "Yes", "No" and "Unsure"
- Question #51a. The total counts for the first outfall listed (presumably the primary outfall for process wastewater), the total counts for Receiving Water, POTW, PrOTW, Land applied ..., Subsurface injection ..., Reused and for Other ...
- Question #52. The total counts for "Yes" and for "No".
- Question #53. The total counts for "Discharge 25,000 GPD or more...", for "Designated ..." and for "Other". Also the total counts for any sort of "Other" response that appears more than a few times, including particularly any response relating to $\geq 5\%$ of POTW flow.
- Question #55. The total counts for "... one-time payment ...", for "Follow ... standard fee schedule ...", for "No fees or payments ...", and for "Other ...". Also the total counts for any sort of "Other" response that appears more than a few times.
- Question #56. The total counts for Yes and for No.
- Question #72. The total counts for each of the check box options.

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- We also request counts for the total numbers of facilities that provided each of several different responses that are cross-tabbed across or within questions. In the Census Questionnaire:
 - Question #10. The total number of Pretreatment Agreements and Local Ordinances for each of State, POTW, Federal and Other.

And in the Detailed Questionnaire:

- Question #12. The total number of Pretreatment Agreements and Local Ordinances for each of State, POTW, Federal and Other.
- Question #42. The total counts for "Yes", for "No" for facilities that EPA has judged to be indirect dischargers.
- Question #43. For indirect dischargers specifically, the total number of facilities that report one or more of each of the checkbox sorts of Treatment Unit purposes: Primary treatment, Biological treatment, Nutrient removal, etc.. This would involve a crosstab across many columns of the unsanitized Detailed Questionnaire response file.
- Question #49. The total counts for "Yes", for "No" and for "Unsure", for facilities that EPA has judged to be direct dischargers and separately for facilities that EPA has judged to be indirect dischargers.

Questions and requests regarding chapters 4 and 5 of the Regulatory Impact Analysis (Cost and Economic Impact Screening Analysis and Facility Closure Analysis)

- In Section 4.3.1.3 EPA describes the process used to estimate revenues for facilities that did not report revenues in the detailed questionnaire. The process at one point involved calculating an average "unit sales (\$/lb)" value for each "process type", based on data from the detailed questionnaire from facilities that EPA deemed to have reported valid survey revenue and production. What are the different "process types" that were addressed and what are the "respective average unit sale prices" (in \$/lb) that were calculated for each process type?
- It's not clear whether EPA calculates unit sales (\$/lb) values for only the detailed questionnaire facilities with valid revenue and production figures, or for a larger set of facilities including also those for which revenues are estimated using Hoovers information. Unit sales (\$/lb) values could be estimated for these additional facilities using Hoovers revenues figures and production figures from the census or detailed questionnaire. Which set of facilities – including the Hoovers facilities or not including them -- did EPA use in calculating the unit sales values for the analysis? What would the calculated average unit sales values be for each process type using the Hoovers facilities only?
- Could EPA provide the average "unit sales prices" calculated separately for small and for large facilities of each process type? Maybe differentiate small from large based on the production cut-points that the Agency uses for each process type in Options 1 and 2. And also provide the average "unit sales prices" calculated separately for facilities of each process type that are owned by a parent entity and for facilities of each process type that are "stand alone" and have no ultimate parent entity?

Appendix B to MPP Coalition's Comments

- In Table 4-2 (page 4-3), EPA summarizes the results of the facility cost-to-revenue (CTR) analysis, showing, among other things, for each Option how many facilities of each discharge type (direct or indirect) incur no costs, costs that are between zero and 1% of revenues, costs that are $\geq 1\%$ and $< 3\%$ of revenues, and costs that are $\geq 3\%$ of revenues. Could the Agency provide the CTR figures for the facilities that incur costs under each Option in much greater detail? Ideally this would be a list of all the CTR percentage figures – rounded to the nearest 0.1 percentage points - for the facilities that incur costs for each discharge type and Option. Thus, for example, for the 120 direct dischargers that incur costs under Option 1, the list would include 120 calculated CTR ratios, each rounded to the nearest 0.1 percentage points. Alternatively and nearly equivalently, the more detailed presentation of facility CTR ratios that we would like to see would show the numbers of facilities with ratios in much finer and many more intervals than the three shown now in Table 4-2: the number of facilities with ratios > 0 and up to 0.1%, the number of facilities with ratios $> 0.1\%$ and up to 0.2%, the number of facilities with ratios $> 0.2\%$ and less than 0.3%, etc..
- For the Facility Closure Analysis (Chapter 5), how many facilities provided usable financial data and for which the DCF analysis was done? How many of these facilities appeared to be baseline closures? What percentage of direct dischargers with usable financial data appeared to be baseline closures and what percentage of indirect dischargers?
- Could EPA provide two additional columns in Table 5-2 (page 5-5)? The first column would show, for each production size/discharge type/processing type combination (i.e., for each row in Table 5-2) the total number of facilities in the industry that EPA has estimated to exhibit this particular combination of characteristics. The second desired column would show in each row the number of facilities with this combination of characteristics for which the DCF analysis was done and that have been estimated in the DCF analysis to be regulatory closures. The first of these desired columns would likely total 3,879 or thereabouts. The second of these desired columns would likely total at most a dozen or so.

Questions and requests regarding the pollutant loadings calculations

- Specifically for the indirect dischargers included in the "Industry Level Loadings" total shown in Table 11-3 in the TDD (Page 109), are their loadings estimated at the location where their discharge leaves the indirect discharging MPP facility or are their loadings estimated as the indirect dischargers' portions of the loadings in their POTW's effluent (i.e., following treatment at the POTW)?
- Identical question for the industry "Removals" shown in Table 11-3.
- Could you provide additional information that would expand Table 11-3 to include 2 more columns that break "Industry-Level Loadings" into those from direct dischargers and those from indirect dischargers and 2 more columns that break "Removals" into direct and indirect discharger amounts?

Appendix

Meat First Processing

- Table A1-1 Cost Curves as a Function of Wastewater Flow in MGD for P with Partial N treatment for Direct Dischargers (Compliance Cost Methodology for MPP, page 30, MP00301)
- Table A1-2 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Direct Dischargers (Compliance Cost Methodology for MPP, page 33, MP00301)
- Table A1-3 Cost Curves as a Function of Wastewater Flow in MGD for BOD, O&G, and TSS Treatment for Indirect Dischargers (Compliance Cost Methodology for MPP, page 36, MP00301)
- Table A1-4 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Indirect Dischargers (Compliance Cost Methodology for MPP, page 38, MP00301)

Meat Further Processing

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- Table A1-4 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Indirect Dischargers (Compliance Cost Methodology for MPP, page 38, MP00301)

Poultry First Processing

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- Table A1-3 Cost Curves as a Function of Wastewater Flow in MGD for BOD, O&G, and TSS Treatment for Indirect Dischargers (Compliance Cost Methodology for MPP, page 36, MP00301)

- Table A1-4 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Indirect Dischargers (Compliance Cost Methodology for MPP, page 39, MP00301)

Poultry Further Processing

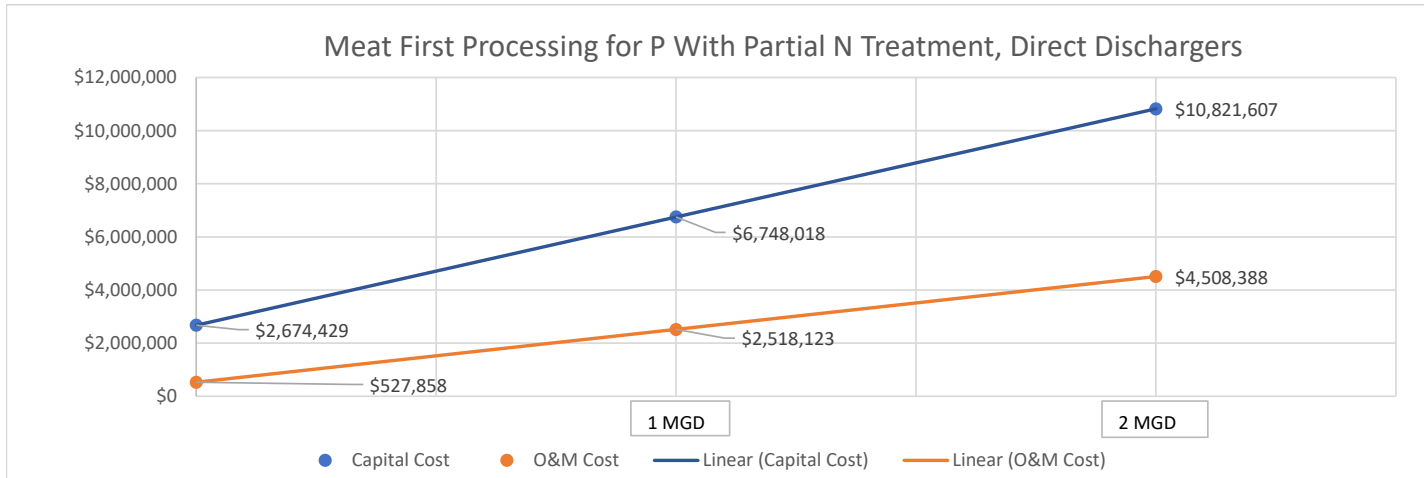
- Table A1-1 Cost Curves as a Function of Wastewater Flow in MGD for P with Partial N treatment for Direct Dischargers (Compliance Cost Methodology for MPP, page 31, MP00301)
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- Table A1-3 Cost Curves as a Function of Wastewater Flow in MGD for BOD, O&G, and TSS Treatment for Indirect Dischargers (Compliance Cost Methodology for MPP, page 37, MP00301)
- Table A1-4 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Indirect Dischargers (Compliance Cost Methodology for MPP, page 39, MP00301)

Rendering

- Table A1-1 Cost Curves as a Function of Wastewater Flow in MGD for P with Partial N treatment for Direct Dischargers (Compliance Cost Methodology for MPP, page 34, MP00301)
- Table A1-2 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Direct Dischargers (Compliance Cost Methodology for MPP, page 35, MP00301)
- Table A1-3 Cost Curves as a Function of Wastewater Flow in MGD for BOD, O&G, and TSS Treatment for Indirect Dischargers (Compliance Cost Methodology for MPP, page 37, MP00301)
- Table A1-4 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Indirect Dischargers (Compliance Cost Methodology for MPP, page 40, MP00301)

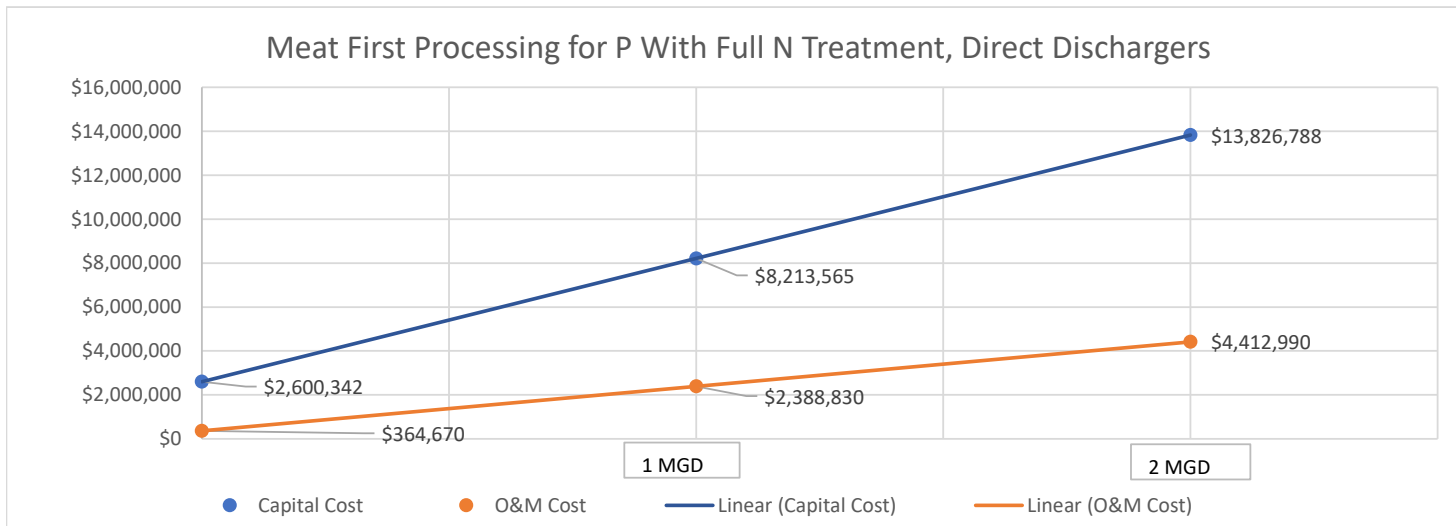
**Table A1-1 Cost Curves as a Function of Wastewater Flow in MGD for P with Partial N treatment for Direct Dischargers
(Compliance Cost Methodology for MPP, page 30, MP00301)**

Meat First Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$103,413	\$25,527	\$19,987	\$16,603
DAF	\$673,596	\$128,913	\$80,151	\$19,753
Anaerobic Lagoon	\$79,855	\$33,085	\$4,400	\$8,829
Biological Treatment	\$2,082,190	\$659,872	\$261,301	\$183,441
Chemical Phosphorus Removal	NA	NA	\$1,580	\$35,960
Sand Filtration	\$364,434	\$449,214	\$14,348	\$191,198
Chlorination/dichlorination	\$55,262	\$375,325	\$34,076	\$38,180
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$714,839</u>	<u>\$1,002,493</u>	<u>\$1,574,422</u>	<u>\$33,894</u>
Subtotal Cost	\$4,073,589	\$2,674,429	\$1,990,265	\$527,858
Total Capital Cost (1 MGD)	\$6,748,018			
Total O&M Cost (1 MGD)			\$2,518,123	
Total Capital Cost (2 MGD)	\$10,821,607			
Total O&M Cost (2 MGD)			\$4,508,388	



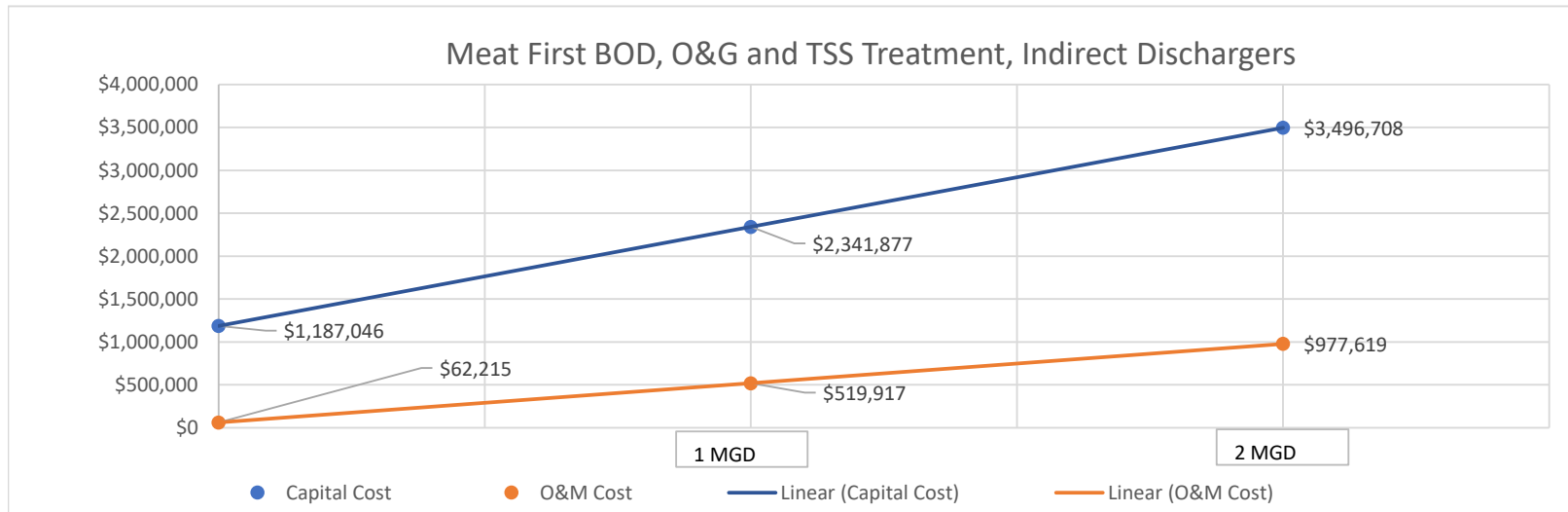
**Table A1-2 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Direct Dischargers
(Compliance Cost Methodology for MPP, page 33, MP00301)**

Meat First Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$103,413	\$25,257	\$20,013	\$16,628
DAF	\$673,596	\$128,913	\$80,176	\$19,758
Anaerobic Lagoon	\$79,885	\$33,085	\$4,400	\$8,829
Biological Treatment	\$3,627,430	\$583,287	\$326,136	\$192,417
Chemical Phosphorus Removal	NA	NA	\$1,583	\$35,959
Sand Filtration	\$364,525	\$451,130	\$14,351	\$19,200
Chlorination/dichlorination	\$55,262	\$375,325	\$34,078	\$38,181
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$709,112</u>	<u>\$1,003,345</u>	<u>\$1,543,423</u>	<u>\$33,698</u>
Subtotal Cost	\$5,613,223	\$2,600,342	\$2,024,160	\$364,670
Total Capital Cost (1 MGD)	\$8,213,565			
Total O&M Cost (1 MGD)			\$2,388,830	
Total Capital Cost (2 MGD)	\$13,826,788			
Total O&M Cost (2 MGD)			\$4,412,990	



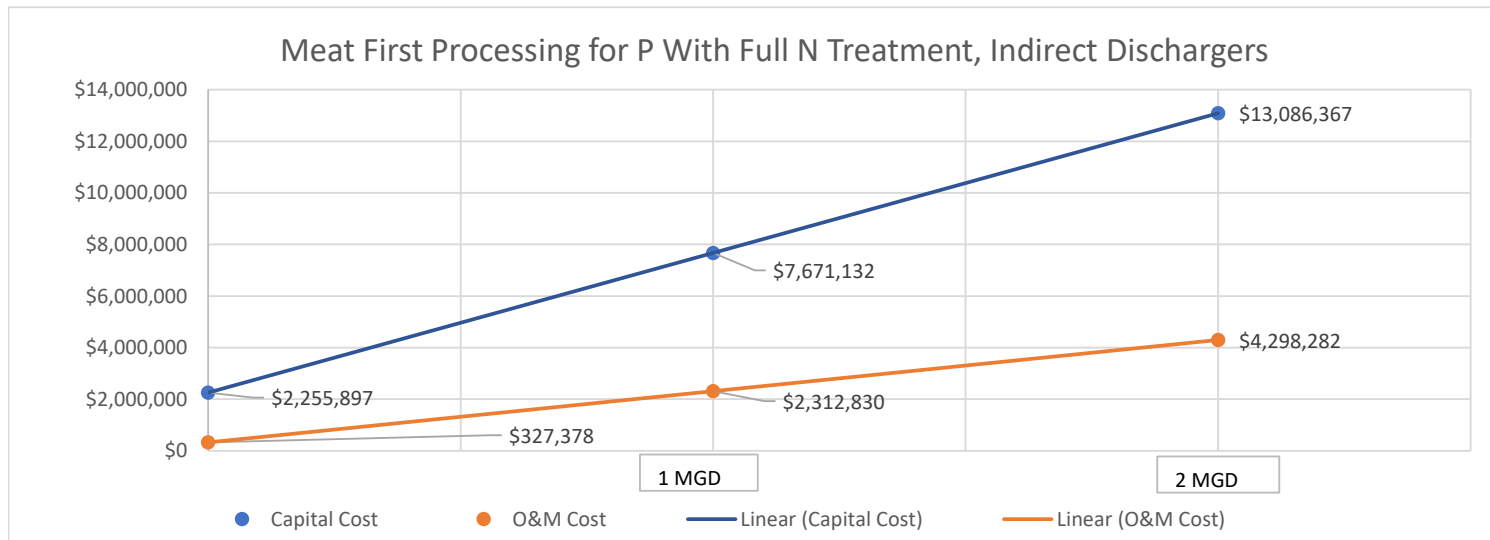
**Table A1-3 Cost Curves as a Function of Wastewater Flow in MGD for BOD, O&G, and TSS Treatment for Indirect Dischargers
(Compliance Cost Methodology for MPP, page 36, MP00301)**

Meat First Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$103,964	\$25,411	\$19,607	\$15,909
DAF	\$884,867	\$91,857	\$82,115	\$19,176
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$166,000</u>	<u>\$1,069,778</u>	<u>\$355,980</u>	<u>\$27,130</u>
Subtotal Cost	\$1,154,831	\$1,187,046	\$457,702	\$62,215
Total Capital Cost (1 MGD)	\$2,341,877			
Total O&M Cost (1 MGD)			\$519,917	
Total Capital Cost (2 MGD)	\$3,496,708			
Total O&M Cost (2 MGD)			\$977,619	



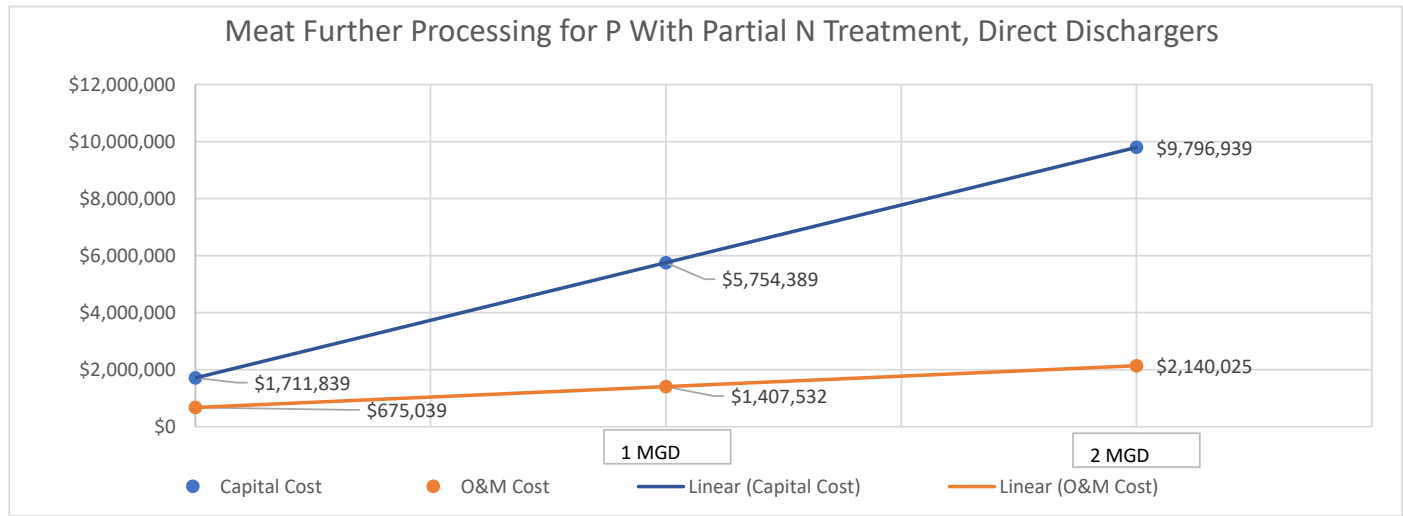
**Table A1-4 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Indirect Dischargers
(Compliance Cost Methodology for MPP, page 38, MP00301)**

Meat First Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$103,413	\$25,257	\$19,985	\$16,609
DAF	\$673,596	\$128,913	\$80,150	\$19,756
Anaerobic Lagoon	\$79,885	\$33,085	\$4,400	\$8,829
Biological Treatment	\$3,627,430	\$583,287	\$325,845	\$192,419
Chemical Phosphorus Removal	NA	NA	\$1,583	\$35,959
Sand Filtration	\$221,799	\$482,010	\$10,095	\$20,121
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$709,112</u>	<u>\$1,003,345</u>	<u>\$1,543,394</u>	<u>\$33,685</u>
Subtotal Cost	\$5,415,235	\$2,255,897	\$1,985,452	\$327,378
Total Capital Cost (1 MGD)	\$7,671,132			
Total O&M Cost (1 MGD)			\$2,312,830	
Total Capital Cost (2 MGD)	\$13,086,367			
Total O&M Cost (2 MGD)			\$4,298,282	



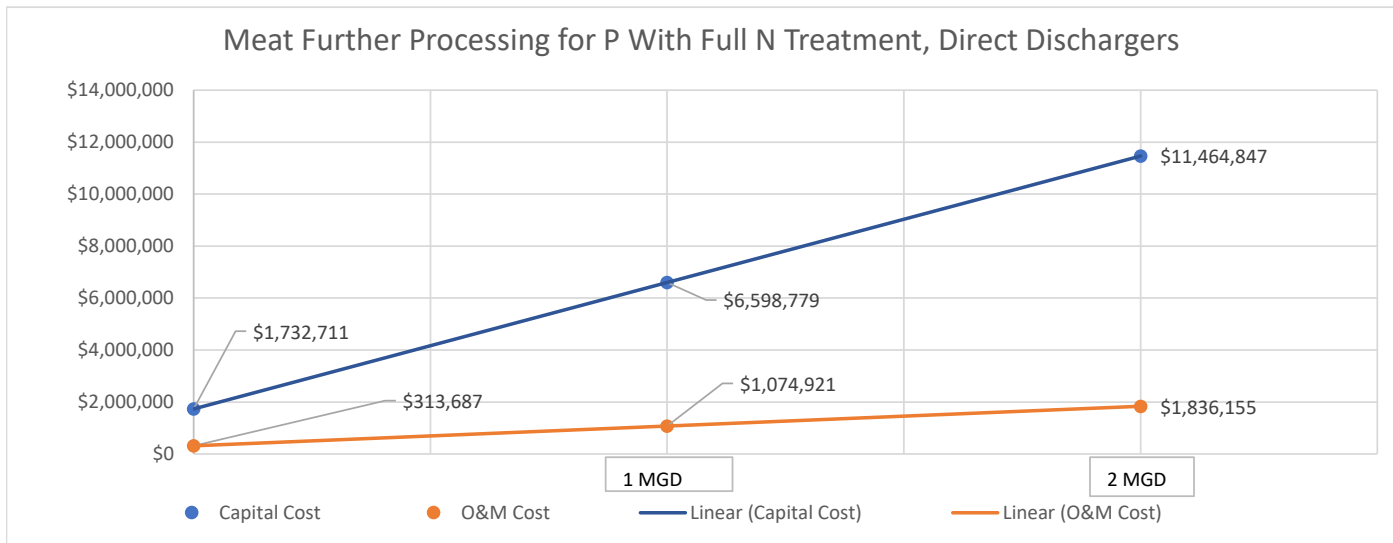
**Table A1-1 Cost Curves as a Function of Wastewater Flow in MGD for P with Partial N treatment for Direct Dischargers
(Compliance Cost Methodology for MPP, page 30, MP00301)**

Meat Further Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$148,883	\$8,350	\$37,414	\$6,934
DAF	\$207,987	\$134,747	\$37,641	\$4,261
Anaerobic Lagoon	\$510,508	\$15,801	\$6,856	\$8,420
Biological Treatment	\$1,739,094	\$466,806	\$220,008	\$162,985
Chemical Phosphorus Removal	NA	NA	\$1,586	\$35,960
Sand Filtration	\$610,197	\$199,625	\$23,703	\$8,378
Chlorination/dichlorination	\$99,603	\$356,913	\$34,712	\$412,120
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$726,278</u>	<u>\$529,597</u>	<u>\$370,573</u>	<u>\$35,981</u>
Subtotal Cost	\$4,042,550	\$1,711,839	\$732,493	\$675,039
Total Capital Cost (1 MGD)	\$5,754,389			
Total O&M Cost (1 MGD)			\$1,407,532	
Total Capital Cost (2 MGD)	\$9,796,939			
Total O&M Cost (2 MGD)			\$2,140,025	



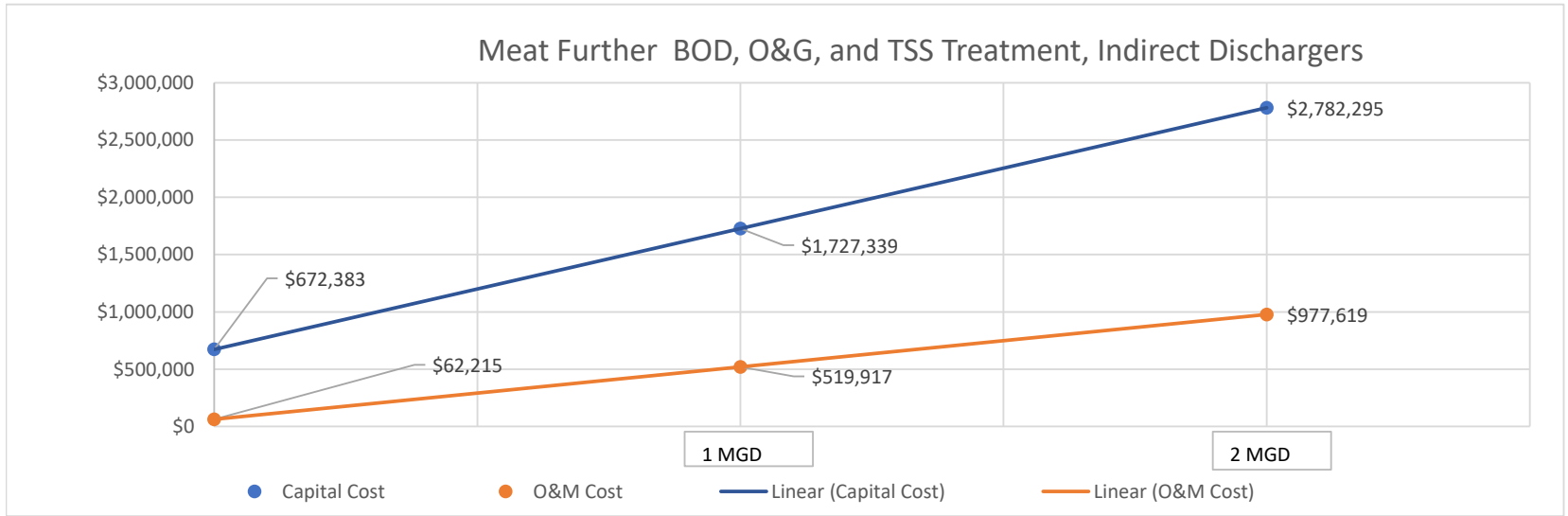
**Table A1-2 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Direct Dischargers
(Compliance Cost Methodology for MPP, page 33, MP00301)**

Meat Further Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$148,883	\$8,350	\$37,410	\$6,949
DAF	\$207,987	\$134,727	\$37,654	\$4,268
Anaerobic Lagoon	\$510,508	\$15,801	\$6,856	\$8,420
Biological Treatment	\$2,567,703	\$487,396	\$263,523	\$171,783
Chemical Phosphorus Removal	NA	NA	\$1,586	\$35,960
Sand Filtration	\$610,175	\$199,653	\$23,782	\$8,375
Chlorination/dichlorination	\$99,603	\$356,913	\$34,740	\$42,095
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$721,209</u>	<u>\$529,871</u>	<u>\$355,683</u>	<u>\$35,837</u>
Subtotal Cost	\$4,866,068	\$1,732,711	\$761,234	\$313,687
Total Capital Cost (1 MGD)	\$6,598,779			
Total O&M Cost (1 MGD)			\$1,074,921	
Total Capital Cost (2 MGD)	\$11,464,847			
Total O&M Cost (2 MGD)			\$1,836,155	



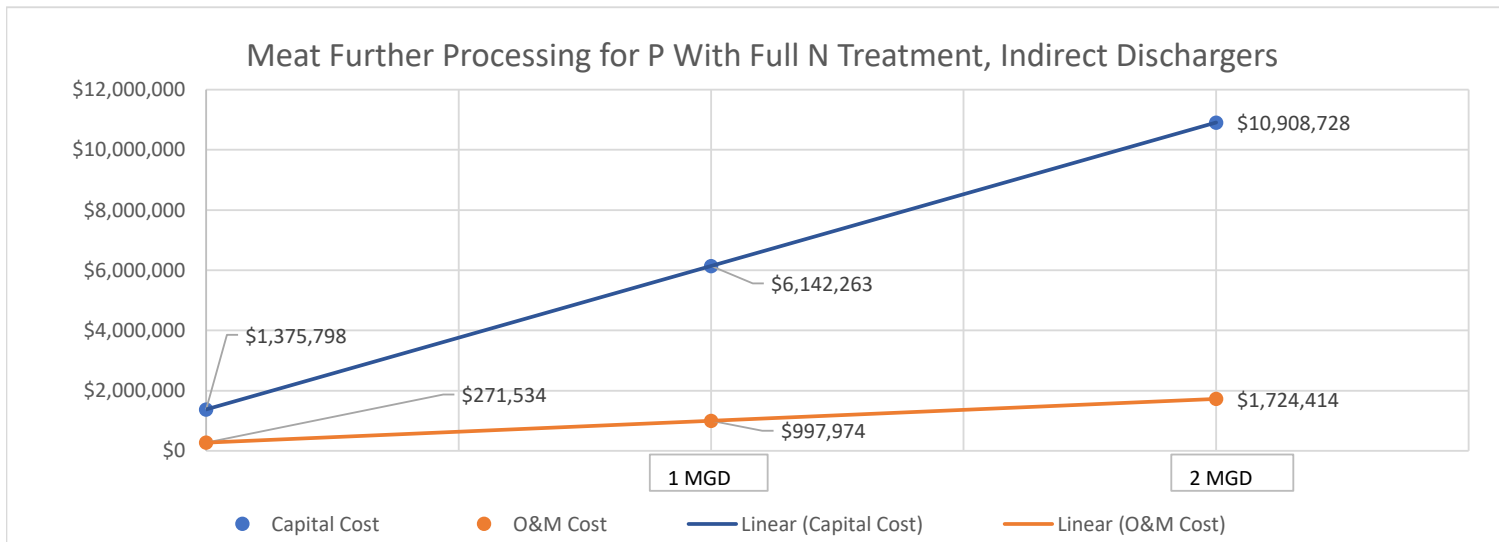
**Table A1-3 Cost Curves as a Function of Wastewater Flow in MGD for BOD, O&G, and TSS Treatment for Indirect Dischargers
(Compliance Cost Methodology for MPP, page 36, MP00301)**

Meat Further Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$148,883	\$8,350	\$19,607	\$15,909
DAF	\$207,987	\$134,727	\$82,115	\$19,176
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$698,086</u>	<u>\$529,306</u>	<u>\$355,980</u>	<u>\$27,130</u>
Subtotal Cost	\$1,054,956	\$672,383	\$457,702	\$62,215
Total Capital Cost (1 MGD)	\$1,727,339			
Total O&M Cost (1 MGD)			\$519,917	
Total Capital Cost (2 MGD)	\$2,782,295			
Total O&M Cost (2 MGD)			\$977,619	



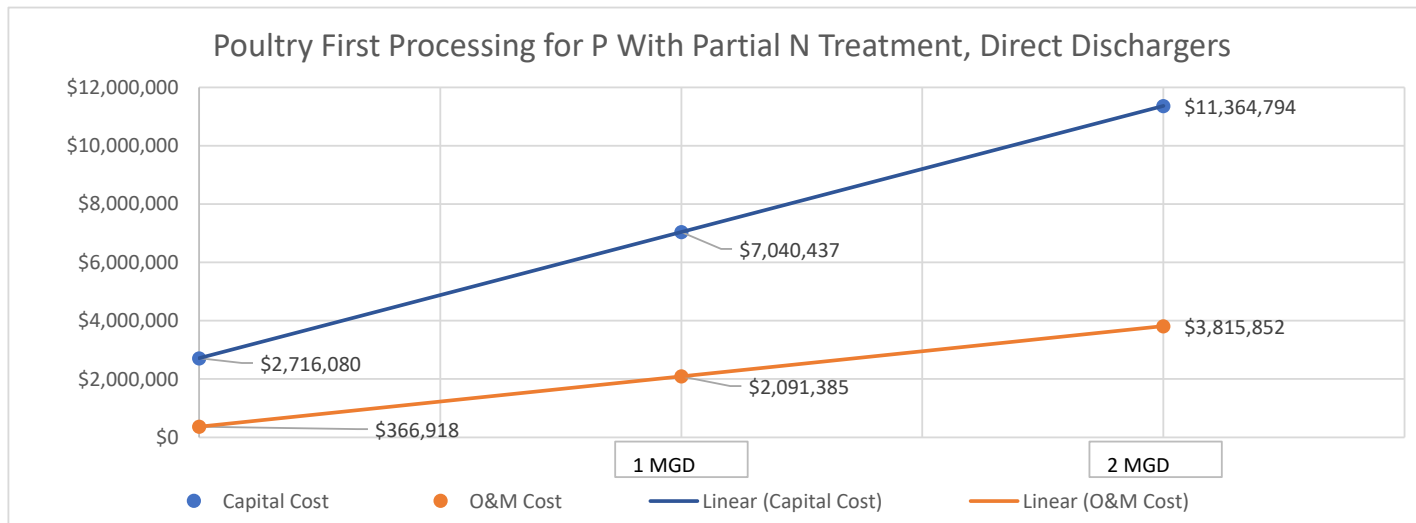
**Table A1-4 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Indirect Dischargers
(Compliance Cost Methodology for MPP, page 38, MP00301)**

Meat Further Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$148,883	\$8,350	\$37,411	\$6,945
DAF	\$207,987	\$134,727	\$37,647	\$4,266
Anaerobic Lagoon	\$510,508	\$15,801	\$6,856	\$8,420
Biological Treatment	\$2,567,703	\$487,396	\$263,483	\$171,733
Chemical Phosphorus Removal	NA	NA	\$1,585	\$35,959
Sand Filtration	\$610,175	\$199,653	\$23,782	\$8,375
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$721,209</u>	<u>\$529,871</u>	<u>\$355,676</u>	<u>\$35,836</u>
Subtotal Cost	\$4,766,465	\$1,375,798	\$726,440	\$271,534
Total Capital Cost (1 MGD)	\$6,142,263			
Total O&M Cost (1 MGD)			\$997,974	
Total Capital Cost (2 MGD)	\$10,908,728			
Total O&M Cost (2 MGD)			\$1,724,414	



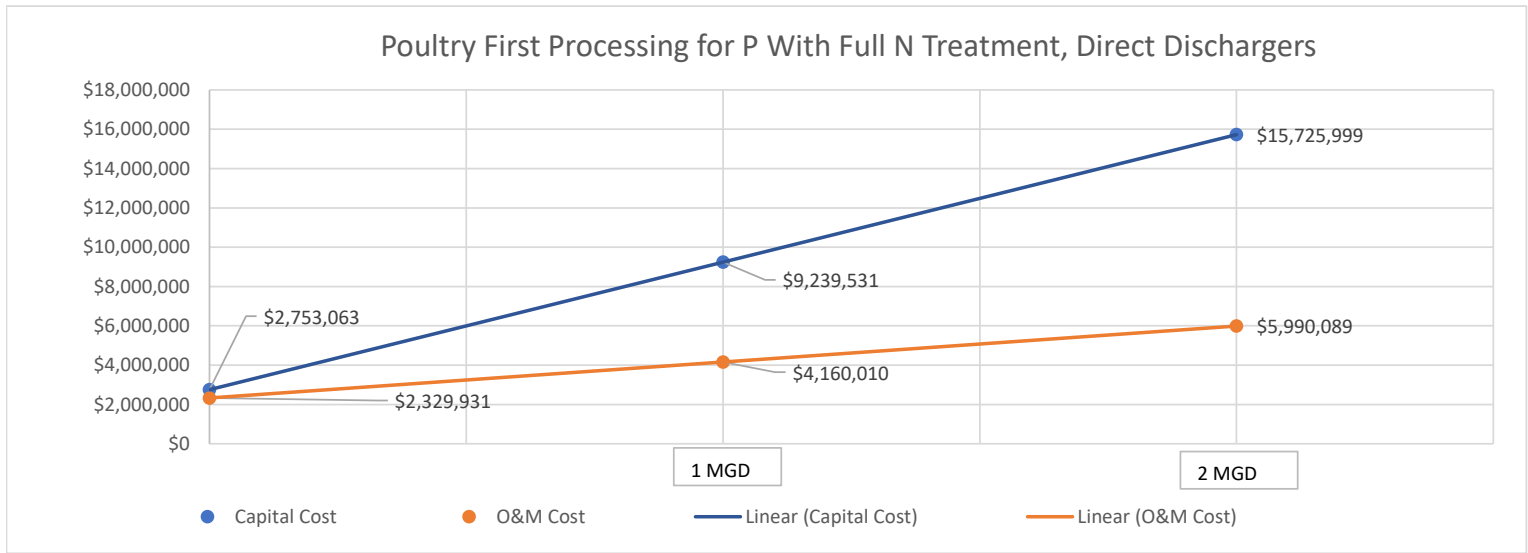
**Table A1-1 Cost Curves as a Function of Wastewater Flow in MGD for P with Partial N treatment for Direct Dischargers
(Compliance Cost Methodology for MPP, page 31, MP00301)**

Poultry First Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$123,451	\$28,201	\$25,154	\$18,645
DAF	\$455,120	\$155,310	\$71,172	\$19,999
Anaerobic Lagoon	\$79,357	\$32,265	\$6,090	\$8,513
Biological Treatment	\$2,689,886	\$612,576	\$320,533	\$187,547
Chemical Phosphorus Removal	NA	NA	\$1,585	\$35,959
Sand Filtration	\$389,950	\$526,853	\$15,324	\$22,508
Chlorination/dichlorination	\$86,598	\$362,472	\$37,052	\$37,793
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$499,995</u>	<u>\$998,403</u>	<u>\$1,247,557</u>	<u>\$35,954</u>
Subtotal Cost	\$4,324,357	\$2,716,080	\$1,724,467	\$366,918
Total Capital Cost (1 MGD)	\$7,040,437			
Total O&M Cost (1 MGD)			\$2,091,385	
Total Capital Cost (2 MGD)	\$11,364,794			
Total O&M Cost (2 MGD)			\$3,815,852	



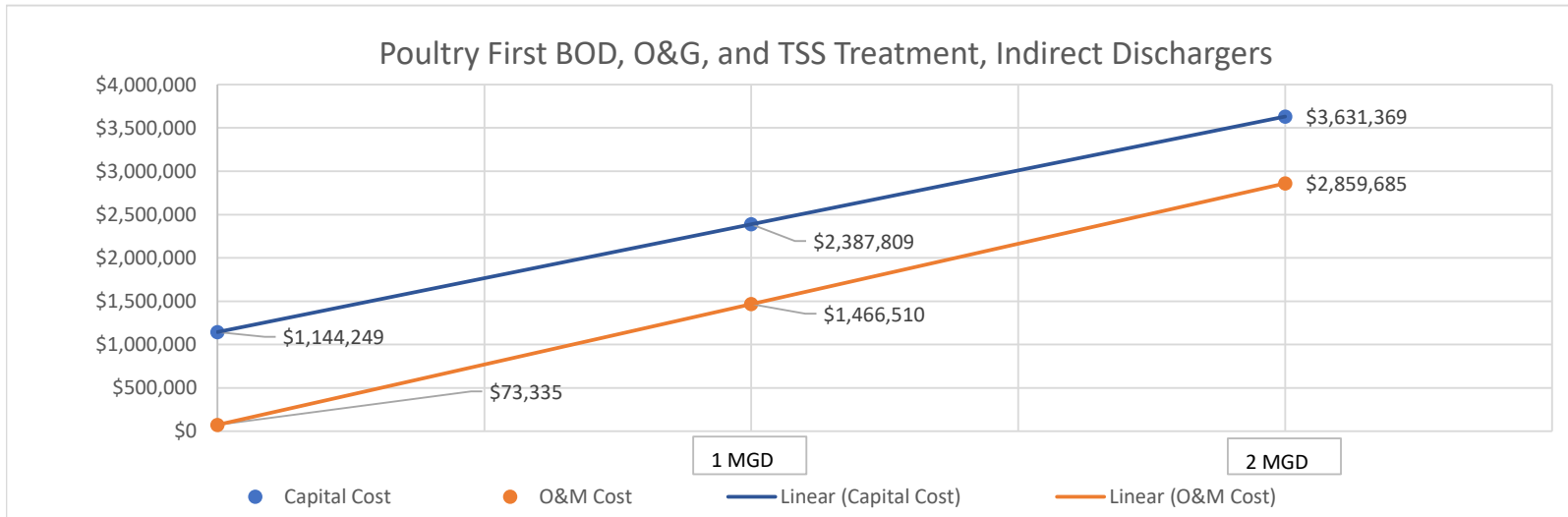
**Table A1-2 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Direct Dischargers
(Compliance Cost Methodology for MPP, page 34, MP00301)**

Poultry First Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$123,451	\$28,201	\$25,187	\$18,691
DAF	\$455,120	\$155,310	\$71,261	\$20,018
Anaerobic Lagoon	\$79,357	\$32,265	\$6,092	\$8,509
Biological Treatment	\$4,855,865	\$649,998	\$463,247	\$2,150,025
Chemical Phosphorus Removal	NA	NA	\$1,585	\$35,959
Sand Filtration	\$389,722	\$527,204	\$15,310	\$22,547
Chlorination/dichlorination	\$86,598	\$362,472	\$37,058	\$37,800
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$496,355</u>	<u>\$997,613</u>	<u>\$1,210,339</u>	<u>\$36,382</u>
Subtotal Cost	\$6,486,468	\$2,753,063	\$1,830,079	\$2,329,931
Total Capital Cost (1 MGD)	\$9,239,531			
Total O&M Cost (1 MGD)			\$4,160,010	
Total Capital Cost (2 MGD)	\$15,725,999			
Total O&M Cost (2 MGD)			\$5,990,089	



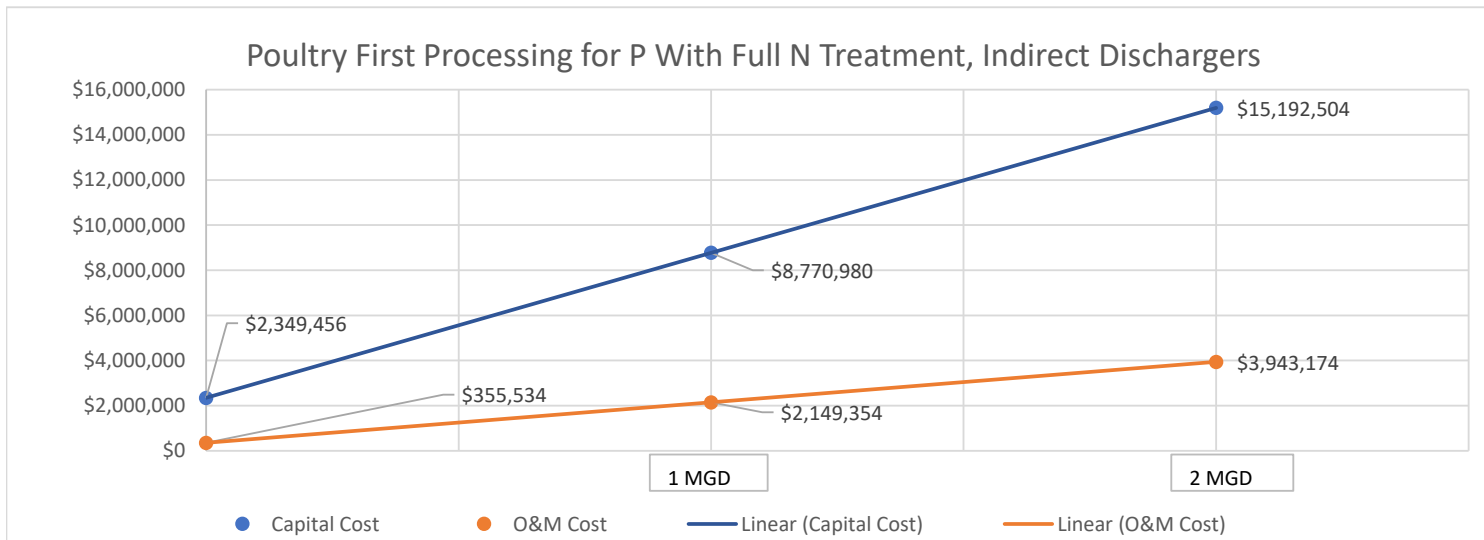
**Table A1-3 Cost Curves as a Function of Wastewater Flow in MGD for BOD, O&G, and TSS Treatment for Indirect Dischargers
(Compliance Cost Methodology for MPP, page 36, MP00301)**

Poultry First Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$125,831	\$28,586	\$24,875	\$18,041
DAF	\$609,565	\$119,068	\$78,366	\$20,218
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$508,164</u>	<u>\$996,595</u>	<u>\$1,289,934</u>	<u>\$35,076</u>
Subtotal Cost	\$1,243,560	\$1,144,249	\$1,393,175	\$73,335
Total Capital Cost (1 MGD)	\$2,387,809			
Total O&M Cost (1 MGD)			\$1,466,510	
Total Capital Cost (2 MGD)	\$3,631,369			
Total O&M Cost (2 MGD)			\$2,859,685	



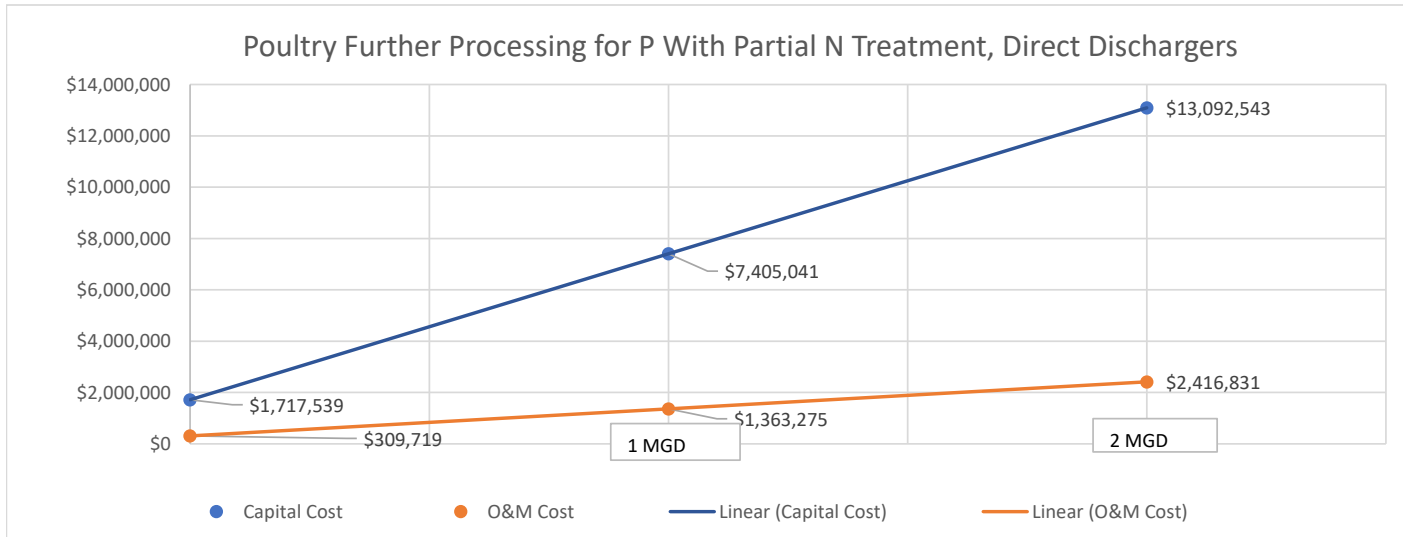
**Table A1-4 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Indirect Dischargers
(Compliance Cost Methodology for MPP, page 39, MP00301)**

Poultry First Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$123,451	\$28,201	\$25,191	\$18,684
DAF	\$455,120	\$155,310	\$71,207	\$20,010
Anaerobic Lagoon	\$79,357	\$32,265	\$6,092	\$8,509
Biological Treatment	\$4,855,865	\$649,998	\$463,216	\$214,982
Chemical Phosphorus Removal	NA	NA	\$1,585	\$35,959
Sand Filtration	\$411,376	\$486,069	\$16,188	\$21,012
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$496,355</u>	<u>\$997,613</u>	<u>\$1,210,341</u>	<u>\$36,378</u>
Subtotal Cost	\$6,421,524	\$2,349,456	\$1,793,820	\$355,534
Total Capital Cost (1 MGD)	\$8,770,980			
Total O&M Cost (1 MGD)			\$2,149,354	
Total Capital Cost (2 MGD)	\$15,192,504			
Total O&M Cost (2 MGD)			\$3,943,174	



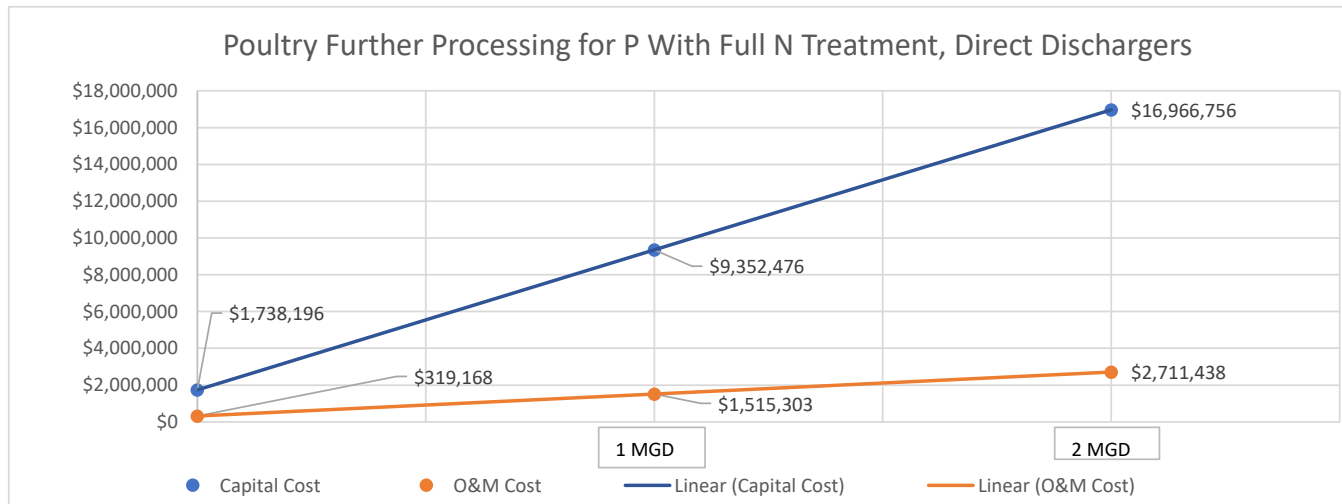
**Table A1-1 Cost Curves as a Function of Wastewater Flow in MGD for P with Partial N treatment for Direct Dischargers
(Compliance Cost Methodology for MPP, page 31, MP00301)**

Poultry Further Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$177,122	\$8,158	\$48,109	\$8,432
DAF	\$284,112	\$134,930	\$54,477	\$5,124
Anaerobic Lagoon	\$73,379	\$38,524	\$8,381	\$8,338
Biological Treatment	\$2,596,888	\$492,512	\$353,908	\$155,213
Chemical Phosphorus Removal	NA	NA	\$1,589	\$35,960
Sand Filtration	\$1,153,535	\$224,591	\$50,897	\$9,120
Chlorination/dichlorination	\$142,523	\$354,152	\$39,755	\$38,572
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$1,259,943</u>	<u>\$464,672</u>	<u>\$496,440</u>	<u>\$48,960</u>
Subtotal Cost	\$5,687,502	\$1,717,539	\$1,053,556	\$309,719
Total Capital Cost (1 MGD)	\$7,405,041			
Total O&M Cost (1 MGD)			\$1,363,275	
Total Capital Cost (2 MGD)	\$13,092,543			
Total O&M Cost (2 MGD)			\$2,416,831	



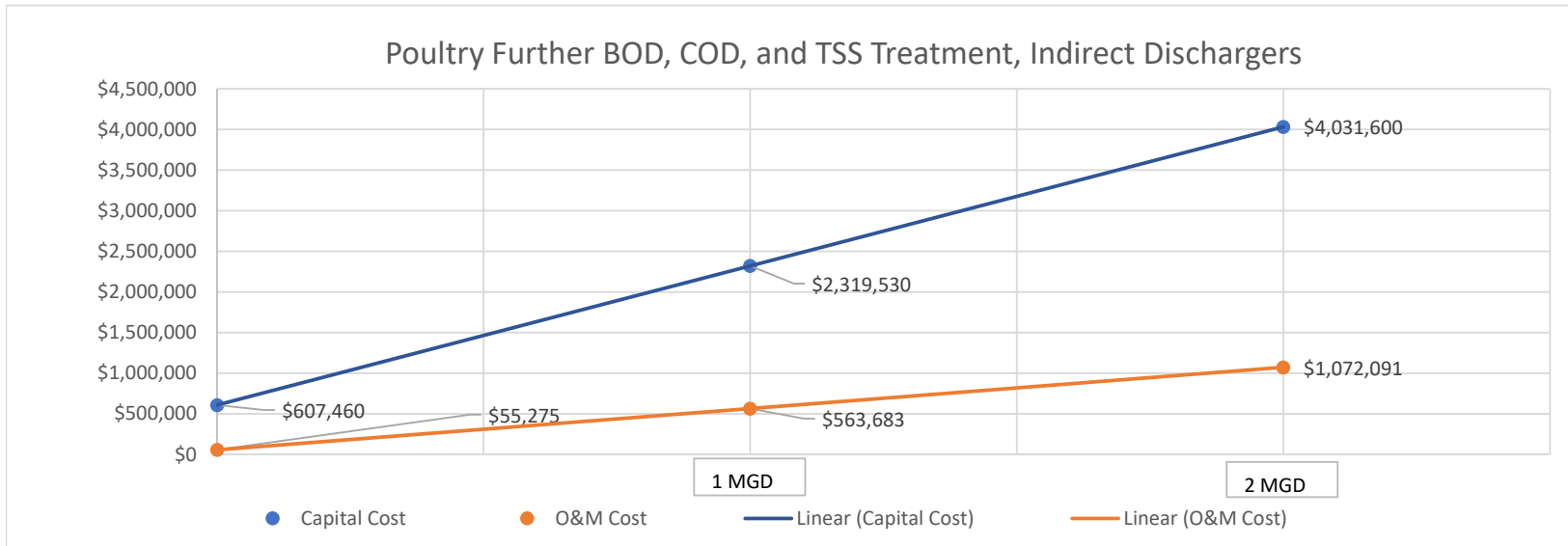
**Table A1-2 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Direct Dischargers
(Compliance Cost Methodology for MPP, page 34, MP00301)**

Poultry Further Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$177,122	\$8,158	\$48,214	\$8,448
DAF	\$284,112	\$134,930	\$54,541	\$5,128
Anaerobic Lagoon	\$73,379	\$38,524	\$8,381	\$8,338
Biological Treatment	\$4,530,648	\$512,682	\$523,313	\$164,751
Chemical Phosphorus Removal	NA	NA	\$1,589	\$35,960
Sand Filtration	\$1,153,146	\$224,885	\$50,904	\$9,124
Chlorination/dichlorination	\$142,523	\$354,152	\$39,804	\$38,548
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$1,253,350</u>	<u>\$464,865</u>	<u>\$469,389</u>	<u>\$48,871</u>
Subtotal	\$7,614,280	\$1,738,196	\$1,196,135	\$319,168
Total Capital Cost (1 MGD)	\$9,352,476			
Total O&M Cost (1 MGD)			\$1,515,303	
Total Capital Cost (2 MGD)	\$16,966,756			
Total O&M Cost (2 MGD)			\$2,711,438	



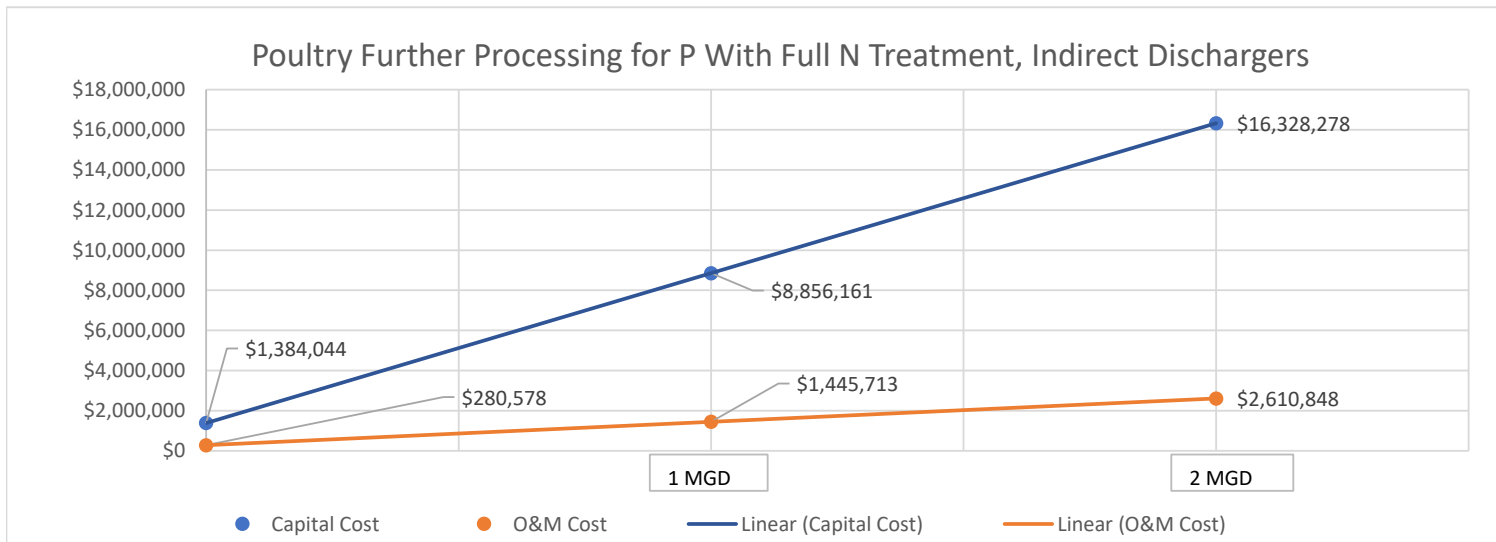
**Table A1-3 Cost Curves as a Function of Wastewater Flow in MGD for BOD, O&G, and TSS Treatment for Indirect Dischargers
(Compliance Cost Methodology for MPP, page 37, MP00301)**

Poultry Further Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$178,253	\$8,184	\$46,891	\$7,947
DAF	\$284,112	\$134,930	\$57,825	\$5,087
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$1,249,705</u>	<u>\$464,346</u>	<u>\$403,692</u>	<u>\$42,241</u>
Subtotal Cost	\$1,712,070	\$607,460	\$508,408	\$55,275
Total Capital Cost (1 MGD)	\$2,319,530			
Total O&M Cost (1 MGD)			\$563,683	
Total Capital Cost (2 MGD)	\$4,031,600			
Total O&M Cost (2 MGD)			\$1,072,091	



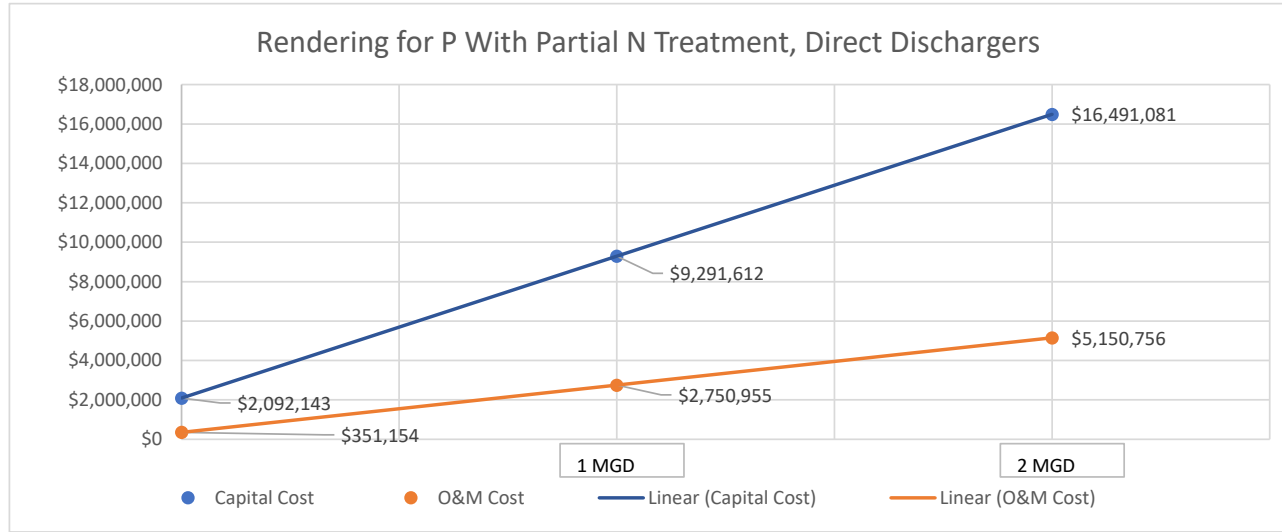
**Table A1-4 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Indirect Dischargers
(Compliance Cost Methodology for MPP, page 39, MP00301)**

Poultry Further Processing				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$177,122	\$8,158	\$48,212	\$8,445
DAF	\$284,112	\$134,930	\$54,531	\$5,129
Anaerobic Lagoon	\$73,739	\$38,524	\$8,381	\$8,338
Biological Treatment	\$4,530,648	\$512,682	\$532,131	\$164,713
Chemical Phosphorus Removal	NA	NA	\$1,589	\$35,960
Sand Filtration	\$1,153,146	\$224,885	\$50,904	\$9,124
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$1,253,350</u>	<u>\$464,865</u>	<u>\$469,387</u>	<u>\$48,869</u>
Subtotal Cost	\$7,472,117	\$1,384,044	\$1,165,135	\$280,578
Total Capital Cost (1 MGD)	\$8,856,161			
Total O&M Cost (1 MGD)			\$1,445,713	
Total Capital Cost (2 MGD)	\$16,328,278			
Total O&M Cost (2 MGD)			\$2,610,848	



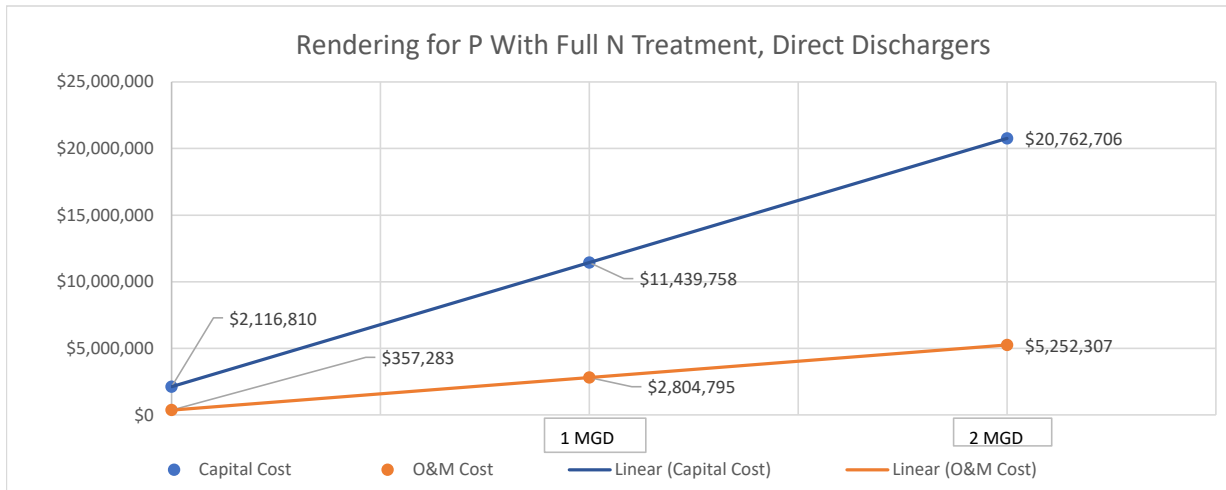
**Table A1-1 Cost Curves as a Function of Wastewater Flow in MGD for P with Partial N treatment for Direct Dischargers
(Compliance Cost Methodology for MPP, page 34, MP00301)**

Rendering				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$162,986	\$14,574	\$42,462	\$11,112
DAF	\$522,606	\$137,739	\$93,660	\$12,222
Anaerobic Lagoon	\$86,322	\$34,606	\$8,215	\$8,352
Biological Treatment	\$5,464,298	\$666,807	\$766,079	\$210,905
Chemical Phosphorus Removal	NA	NA	\$1,583	\$35,690
Sand Filtration	NA	NA	NA	NA
Chlorination/dichlorination	\$134,877	\$351,656	\$36,879	\$40,661
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$828,380</u>	<u>\$886,761</u>	<u>\$1,450,923</u>	<u>\$32,212</u>
Subtotal Cost	\$7,199,469	\$2,092,143	\$2,399,801	\$351,154
Total Capital Cost (1 MGD)	\$9,291,612			
Total O&M Cost (1 MGD)			\$2,750,955	
Total Capital Cost (2 MGD)	\$16,491,081			
Total O&M Cost (2 MGD)			\$5,150,756	



**Table A1-2 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Direct Dischargers
(Compliance Cost Methodology for MPP, page 35, MP00301)**

Rendering				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$162,986	\$14,574	\$42,455	\$11,139
DAF	\$522,606	\$137,739	\$93,753	\$12,228
Anaerobic Lagoon	\$86,322	\$34,064	\$8,184	\$9,347
Biological Treatment	\$7,601,317	\$691,716	\$885,652	\$216,860
Chemical Phosphorus Removal	NA	NA	\$1,583	\$35,960
Sand Filtration	NA	NA	NA	NA
Chlorination/dichlorination	\$134,877	\$351,656	\$36,883	\$40,663
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$814,840</u>	<u>\$887,061</u>	<u>\$1,379,002</u>	<u>\$31,086</u>
Subtotal Cost	\$9,322,948	\$2,116,810	\$2,447,512	\$357,283
Total Capital Cost (1 MGD)	\$11,439,758			
Total O&M Cost (1 MGD)			\$2,804,795	
Total Capital Cost (2 MGD)	\$20,762,706			
Total O&M Cost (2 MGD)			\$5,252,307	



**Table A1-3 Cost Curves as a Function of Wastewater Flow in MGD for BOD, O&G, and TSS Treatment for Indirect Dischargers
(Compliance Cost Methodology for MPP, page 37, MP00301)**

Rendering				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr- MGD)	Intercept (\$)
Screening/Grit Removal	\$163,670	\$14,666	\$41,006	\$10,562
DAF	\$522,606	\$137,739	\$92,663	\$11,084
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$579,441</u>	<u>\$898,657</u>	<u>\$138,952</u>	<u>\$20,978</u>
Subtotal Cost	\$1,265,717	\$1,051,062	\$272,621	\$42,624
Total Capital Cost (1 MGD)	\$2,316,779			
Total O&M Cost (1 MGD)			\$315,245	
Total Capital Cost (2 MGD)	\$3,582,496			
Total O&M Cost (2 MGD)			\$587,866	

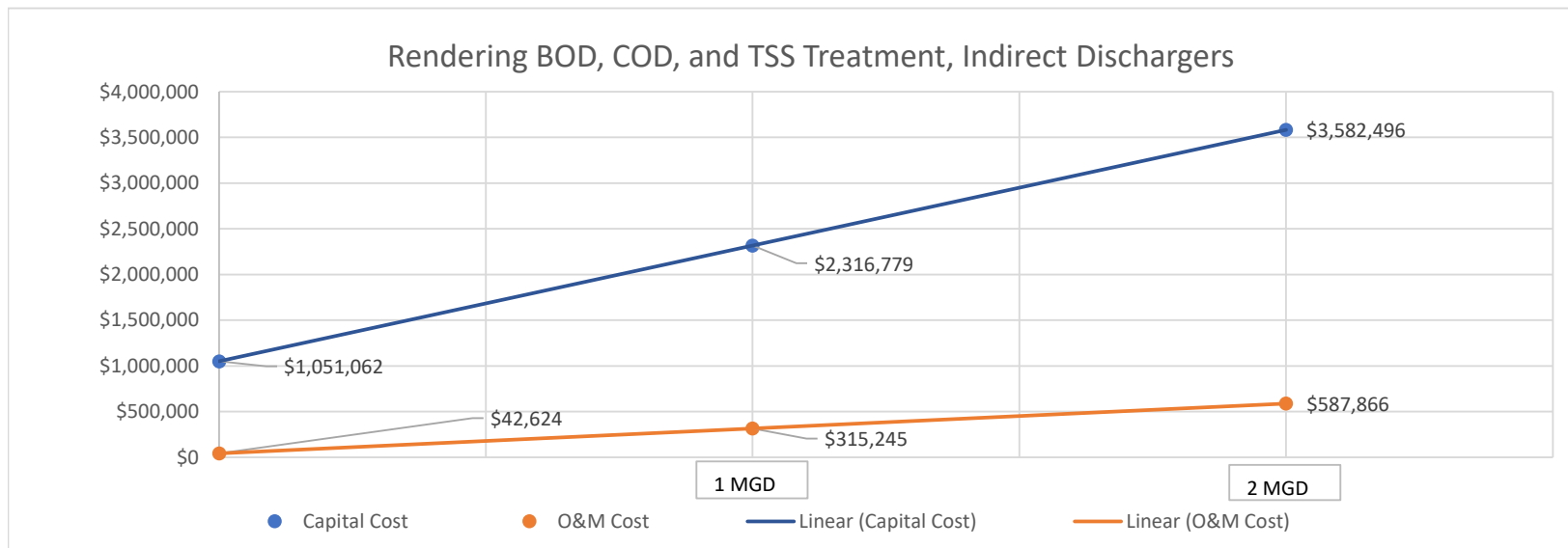


Table A1-4 Cost Curves as a Function of Wastewater Flow in MGD for P with Full N treatment for Indirect Dischargers (Compliance Cost Methodology for MPP, page 40, MP00301)

Rendering				
Treatment Unit	Capital Cost Curve (2022\$)		O&M Cost Curve (2022\$)	
	Slope (\$/MGD)	Intercept (\$)	Slope (\$/yr-MGD)	Intercept (\$)
Screening/Grit Removal	\$162,986	\$14,574	\$42,453	\$11,120
DAF	\$522,606	\$137,739	\$93,758	\$12,221
Anaerobic Lagoon	\$86,322	\$34,604	\$8,184	\$8,347
Biological Treatment	\$7,601,317	\$691,716	\$855,654	\$216,837
Chemical Phosphorus Removal	NA	NA	\$1,583	\$35,960
Sand Filtration	NA	NA	NA	NA
Solids Handling (With Vehicle) High Flow (>10,000 GPD)	<u>\$814,840</u>	<u>\$887,061</u>	<u>\$1,379,001</u>	<u>\$31,085</u>
Subtotal Cost	\$9,188,071	\$1,765,694	\$2,380,633	\$315,570
Total Capital Cost (1 MGD)	\$10,953,765			
Total O&M Cost (1 MGD)			\$2,696,203	
Total Capital Cost (2 MGD)	\$20,141,836			
Total O&M Cost (2 MGD)			\$5,076,836	

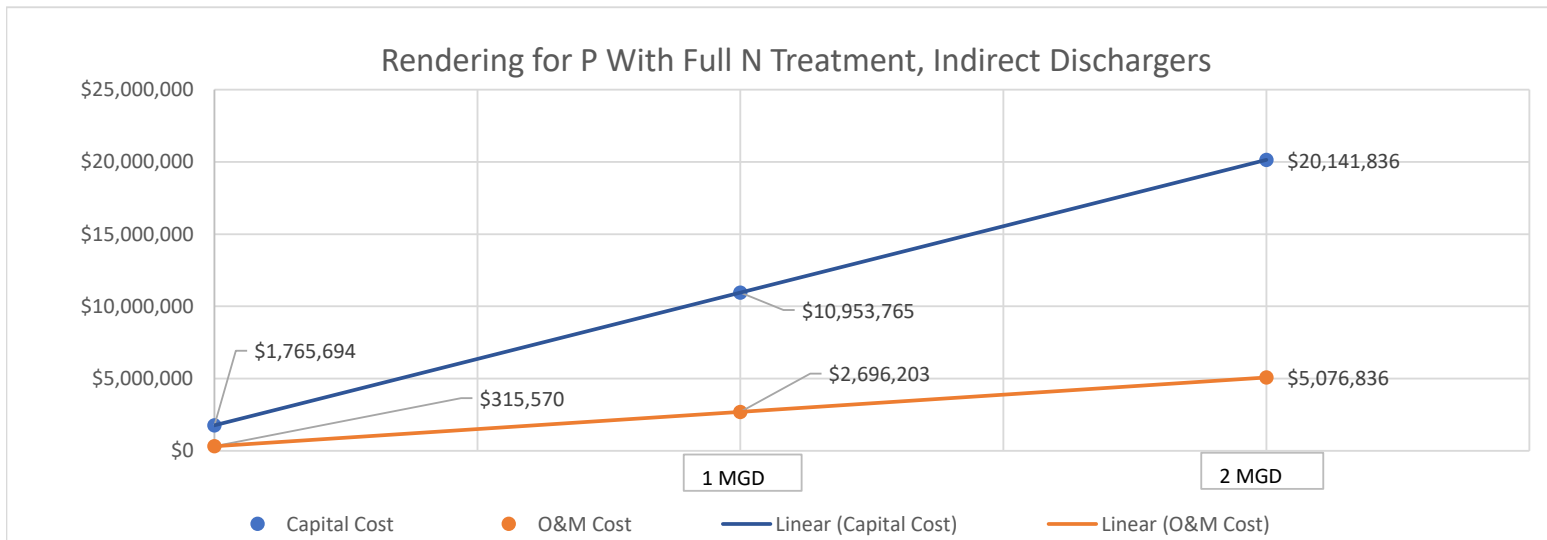


TABLE 17
Ratio factors for estimating capital-investment items based on delivered-equipment cost

Values presented are applicable for major process plant additions to an existing site where the necessary land is available through purchase or present ownership. The values are based on fixed-capital investments ranging from under \$1 million to over \$20 million.

Item	Percent of delivered equipment cost for		
	Solid-processing plant †	Solid-fluid-processing plant ‡	Fluid-processing plant ‡
	Direct costs		
Purchased equipment-delivered (including fabricated equipment and process machinery) §	100	100	100
Purchased-equipment installation	45	39	47
Instrumentation and controls (installed)	9	13	18
Piping (installed)	16	31	66
Electrical (installed)	10	10	11
Buildings (including services)	25	29	18
Yard improvements	13	10	10
Service facilities (installed)	40	55	70
Land (if purchase is required)	6	6	6
Total direct plant cost	264	293	346
	Indirect costs		
Engineering and supervision	33	32	33
Construction expenses	39	34	41
Total direct and indirect plant costs	336	359	420
Contractor's fee (about 5% of direct and indirect plant costs)	17	18	21
Contingency (about 10% of direct and indirect plant costs)	34	36	42
Fixed-capital investment	387	413	483
Working capital (about 15% of total capital investment)	68	74	86
Total capital investment	455	487	569

† Because of the extra expense involved in supplying service facilities, storage facilities, loading terminals, transportation facilities, and other necessary utilities at a completely undeveloped site, the fixed-capital investment for a new plant located at an undeveloped site may be as much as 100 percent greater than for an equivalent plant constructed as an addition to an existing plant.

‡ See Table 8 for definition of types of process plants.

§ Includes pumps and compressors.