



Powering Strong Communities

MEMORANDUM

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DATE: March 21, 2023

TO: Environmental Committee

FROM: Julian Hong, Environmental Policy Manager

SUBJECT: Summary: Supplemental Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category

I. Executive Summary

On March 8, 2023, U.S. Environmental Protection Agency (EPA or Agency) issued the [prepublication version](#) of a proposed rule entitled, “Supplemental Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category” (2023 ELG Rule, or proposed rule).¹ The Agency is providing the public with sixty days to comment on the proposed rule upon publication in the *Federal Register*. As proposed, the 2023 ELG Rule would revise the technology-based effluent limitation guidelines (ELG) and standards for wastewater discharges from steam electric power generating point sources. The revised ELGs will impact owners/operators of all coal-fired electric generating units (EGUs) with nameplate capacities of greater than 50 megawatts, (MW) that will be in operation beyond 2032.

The proposed rule establishes zero liquid discharge standards for flue gas desulfurization wastewater (FGDW), bottom ash transport water (BATW) and proposes numeric limits for arsenic and mercury for combustion residual leachate (CRL). The proposal would also establish a new set of definitions for various legacy wastewaters, which may be present in surface impoundments prior to more stringent limitations in a discharge permit going into effect. EPA estimates that the total annualized compliance costs for all impacted facilities in the steam electric sector are \$230 million². The Agency has not yet shared plant-specific estimated compliance costs.

The proposal maintains the 2020 ELG rule’s permanent cessation of coal (cessation) subcategory and the 2020 rule’s voluntary incentive program and adds one new subcategory for “early adopters,” Members that either participate in the permanent cessation of coal combustion by 2028 subcategory (early cessation subcategory) or the “early adopter” subcategory would not incur any compliance costs under the proposed rule for the FGDW and BATW waste streams.

¹ Supplemental Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, (Proposed Rule).

² This annual estimate is based on a specific amortization schedule.

EPA is proposing to reopen and extend the deadline to submit a Notice of Planned Participation (NOPP) for the early cessation subcategory and more information is provided below in section IV. The proposed “early adopter” subcategory would allow facilities in compliance with requirements of the [2015 ELG Rule](#) or [2020 ELG Rule](#) by the publication date of this proposed rule in the *Federal Register* (APPA anticipates the proposal will be published in the FR by the end of March) to forego compliance with the new ELGs for the FGDW and BATW waste streams. However, they would still need to comply with the new ELGs to treat discharges of the CRL waste.

APPA plans to submit comments on the proposed rule and host a briefing call with EPA so members may ask questions about the proposal. Following the call with EPA, we will host a discussion with interested members to hear their concerns with the proposed rule. These discussions will be valuable in helping us to develop a set of comments that are holistic and representative. If any members are interested in participating in the briefing call with EPA, sharing their concerns with this rulemaking, or have questions about the proposed rule, please contact Julian Hong (jhong@publicpower.org).

II. Background

EPA is issuing this proposed rule after completing its review of the existing 2020 ELG Rule under the Executive Order 13990, which directed federal agencies to immediately review and potentially revise any previous federal regulations that conflict with the national objectives of protecting public health and the environment. EPA published the 2015 ELG Rule in the Federal Register on November 3, 2015. The 2015 ELG Rule regulated waste streams such as BATW, CRL, flue gas mercury control wastewater (FGMCW), fly ash transport water (FATW), gasification wastewater, and legacy wastewater generated by new and existing steam electric facilities. The 2015 ELG Rule established an “as soon as possible” date of November 1, 2018³ and a “no later than” date of December 31, 2023. However, the effluent limitations for the CRL and legacy wastewater streams that were based on the use of surface impoundments as BAT were vacated by the U.S. Court Appeals for the Fifth Circuit in the case, *Southwestern Electric Power Co. v. EPA*, Case No. 15-60821 (5th Cir.). In that case, the court reasoned that due to the “availability” and “economic achievability” of more advanced and effective control technologies, the BATs for CRL and legacy wastewater in the 2015 ELG Rule were unlawful under the Clean Water Act (CWA). Until the 2023 ELG Rule, EPA has not undertaken any rulemakings that include effluent limitations for the discharge of CRL or legacy wastewater. According to EPA, permitting authorities must continue to conduct BPJ analyses and establish limits on case-by-case for those waste streams.

On October 13, 2020, EPA issued the 2020 ELG Rule, which set selenium discharge, mercury and nitrogen limitations in FGDW. For BATW, EPA changed the technology basis to high recycle rate system with site-specific volumetric purge, not to exceed ten percent of the BATW system’s volume, and introduced less stringent limitations for all pollutants. The 2020 ELG Rule established an “as soon as possible” date of October 13, 2021, and a “no later than” date of December 31, 2025.

³ Through a postponement rule, EPA postponed this date to November 1, 2020.

III. Proposed Rule Applicability

The new proposed rule would apply to all coal-fired power plants with nameplate capacities of greater than 50 MW, that discharge FGDW, BATW, or CRL directly or indirectly⁴ to surface waters as well as coal-fired power plants that discharge those waste streams to publicly owned treatment works (POTWs). The proposed generally applicable limits for the three waste streams, FGDW, BATW, and CRL would become effective as soon as 60 days after publication of the final rule and no later than December 31, 2029. Like it has done with prior ELG Rules, the Agency is proposing a compliance window with an “as soon as” and “no later than” dates to clarify that the proposed ELGs may go into effect on different dates for applicable sources based on their source specific NPDES permit renewal cycles. Essentially, only the renewed NPDES permits that are issued by permitting authorities during the compliance window will contain the more stringent ELGs. In addition, the permitting authority has the flexibility in assigning the exact effective date of the new ELGs in sources’ renewed NPDES permits by taking into consideration the factors in 40 CFR § 423.11(t)⁵. For indirect dischargers of the affected waste streams, the Pretreatment Standards for Existing Sources (PSESs) would go into effect three years after publication of the new ELG Rule in the *Federal Register* for FGDW.⁶ Indirect dischargers would have to meet the more stringent effluent limitations that apply to BATW and CRL waste streams beginning on 60 days after the publication of the final rule in the *Federal Register*.⁷

EPA estimates that there are 304 coal-fired EGUs at 163 coal-fired plants that are still in operation in 2023 and do not plan to retire before the end of 2028. EPA gathered this information by updating the results of the [2010 Steam Electric Survey](#) to take into account past and planned closures as well as plants which have since repowered to fuel sources other than coal. Within this universe of operational coal-fired EGUs, there are a total of 105 EGUs at 54 plants that use a wet FGD system and will need to incur costs to comply with the zero-discharge limitations for FGDW. In addition, EPA estimates that there are 221 EGUs at 73 plants that operate a wet BA handling system and will need to install new systems to meet the proposed ELG for BATW.⁸ Finally, EPA estimates that there are 168 EGUs at 68 plants that discharge CRL and may need to implement new control options to meet the proposed ELG for CRL.

The proposed rule may also potentially apply to all discharges of “legacy wastewaters” from applicable surface impoundments at active or inactive power plants.⁹ Previously in the preamble of the 2015 ELG Rule, EPA noted that for the purposes of the BAT used to establish the 2015 ELGs, legacy wastewater was defined as FGDW, FATW, BATW, FGMCW and gasification

⁴ As will be discussed further below, EPA “clarifies” that indirect discharges of CRL from sources’ surface impoundments that meet the “functional point discharge test” from the County of Maui v. Hawaii Wildlife Fund, 140 S. Ct. 1462 (2020) case would also be subject to these proposed ELGs.

⁵ Those factors include: 1) time to expeditiously plan (including to raise capital), design, procure, and install equipment to comply with new ELGs, 2) changes being made at the plant in response to other regulatory requirements (New Source Performance Standards for greenhouse gases, emission guidelines for greenhouse gases, or Coal Combustion Residual rules), 3) for FGDW requirements only, an initial commissioning period for the treatment system to optimize the installed equipment, and 4) other factors as appropriate.

⁶ 40 CFR §423.16(e)(1) of the proposed rule.

⁷ 40 CFR §423.16(g)(1) & 40 CFR §423.16(j) of the proposed rule.

⁸ [Technical Development Document for Proposed Supplemental Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category](#) (TDD) at 14.

⁹ Proposed Rule at 111.

wastewater generated prior to the “as soon as possible” date of the 2015 ELG Rule. In the preamble of this proposed rule, EPA only notes that broadly, there are two categories of legacy wastewater:

- (1) wastewater that is continuously or intermittently generated and discharged to a pond after the issuance of the first permit implementing the 2015 or 2020 rule but before the compliance date specified in the permit (the “as soon as possible” date required by the rule); and*
- (2) wastewater that was discharged to the pond previously and will be discharged when the pond is dewatered for closure*

IV. Subcategories

EPA is proposing to retain the early cessation subcategory, eliminate the existing subcategories for high FGD flow facilities and low utilization EGUs (LUEGUs), and create a new subcategory for the “early adopter” facilities that plan to permanently cease coal combustion by 2032.

For the early cessation subcategory, EPA plans to reopen and extend the deadline to submit a Notice of Planned Participation (NOPP) from October 13, 2021 to 90 days after the publication of a [direct final rule](#). In a separate rulemaking process, EPA released the direct final rule to reopen and extend the NOPP submission deadline. The direct final rule will automatically go into effect 60 days after its publication in the *Federal Register*, unless EPA receives adverse comments on the direct final rule. In preparation for such a case, EPA proposes to include a provision to reopen and extend the NOPP submission deadline in this proposed rule.

Further, EPA proposes to eliminate the existing subcategories for high FGD flow facilities and LUEGUs due to a lack of participation by eligible facilities. According to EPA, only one facility would have been eligible for the high FGD flow facilities subcategory, but that facility is now retiring.¹⁰ In addition, only four units at two plants have submitted a NOPP for the LUEGUs subcategory. As acknowledged by the Agency in the preamble, EPA may not have a complete inventory of all NOPPs that were submitted under either subcategory because eligible facilities submit their notices to their respective permitting authorities, not EPA. Therefore, EPA is soliciting comments from the industry to determine if other facilities have submitted NOPPs for either subcategory.

Finally, EPA proposes to create a new subcategory for the “early adopter facilities” that have the control technologies in place to meet either the 2015 ELG Rule or 2020 ELG Rule by the publication date of this proposed rule and plan to permanently cease coal combustion by the end of 2032. To ensure that facilities participating in either the early cessation subcategory or the early adopter facilities subcategory permanently cease coal combustion by the provided deadlines, EPA proposes to require the permitting authorities to insert an automatic application provision. That provision would be included in any renewed NPDES permits issued to those facilities participating in either subcategory that the new ELGs for the FGDW and BATW waste

¹⁰ And because EPA proposes to reopen the deadline to submit a NOPP for the early cessation subcategory, that facility may transition to that category.

streams will automatically apply should those facilities continue to operate beyond their certified cease of operations date.

V. Assessment of BAT

Under the CWA, EPA develops technology driven ELGs that apply to certain waste streams for each industry. The ELGs represent reasonable discharge requirements based on the assumed implementation of the technology basis that EPA determines is applicable. The BAT is a technology basis that the Agency determines is “available” and “economically achievable” for the entire industry. Other statutory factors that EPA will consider in establishing the BAT are “cost of achieving BAT effluent reductions, the age of equipment and facilities involved, the process employed, potential process changes, and non-water quality environmental impacts.”¹¹ The Agency has considerable discretion in assigning the weight to be given these factors.

First, EPA defines an “available” technology as one that reflects the “highest performance in the industry and may reflect a higher level of performance than is currently being achieved based on technology transferred from a different subcategory or category, bench scale or pilot plant studies, or foreign plants.”¹² In essence, a technology that has not been proven on a commercial scale by a domestic plant in the same industry may still be an “available” technology, if it has been successfully implemented by foreign companies in the same industry or successfully tested through domestic pilot studies. The technology is also “available,” if it has been successfully implemented in a different industry to an identical waste stream.

Second, EPA defines the standard of “economic achievability” for the purpose of assessing BAT as a test of whether “the regulations can be reasonably borne by the industry as a whole.”¹³ To further clarify what constitutes “reasonably borne”, EPA cites court cases that have upheld the implementation of the Agency’s regulations which were projected to cause “up to 50 percent closure rates.”

As part of this rulemaking, EPA considered four regulatory options for BATs and PSESs for each affected waste streams. Starting with option 1, which reiterates the existing controls under the 2020 ELG Rule, the options get progressively more stringent and costly for sources to implement.

The below sections will discuss in more detail option 3 EPA’s preferred option and their corresponding ELGs.

EPA’s Regulatory Options

Wastestream	Subcategory	Technology Basis for the BAT/PSES Regulatory Options
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¹¹ CWA section 304(b)(2)(B).

¹² Proposed Rule at 56.

¹³ *Id.* at 65

		1	2	3 (preferred option)	4
FGD wastewater	N/A	Chemical precipitation + biological treatment + ultrafiltration	Chemical precipitation + membrane filtration	Chemical precipitation + membrane filtration	Chemical precipitation + membrane filtration
	EGUs permanently ceasing coal combustion by 2028	Surface impoundments	Surface impoundments	Surface impoundments	Surface impoundments
	Early adopters permanently ceasing coal combustion by 2032	Not Subcategorized	Chemical precipitation + biological treatment + ultrafiltration	Chemical precipitation + biological treatment + ultrafiltration	Not Subcategorized
BA transport water	N/A	High recycle rate systems	High recycle rate systems	Dry handling or closed-loop systems	Dry handling or closed-loop systems
	EGUs permanently ceasing coal combustion by 2028	Surface impoundments	Surface impoundments	Surface impoundments	Surface impoundments
	Early adopters permanently ceasing coal combustion by 2032	Not Subcategorized	Not Subcategorized	High recycle rate systems	Not Subcategorized
CRL	N/A	Chemical precipitation	Chemical precipitation	Chemical precipitation	Chemical precipitation
Legacy wastewater	N/A	Best professional judgment	Best professional judgment	Best professional judgment	Best professional judgment

VI. FGDW

For FGDW, EPA is proposing establish zero-discharge requirement based on the use of chemical precipitation plus membrane filtration technologies as BAT. After the application of membrane filtration technology, the resulting permeate would then be “recycled back into the plant either as FGD makeup water or boiler makeup water.”¹⁴ The existing BAT technology basis under the 2020 ELG Rule was chemical precipitation plus biological treatment plus ultrafiltration.

EPA supports its contention that the membrane filtration technology is “available” by citing twelve foreign installations of membrane filtration equipment on FGDW¹⁵, twenty pilot applications of the technology¹⁶, and the use of membrane filtration technology in other industrial applications. In fact, EPA notes that some of the foreign installations, which operate with “American-made systems”, have displayed seven years of continued success in discharging zero pollutants in FGDW¹⁷. However, information on the recent financial conditions of these plants or their access to funding to implement these new technologies has not been shared by the Agency. In addition, according to EPA, domestic pilot studies with membrane filtration technology have increasingly demonstrated success. EPA only refers in detail to two reports of success in domestic pilot studies of the membrane filtration technology because the results of all other pilot studies have been deemed confidential business information.

EPA proposes to find that membrane filtration technology is economically achievable. According to the Agency, the implementation of the membrane filtration technology to treat FGDW is estimated to cost \$87 million annually for all applicable EGUs. EPA also estimates that there will only be one plant closure due to the incremental compliance costs associated with this proposed rule.

VII. BATW

For discharges of BATW, EPA is proposing to establish a zero-discharge requirement based on the use of either the dry handling or the closed-loop systems as BAT. EPA clarifies in the preamble that the scope of BATW does not include “quench water” or “bottom ash contact water” that is used to cool hot bottom ash in “dry handling” systems because those waters are not used to transport bottom ash. As proposed, EPA would eliminate any purge allowances. EPA finds that the dry handling and closed-loop system technologies, without the availability of purge allowances, are “available”, “economically achievable” and do not present significant “non-water quality environmental impacts.”

First, EPA finds that the dry handling technology is “available” based on industry-wide implementation of that technology. For example, EPA estimated that at the time of the 2015 ELG Rule, over 200 EGUs at 100 plants already used dry handling technology and by 2020, more than 75 percent of plants used dry handling systems.¹⁸ With regards to the closed-loop system, EPA doesn’t cite statistics on the prevalence of those systems within the industry to support its finding that the technology is “available.” Instead, the Agency addresses, in the

¹⁴ Proposed rule at 55.

¹⁵ *Id.* at 58.

¹⁶ *Id.* at 60.

¹⁷ *Id.* at 59.

¹⁸ *Id.* at 76.

preamble, the steam electric industry's long-standing concerns with implementing a true closed-loop system without purges, such as managing non-BA transport waters, precipitation-related inflows, and unexpected maintenance events.

Second, EPA finds that both technologies are “economically achievable.” EPA estimates that for the entire industry, the annualized costs of implementing either technology are \$45 million in pre-tax costs. According to EPA, the cost to operate dry handling technologies are less expensive than the cost to operate wet handling technologies which has led to more than 80 percent of EGUs built between 1989 and 2009 to install dry handling technologies.¹⁹

VIII. CRL

EPA is proposing numeric discharge limitations for mercury (daily maximum of 11 ug/L (microgram/liter) and 30-day average of 8 ug/L) and arsenic (daily maximum of 788 ug/L and 30-day average of 356 ug/L) in CRL based on the use of chemical precipitation technology as BAT. The Agency proposes to find that the chemical precipitation technology meets all statutory requirements for the assessment of BAT: it is “available”, “economically achievable,” does not present significant “non-water quality environmental impacts.”

EPA contends that the use of chemical precipitation technology to treat CRL discharges is “available” because that technology has proven to be effective at treating FGDW and the two waste streams share many similarities. According to the Agency, the results of CRL sampling data from 25 landfills showed that CRL has similar wastewater characterization to FGDW.

In addition, EPA would find that it is “economically achievable” for the affected sources in the steam electric sector to install and operate the chemical precipitation technology to treat CRL. According to the Regulatory Impact Analysis for Proposed Supplemental Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (RIA), the annualized pre-tax compliance costs of implanting the chemical precipitation technology to treat CRL wastewater is \$99 million for the entire industry.²⁰

Finally, EPA clarifies that indirect discharges of CRL from surface impoundments that travel through the groundwater to reach the surface waters of the United States may also be subject to regulation under this proposed rule, if they display characteristics of discharges from a “functional equivalent” point source. An indirect discharge of pollutants to groundwater is functionally equivalent to a point source discharge, if it meets the factors discussed in the *County of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462 (2020) case. In that case, the Supreme Court discussed seven factors that typically define “functional equivalency” with the transit time and distance traveled factors being the most dispositive in that determination. EPA notes that it is the permitting authorities that will use the *Maui* test to determine on a case-by-case basis whether a source's indirect discharge of CRL behaves like a discharge from a “functional equivalent” point source. EPA cites 40 CFR § 122.21(e) to contend that the potentially affected sources with indirect discharges of CRL must provide information on such discharges to the permitting authorities to help them make this determination. The categories of general and technical

¹⁹ TDD at 16.

²⁰ RIA at 3-7.

information that the potentially affected sources are recommended to submit to the permitting authorities are listed in detail on pages 230 to 233 of the proposed rule. According to EPA, most of this information is “already required and made publicly available under the CCR rule”²¹ and should only put minimal burden on the facilities.

IX. Legacy Wastewater

Unlike the three waste streams discussed above, EPA is not proposing a BAT for the “legacy wastewaters” category, because it does not find that there is a single technology that is “available and economically achievable on a nationwide basis for control of pollutants in legacy wastewater.”²² Power plants across the nation are at different stages in terms of process changes and surface impoundment closures and EPA does not find that there is a single technology that can be adequately implemented by all plants across the country. Therefore, EPA proposes to continue to allow permitting authorities to decide on an adequate technology for the treatment of legacy wastewaters on a plant-by-plant basis by applying BPJ.

While the Agency is not proposing to assess a BAT for this waste stream, it is undertaking two significant actions as part of this proposed rule. First, EPA proposes to categorize legacy wastewaters into different streams to give the permitting authorities the flexibility to assess different treatment requirements for each category of legacy wastewaters. Second, the Agency “clarifies” that the legacy wastewaters discharged from inactive or closed surface impoundments at inactive or retired power plants are within the scope of this rule. EPA is currently evaluating [information](#) it received from Earthjustice about 170 surface impoundments and 47 landfills at 72 retired power plants.

In the preamble, the Agency notes that, in practice, there are two categories of legacy wastewater: (1) wastewater that is continuously or intermittently generated and discharged to a pond after the issuance of the first permit implementing the 2015 or 2020 rule but before the compliance date specified in the permit (the “as soon as possible” date required by the rule); and (2) wastewater that was discharged to the pond previously and will be discharged when the pond is dewatered for closure. Within the second category of legacy wastewaters, EPA proposes to further segregate those waste waters to surface impoundment (SI) decant wastewaters and SI dewatering wastewaters. As proposed, SI decant wastewater would mean “the layer of a closing surface impoundment’s wastewater that is located from the water surface down to the level sufficiently above any coal combustion residuals that, when drained, does not resuspend the coal combustion residuals.” And SI dewatering waters would mean “the layer of a closing surface impoundment’s wastewater that is located below surface impoundment decant water due to its contact with either stationary or re-suspended coal combustion residuals.”²³

EPA explains that the adequate discharge requirements as assessed on a BPJ basis may be different for each of the proposed categories. For example, if a plant has in place chemical precipitation plus biological treatment and ultrafiltration technology before the “as soon as possible” date of the 2020 ELG Rule, the permitting authority may find that establishing more

²¹ Proposed rule at 229.

²² *Id.* at 99.

²³ *Id.* at 104.

stringent requirements for the treatment of legacy wastewaters based on the availability of such control technology may be justified. As support of this proposed recommendation, EPA cites Pennsylvania's recent decision to issue an NPDES permit to Homer City that would apply more stringent discharge requirements based on that facility's access to more advanced control technology not available to other facilities.

Likewise, EPA notes that the segregation of the second category of legacy wastewaters to SI decant wastewaters and SI dewatering wastewaters should allow permitting authorities to assess different discharge requirements for each waste stream due to their different characteristics. As an example, EPA references North Carolina's issuance of permits to Duke Energy that only established maximum elevation change and certain applied controls for SI decant wastewaters but placed water quality-based effluent limitations on several pollutants in the SI dewatering wastewater.

X. EPA's Benefit-Cost Analysis

To support its finding that this proposed rule is "economically achievable," EPA developed estimates of the annualized benefits of the proposed rule as well as the annualized compliance costs for the steam electric sector. According to those estimates, the annualized benefit associated with this proposed rule is \$1,556.8 million when discounted at 3 percent and \$1,290.4 million when discounted at 7 percent.²⁴ The benefits are categorized into benefits associated with improvements in human health due to improved water quality ("human health"), benefits associated with improved ecological conditions of water and recreational uses of water ("ecological conditions and recreational use changes"), benefits associated with decreases in dredging costs ("market and productivity effects"), and air quality-related benefits. The first three categories of benefits accrue primarily from the predicted improvements in the water quality due to the implementation of more stringent ELGs for the steam electric sector. The last category accrues primarily from reductions in the air pollutant loadings that will occur as a result of full or partial retirements in coal-fired power generation after the implementation of this rule.

Although the proposed rule is implemented under the CWA to improve the water quality of the nation's waters, EPA's BCA shows that most of the benefits associated with this rulemaking is due solely to the air quality improvements. In fact, of the \$1,556.8 million of total annualized benefits, only \$16.8 million are due to the estimated water quality improvements. In addition, EPA attributes the estimated improvements in air quality, which will yield an annualized benefit of \$1,540.8 million, to reduced generation of power from coal. At the same time, the Agency predicts minimal decreases in coal-fired power plant generation capacity if this proposed rule is finalized (249 MW by year 2030 and 500 MW by year 2055).

According to EPA's estimates, the annualized compliance cost for the steam electric industry is expected to be \$230 million in pre-tax costs and \$181 million in after-tax costs²⁵. In the preamble, the Agency notes that these compliance costs were calculated on the assumption that they would be borne entirely by the plant and the parent entity and not passed onto the

²⁴ [Benefit and Cost Analysis for Proposed Supplemental Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category \(pdf\)](#) (BCA) at page 10-2 and 10-3 .

²⁵ RIA at 3-7

ratepayers.²⁶ EPA developed these costs by first estimating the number of EGUs and plants that would need to implement new technologies as part of this proposed rule. Then, the Agency applied the estimated costs for implementing those new technologies which were sourced from various technology vendors, literature and other sources to plant-specific conditions, such as the amount of waste flow, existing facility configurations, etc. After estimating the plant-level costs, EPA aggregated these costs for the entire steam electric industry.

With regards to the assumptions made by EPA in estimating the compliance costs, there are several uncertainties and inconsistencies such as:

- EPA decided to amortize the capital costs over a twenty-year period when developing the annualized compliance costs²⁷;
- In the Technical Development Document for Proposed Supplemental Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (TDD), EPA initially estimates that there are 105 EGUs at 54 plants which are serviced by a wet FGD system and would need to incur costs to implement a dry handling system. However, later in the same section, in a table that summarizes FGD wastewater discharged by the steam electric power plants that were included in EPA's costs analysis, the Agency only lists 58 EGUs at 26 plants. In a small note below that table, EPA explains that wet FGD systems that began operating after the 2010 Steam Electric Survey are excluded from the table²⁸;
- When developing an updated profile of the steam electric industry sector, in terms of the number of operational EGUs, the characteristics of wastewater treatment information, and capacity utilization, EPA based most of its profile on the results of the 2010 steam electric industry survey. Although EPA used other sources available to them to update this profile, the Agency acknowledges in a footnote on Page 34 of the pre-publication version of the proposed rule that the survey remains its "best available source of information for characterizing operations across the industry"²⁹;
- EPA notes that it did not take into consideration how the implementation of the Inflation Reduction Act may affect these benefit and cost estimates; and
- EPA does not include the incremental compliance costs associated with the treatment of "legacy wastewaters." While EPA does not propose a BAT for this waste stream, it does propose to create new categories of "legacy wastewaters" and open the door for permitting authorities to potentially apply more stringent requirements for each of those new categories. In addition, EPA also included a first-time clarification that this ELG rule applies to discharges of "legacy wastewater" from legacy surface impoundments at inactive/retired power plants. The additional costs that facilities may bear as a result of this first-time clarification are not taken into consideration in EPA's estimates of benefits and costs.

XI. PFAS

²⁶ Proposed rule at 151.

²⁷ There is no certainty that the plants under consideration will operate for the next twenty years. For plants that retire before twenty years, their annualized costs would be higher.

²⁸ TDD at 16.

²⁹ Proposed rule at 34.

Members should also note that while the Agency does not establish BATs or specific effluent limitations for per-and polyfluoroalkyl substance (PFAS) discharges as part of this rulemaking, EPA does mention that as part of its PFAS strategy, it may start addressing PFAS in NPDES permits covering facilities where the Agency is the permitting authority. The Agency also recommends state permitting authorities to consider addressing PFAS in NPDES permits as well by imposing monitoring requirements or further restrictions. While the Agency concedes that the steam electric power sector is not one of the top PFAS dischargers, EPA notes that PFAS may nevertheless be present in steam electric discharges. For example, EPA points to data from the Wisconsin Department of Natural Resources that found PFAS at eight power plants.

XII. Areas for Comments in the Proposed Rule

EPA is soliciting comments on the following areas:

General

- What are the means by which the Agency could model the impacts of the IRA for the final rule?
- Are there additional NOPPs have been submitted for the LUEGU subcategory in addition to the four EGUs that EPA is aware of?
- On all aspects of this proposal, including the information, data, and assumptions EPA relied upon to develop the four regulatory options, as well as the proposed BAT, effluent limitations, and alternate approaches included in this proposal

FGDW

- What are the alternative membrane filtration-based BAT limitations if comments demonstrate that a regular or intermittent discharge is necessary for some plants
- Are there other technologies that may constitute an additional BAT technology basis for controlling pollutants discharged in FGD wastewater in addition to or in place of membrane technology?
- Are those other technologies “available and economically achievable, and whether they would have acceptable non-water quality environmental impacts”?

BATW

- Have the best performing remote MDSs documented non-BA transport water inflows regularly exceeding the ability of the systems to reuse their wastewater?
- Is there data from any remote MDS that would suggest whether a purge allowance is or is not appropriate due to the technological availability of the system?
- Have the best performing remote MDSs have documented precipitation inflows that have exceeded the ability of the systems to reuse or store their wastewater? Can the technology issue can be addressed by undertaking measures at a reasonable additional cost? Is there data from these systems suggesting that a purge allowance is or is not warranted?
- Should EPA allow for unlimited one-time purges due to large precipitation events exceeding a 10-year storm event of 24-hour or longer duration (e.g., a 30-day storm

event) where drains or other precipitation-collection components may not be amenable to roofs or other covers? Alternatively, is a different type of storm more appropriate as a purge allowance event?

- Does data from operating a remote MDS as a closed-loop system suggest that a purge allowance is or is not warranted? What is the underlying data?
- Should EPA expand the existing “minor maintenance event” exemption from the definition of BATW in section 423.11(p) and what reporting requirements should be associated with this exemption?
- If EPA were to maintain the 2020 Rule’s purge allowance, should EPA establish constraints and additional requirements on where and how a purge may be allowed on a case-by-case basis?
- If a final rule were to include a purge allowance, should the allowance be limited to one percent or less of system volume as discussed in EPRI’s study on how much purge allowance is needed?
- In addition, if purge allowance is given, should permittees be required to provide further justification and analysis for the purge such as engineering studies?
- If purge is allowed for BATW, should the allowance be limited on a total volume basis (not just the percent) to ensure that the system achieves the pollutant removals of a true high recycle rate system?
- Would limiting or removing the ability to purge from a high recycle rate system but not from a “dry” under-boiler system result in unwarranted disparate treatment or perverse incentives?
- Should EPA continue to distinguish between BA contact water and BA transport water to allow purges for BA contact water but not BATW?

CRL

- Should the technology basis for BAT limitations to control discharges of pollutants in CRL be based on more stringent technology, such as biological treatment, spray dry evaporation, thermal systems, or membrane filtration?
- Should EPA should create a subcategory allowing facilities that co-treat their FGD and CRL wastewater to meet BAT limitations based on a different technology basis than the one used by facilities treating CRL alone?
- Is there specific information that would suggest whether different limitations should apply to the same landfill or surface impoundment pre- and post-closure?
- Should there be flexibility for landfills and surface impoundments nearing closure such that limitations could be postponed until after closure to avoid construction of a larger, more expensive system that would operate for only a relatively short period of time?
- Is it appropriate for the Agency to apply its proposed BAT to any discharges of CRL via groundwater that permitting authorities ultimately determine are subject to NPDES permitting
- Are discharges of CRL through groundwater sufficiently different from end-of-pipe discharges of CRL in terms of chemical makeup, treatment effectiveness or other factors that warrant the treatment of discharges of CRL through groundwater either as a different category or subcategory?

- Should EPA consider establishing daily and monthly limitations for pollutants other than just arsenic and mercury as part of the limitations for CRL?
- EPA solicits comments on its recommendations of general and technical information that potential permittees with suspected discharges of CRL through groundwater must provide to their permitting authorities to inform their decisions on issuing an NPDES permit.

Legacy Wastewaters

- Is the proposed categorization of legacy wastewaters into “SI decant wastewater” and “SI dewatering wastewater” and proposing to require a separate BAT/BPJ analysis for each category justified or warranted?
- Should EPA explicitly promulgate specific elements that permitting authorities must consider when establishing BPJ-based BAT effluent limitations for the two proposed types of legacy wastewaters?
- What are the costs and performance data of using an SDE system and could it serve as a technology basis for BAT for SI decant and dewatering wastewaters?
- Should the Agency establish a subcategory or different limitations applicable to discharges of legacy wastewaters from inactive surface impoundments at inactive/retired power plants?
- What is the universe of potential legacy surface impoundments under that may become subject to any limitations established under a final ELG?
- Should the CRL generated after retirement continue to remain subject to 40 CFR part 423?
- Are there wastewaters at retired power plants that the Agency should clarify are explicitly excluded from the applicability of 40 CFR part 423?

High FGD Flow and LUEGU Subcategories

- Was the EPA’s creation of the High FGD Flow subcategory based on disparate costs warranted in the first place? Should the subcategory still be eliminated even if the only qualifying facility, TVA’s Cumberland plant, decides to not retire?
- Should the LUEGU subcategory be retained only for BA transport water and/or for plants with a lower capacity utilization rate (CUR)?
- Should future LUEGUs be subcategorized such that they must only achieve the 2020 rule BAT limitations for FGD wastewater, which would still be less costly than the zero-discharge limitations of the current proposal?
- Could the peaking function of IMPA’s Whitewater Valley Station continue by utilizing only Coal Boiler #1 after 2028 if the facility transitioned Coal Boiler #2 into the permanent cessation of coal combustion subcategory?
- Should the LUEGU subcategory be retained for BA transport water for indirect dischargers only?

Early Cessation Subcategory

- Should EPA retain the early cessation category as originally proposed?

- Is there additional information that would suggest eliminating the early cessation subcategory, selecting a more stringent BAT for the subcategory, or specifying that BAT should be determined by the permitting authority on a case-by-case, BPJ basis?
- Is there specific information suggesting that specific plants or EGUs not the subject of a previously filed NOPP would consider permanently ceasing coal combustion by December 31, 2028?
- Is a different NOPP filing deadline for the early cessation subcategory more appropriate and why?

“Early Adopter” Subcategory

- Is the “early adopter” subcategory warranted based on the record?
- What are some alternative cutoff dates that EPA could use for the “early adopter” subcategory?
- Should early adoption should be required at all for participation in the “early adopter” subcategory? Or should the Agency merely include a new subcategory for retirement by 2032 rather than 2028?
- Should the early adopter subcategory require a different date for the permanent cessation of coal combustion?
- Should EPA limit the availability of the early adopter subcategory to whether or not a plant has been able to payback the capital investments in full? If and once that payback period has passed, should the new limitations immediately apply?
- Should the early adopter subcategory be extended to facilities other than those that installed biological treatment or ZVI treatment for FGD wastewater?
- Should an early adopter subcategory include facilities that have already met both the FGD wastewater and BA transport water limitations for the LUEGU or high FGD flow subcategory by any means, not by a specified treatment technology?
- Should the early adopter subcategory cover both FGDW and BATW or only FGDW?