Effluent Limitations Guidelines Overview of Proposed Revisions to the Current Rule

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Common Regulatory Acronyms

- BAT – best available control technology economically achievable
- BMP – best management practices
- BPJ – best professional judgement
- BPT – best practicable control technology currently available as defined by CWA
- LRTR – low hydraulic residence time reduction
- HRTR – high hydraulic residence time reduction
- MDS – mechanical drag system
- NPDES – national pollutant discharge elimination system
- PSES – pretreatment standards for existing sources
- POTW – publicly owned treatment works
- VIP – voluntary incentives program
- WQBEL – water quality based effluent limitations

Overview of Effluent Limitation Guidelines

Effluent Limitation Guidelines:

- Apply to electric utilities and independent power producers greater than 50 MW
- Set the best available technology (BAT) and pretreatment standards for existing sources (PSES)
- Establishes discharge limits for specific pollutants
- Voluntary Incentive Program (VIP) offers incentive to further reduce discharge

Overview of Effluent Limitation Guidelines

Current 2015 ELG Rule:

- Regulates ash transport water, FGD wastewater, flue gas mercury control, gasification wastewater and combustion residual leachate
- Sets federal numeric limits for FGD wastewater streams.
- No discharge allowed for fly ash and bottom ash transport streams
- CCR leachate subject to BPT limits for TSS and O&G

What Units and Streams are Affected?

Changed (2020 ELG Proposed)	Unchanged (2015 ELG Rule)
• Bottom ash (BA) transport water • Flue gas desulfurization wastewater (FGD WW)	• Other wastewater streams • Units less than 50 MW and oil-fired • New units

How are Units Affected?

Revised Requirements for Direct & Indirect Discharge and the Voluntary Incentive Program (VIP)

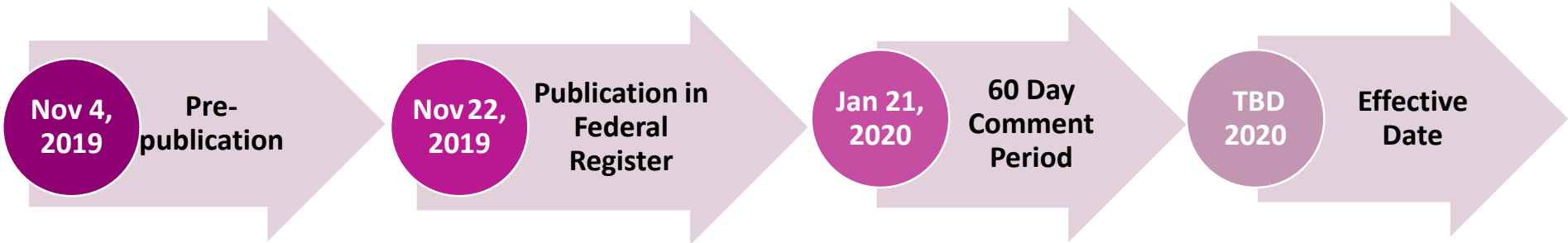
- Best available technology (BAT) and pretreatment standards for existing sources (PSES)
- Numeric effluent limitations
- Implementation timelines

Three New Subcategories with Less Stringent Requirements

- *High FGD flow facilities* – over 4 MGD FGD purge flow
- *Low utilization boilers* – less than 876,000 MWh/yr
- *Boilers retiring by 2028*

Status of Proposed 2019 Revisions

- Addresses 2015 ELG rule court challenges, postponements and announcements
- Rulemaking Period - Not Final



FGD Wastewater

FGD WW - 2019 Proposed Revisions

Facilities not in subcategories below - BAT and PSES

Chemical precipitation, low hydraulic residence time reduction (LRTR) biological treatment, and ultrafiltration

Voluntary Incentives Program - BAT

Membrane technology

High FGD Flow and Low Util. Boilers - BAT and PSES

Chemical precipitation

Boilers Retiring by 2028

Surface impoundments

FGD WW - EPA Rationale for Revisions

Biological Systems - *technology advancements*

- Lower residence time with similar performance
- Lower cost modular designs and off-site fabrication options
- Ultra-filtration polishing for removal of suspended and colloidal particles (Hg and Se)

FGD WW - EPA Rationale for Revisions

Membrane Systems - *new info for FGD WW*

- Costs for membrane systems approximately half of evaporative thermal treatment systems
- Uncertainties remain for membrane system in FGD wastewater applications
  - System cleaning requirements and performance
  - Brine treatment, encapsulation and disposal
- Determined to be appropriate for VIP program with 3 year extension to address uncertainties

FGD WW - EPA Rationale for Revisions

New Categories – statutory factor of *cost*

High FGD flow and low utilization boilers

- Chemical precipitation to remove As and Hg
- Best Practicable Technology (BPT) for TSS and Oil and Grease

Retiring by 2028

- Surface impoundment sufficient for TSS

FGD WW - 2019 Proposed Limits and Dates

Facilities not in VIP or other subcategories

Numeric Effluent Limits

Pollutant	Long-Term Avg Target	Daily Max	30-Day Avg
Arsenic (µg/l)	5.1	18	9
Mercury (ng/l)	13.5	85	31
Selenium (µg/l)	16.6	76	31
Nitrate/Nitrite as N (mg/l)	2.6	4.6	3.2

Implementation Date

Direct Discharge (BAT)	Indirect Discharge (PSES)
ASAP beginning Nov 2020 no later than end of 2025	Three years after promulgation date of the final rule

FGD WW - 2019 Proposed Limits and Dates

Numeric Effluent Limits for Voluntary Incentive Program

Pollutant	Long-Term Avg Target	Daily Max	30-Day Avg	
Arsenic (µg/l)	5.0	5	--	
Mercury (ng/l)	5.1	21	9	
Selenium (µg/l)	5.0	21	11	⇧
Total Dissolved Solids (TDS) (mg/l)	88	351	156	⇧
Bromide (mg/l)	0.16	0.6	0.3	
Nitrate/Nitrite as N (mg/l)	0.4	1.1	0.6	

Implementation Date

Direct Discharge (BAT)
End of 2028

AECOM

FGD WW - 2019 Proposed Limits and Dates

New Subcategories

Numeric Effluent Limits

Boiler Type	Pollutant	Long-Term Avg Target	Daily Max	30-Day Avg
High FGD Flow and Low Utilization	Arsenic (µg/l)	5.0	5	--
	Mercury (ng/l)	5.1	21	9
Retiring by 2028	TSS (mg/l)	--	100	30
	O&G (mg/l)	--	20	15

Implementation Date

Direct Discharge (BAT)	Indirect Discharge (PSES)
Date permit issued to discharger	

Bottom Ash Transport Water

AECOM

BA Transport Water - 2019 Proposed Revisions

Facilities not in subcategories below - BAT and PSES

Dry handling or high recycle rate wet ash handling systems

Low Utilization Boilers - BAT and PSES

Surface impoundments

Boilers Retiring by 2028

Surface impoundments

BA Transport Water - EPA Rationale for Revisions

Wet Ash Handling Systems - *Review since 2015*

True “closed-loop” operation is problematic and costly

- Manage water balance for high precipitation and/or high internal waste stream flow events
- Manage system water chemistry to maintain pH, prevent corrosion/scaling, and control fine particulates
- Maintenance activities

New Categories – *cost reduction*

Low utilization boilers and retiring by 2028

- Surface impoundment sufficient for TSS

BA Transport Water- 2019 Proposed Limits and Dates

Facilities not in VIP or other subcategories

Effluent Limits

- Purge up to 10% of primary active wetted system volume (30-day average)
- Limits on discharged purge water to be set by permitting authority

Implementation Date

Direct Discharge (BAT)	Indirect Discharge (PSES)
ASAP beginning Nov 2020 no later than end of 2023	Three years after promulgation date of the final rule

BA Transport Water - 2019 Proposed Limits and Dates

New Subcategories

Effluent Limits

Boiler Type	Pollutant	Long-Term Avg Target	Daily Max	30-Day Avg
Low Utilization and Retiring by 2028	TSS (mg/l)	--	100	30
	O&G (mg/l)	--	20	15

- Low Utilization Boilers: Best management practices plan (BMP) to maximize recycle in wet systems

Implementation Date

	Direct Discharge (BAT)	Indirect Discharge (PSES)
Low Utilization Boilers	ASAP beginning Nov 2020 no later than end of 2023	Three years after promulgation date of the final rule
Boilers Retiring by 2028	Date permit issued to discharger	