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EPA PROPOSED REVISIONS TO CWA TECHNOLOGY-BASED ELGS FOR UNMANAGED CRL AT EXISTING SOURCES

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The U.S. Environmental Protection Agency (EPA) is proposing revisions to the Clean Water Act (CWA) **technology-based effluent limitations guidelines and standards**, called ELGs, for the steam electric power generating point source category, specifically addressing **unmanaged combustion residual leachate** (CRL) at existing sources. EPA is proposing to adopt a flexible, site-specific approach that it believes balances environmental protection with economic and technological feasibility. The steam electric power generating industry includes 858 plants, with 63 to 111 potentially discharging unmanaged CRL from unlined or not clean-closed waste management units.

The EPA's authority derives from the CWA, which prohibits pollutant discharges from point sources without permits and authorizes technology-based ELGs. EPA develops ELGs based on pollution control technologies reflecting best practicable control technology (BPT), best available technology economically achievable (BAT), and best professional judgment (BPJ) for site-specific cases.

INDUSTRY DESCRIPTION AND UNMANAGED CRL CHARACTERISTICS

Unmanaged CRL is leachate that percolates into groundwater without capture, differing chemically and volumetrically from managed CRL due to mixing with groundwater and site-specific hydrological factors. The CWA regulates only point source discharges to waters of the United States, so the only circumstances when unmanaged CRL would require a CWA permit would be if (1) the discharge to groundwater is the functional equivalent of a direct discharge to surface water, or (2) the mixed groundwater and unmanaged CRL is captured and pumped to the surface for discharge directly to surface water.

One reason EPA cites for the proposed rule is that prior rulemakings omitted the cost of capturing and pumping groundwater mixed with CRL to the surface for discharge, and these costs can be high.

TREATMENT TECHNOLOGIES AND CHALLENGES

The EPA evaluated treatment technologies, including chemical precipitation, biological reduction, membrane filtration, spray evaporation, and thermal evaporation. Zero-discharge technologies, such as spray-dry evaporators, are costly. They may not be feasible for all plants, especially those that have ceased coal combustion and lack the necessary energy sources for treatment. In situ subsurface treatments, such as impermeable or permeable reactive barriers

and injections, are site-specific and require detailed characterization.

PROPOSED REGULATORY OPTIONS

Three options are evaluated for regulating unmanaged CRL discharges:

Option	Functional Equivalent of Direct Discharge	Pumped Unmanaged CRL Discharge
1 (Preferred)	Site-specific BAT limitations set by the permitting authority using BPJ	Numeric mercury and arsenic limits based on chemical precipitation with compliance by Dec 31, 2034
2 (2024 ELG)	National numeric limits on mercury and arsenic with compliance by Dec 31, 2029	Same as above, with the same compliance deadline
3	Zero-discharge limits with spray dry evaporators, compliance by Dec 31, 2034	Zero-discharge limits with interim mercury and arsenic limits based on chemical precipitation

EPA'S RATIONALE FOR PREFERRED OPTION 1

- Option 1 is proposed as BAT because it allows permitting authorities flexibility to account for site-specific factors such as hydrology, pollutant concentrations, energy demands, and facility operational constraints.
- Pollutant loading reductions focus on total suspended solids (TSS) and total dissolved solids (TDS), with Option 1 showing modest reductions from known discharging plants; data limitations prevent full quantification for all plants under BPJ.
- Option 1 is associated with decreased energy use (-133,000 to -319,000 MWh annually) and fuel consumption compared to baseline, whereas Option 3 increases energy demand substantially.
- Air emissions of NOx and SO2 decrease slightly under Option 1 but increase under Option 3 due to energy use and transportation impacts.
- Solid waste generation decreases under Option 1 and increases under Option 3, reflecting treatment method differences.
- Water use impacts are uncertain but potentially significant under Options 2 and 3 due to groundwater pumping volumes estimated between 20 and 41 billion gallons annually.
- EPA states the proposed rule may result in forgone benefits compared to the 2024 ELG baseline in cases where BPJ establishes less stringent limits; however, it feels the facility cost savings are expected to outweigh forgone benefits and the number of plants subject to functional equivalent direct discharge determinations and site-specific BAT limits.

IMPLEMENTATION AND COMPLIANCE DEADLINES

- The EPA proposes clarifications to exclude BAT limitations for unmanaged CRL from landfills or impoundments closed by July 8, 2024, directing permitting authorities to apply BPJ on a case-by-case basis for retired plants and closed units.

- Existing reporting and recordkeeping requirements remain in effect to support permit compliance and public transparency.
- Permitting authorities retain authority to impose site-specific water quality-based effluent limitations beyond technology-based standards as needed.
- The rule includes provisions ensuring the severability of its parts to maintain regulatory effectiveness if any provision is invalidated.

POTENTIAL IMPACT ON INDUSTRY

The proposed amendments to the federal CCR Rule have broad implications for electric utilities and other CCR stakeholders by introducing new compliance pathways, targeted exemptions, and expanded closure options. Collectively, EPA aims to address longstanding implementation challenges while improving regulatory flexibility for facilities that manage both active and legacy CCR units.

For industry, the proposed exemption for CCR dewatering structures could significantly reduce the regulatory burden associated with temporary, non-earthen dewatering systems by removing them from classification as regulated surface impoundments. Temporary, non-earthen dewatering systems provide controlled groundwater removal, focusing on sediment removal rather than infiltration basins, and are often paired with treatment to meet environmental compliance requirements. The EPA aims to allow facilities to continue common dewatering practices without triggering more extensive design, monitoring, and closure requirements.

EPA feels the expanded closure options for legacy CCR surface impoundments and the introduction of a site-specific compliance pathway through permitting may provide facilities with more practical and defensible approaches to regulatory compliance. From an environmental standpoint, this is debatable.

For facilities facing complex site conditions, EPA aims to align with state permitting programs and shorten timelines for achieving regulatory closure, particularly at older sites.

The proposed revisions to beneficial use provisions may also clarify or expand pathways to manage CCR as a valuable commodity rather than as regulated waste, depending on the final rule language.

POTENTIAL IMPACT ON THE ENVIRONMENT

From an environmental perspective, the proposed CCR Rule amendments are intended to maintain protection of human health and the environment while addressing implementation challenges identified since previous rulemakings. By emphasizing site-specific compliance pathways and expanded closure options, EPA's proposed rule seeks to focus regulatory oversight on pathways that most directly affect groundwater and surface water quality by exempting CCR dewatering structures limited to non-earthen, temporary systems. It does not alter requirements for proper management of CCR before disposal or beneficial use. The risk is that EPA's proposal assumes that environmental risk from these exempted structures remains low *when managed as intended*, allowing regulatory

resources to be focused on higher-risk units such as legacy impoundments and landfills.

Enhanced flexibility for closure and permitting may facilitate more timely stabilization and closure of legacy CCR units, potentially reducing the duration of exposure pathways associated with unlined or aging impoundments. In addition, clearer beneficial-use provisions may support responsible reuse of CCR materials, thereby reducing disposal volumes and the associated landfill footprint, provided that materials are managed in accordance with applicable safeguards.

Overall, EPA has framed the proposed amendments as a means to improve environmental outcomes by prioritizing risk-based decision-making and enabling more effective long-term management of CCR units. Facilities may want to reassess their monitoring programs. risk assessments, and data collection to avoid potential lawsuits.

REQUEST FOR DATA

EPA is soliciting data on facilities not included in the industry profile, updated flow rates for flue-gas desulfurization wastewater, CRL flow rates at new waste management units, and pilot test performance data to inform future rulemakings. https://www.epa.gov/eg/steam-electric-power-generating-effluent-guidelines

HISTORICAL REGULATORY CONTEXT

- The 2015 ELG established the first federal limits on toxic pollutants and nutrients from steam electric plants, but faced litigation resulting in the vacatur of limitations applicable to CRL and legacy wastewater.
- The 2020 ELG reconsideration rule modified certain waste stream standards and faced ongoing litigation.
- The 2024 ELG imposed zero-discharge limitations for several wastewaters, including unmanaged CRL, but has been challenged for cost assumptions and feasibility.
- The 2025 Deadline Extensions Rule extended compliance deadlines due to energy demand increases and grid reliability concerns, but did not alter technology bases.

For more information, contact SCS's National Experts:

Eric Nelson or Richard Southorn

http://www.scsengineers.com

