

receive CCR for use as daily cover or accept it for disposal. The proposed rule did not specifically address MSWLFs, which created uncertainty regarding whether the requirements EPA proposed for CCR units would also apply to MSWLFs. While the requirements for CCR landfills in the final rule are very similar to those currently applied to MSWLFs (the new CCR rule was modeled upon the MSWLF requirements under RCRA), operators of MSWLFs were concerned they would be subject to certain new requirements such as having to post documentation to a website and having a professional engineer review certification. In the preamble to the final rule, EPA confirmed that MSWLFs will not be subject to the new requirements and that the existing regulations for such facilities are adequate for protecting human health and the environment. In addition, while EPA will not require that MSWLFs modify their groundwater monitoring programs to comply with the rule, the agency does expect that states will require MSWLFs to modify existing permits to address the disposal of CCR.

Overall, these changes reflect just a handful of ways that EPA revised the CCR rule over these past years to take into account concerns and suggestions of industry and environmental groups alike. Many are curious to see whether these revisions will give the rule added traction, or whether Congress will pass legislation to further adjust these requirements. Owners and operators of CCR units are encouraged to read the preamble to the final rule and the accompanying information that EPA will soon release to fully understand how the rule has changed and how those changes can affect their operation.

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EPA'S COAL COMBUSTION RESIDUALS RULE: REVIEW OF APPLICABILITY, EXEMPTIONS, AND TECHNICAL REQUIREMENTS

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Introduction

The U.S. Environmental Protection Agency (EPA) published the “Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule” (rule) on April 17, 2015. The rule, codified at 40 C.F.R. Part 257, regulates coal combustion residuals (CCR) as solid waste under Subtitle D of the Resource Conservation and Recovery Act (RCRA). The effective date of the rule is October 19, 2015; the April 17, 2015 *Federal Register* publication erroneously identified the effective date as October 14, 2015, but this was corrected in the July 2, 2015 edition of the *Federal Register*.

The rule establishes requirements for both existing and new CCR units, including lateral or overflow expansions of an existing unit. EPA cites the two core objectives of the rule as reducing the risk of catastrophic failure of CCR units due to structural instability and protecting groundwater resources. Overall, the rule represents the “Subtitle D” option that was introduced in EPA’s draft rule proposed in 2010, but with some notable differences that are discussed below. The rule is self-implementing, meaning that owners are responsible for compliance regardless of any further state or federal involvement. States are not required to adopt the rule, develop a CCR permitting program, or submit a program to EPA for approval. States and citizens may take actions to enforce the rule through the courts, and states may adopt more stringent requirements where they deem that appropriate, but there is no mechanism for a state program to operate “in lieu of” the federal regulations. In the preamble to the rule, EPA says that it expects that states will be active partners in overseeing the regulation of CCR units and is encouraging states to revise their solid waste management plans (SWMPs) for submittal to EPA

for approval. EPA's approval of such SWMPs would indicate EPA's opinion that the state's rule meets the minimum federal criteria, which would be important in the event of a citizen suit alleging a violation of federal standards.

Applicability and Exemptions

Most of the rule's requirements do not apply to CCR units at facilities that have ceased producing electricity or that will do so prior to October 19, 2015. At facilities that will continue electricity production, however, the rule applies numerous standards and requirements to both new and existing CCR units in accordance with definitions of CCR units applied per section 257.53. In summary:

1. The rule applies to active CCR landfills but not to inactive landfills (i.e., landfills that no longer receive CCR after October 19, 2015). Waste piles, including those used to temporarily store or manage CCR on-site prior to disposal or subsequent beneficial use, are included in the definition of a CCR landfill.
2. The rule does not apply to municipal solid waste (MSW) landfills that receive CCR as MSW sites are already regulated under state solid waste programs.
3. The rule does not apply to CCR placement at active or abandoned underground or surface coal mines as these activities will be the subject of later rulemaking by the Department of Interior's Office of Surface Mining.
4. The rule applies to surface impoundments (SIs), including inactive SIs that cease receiving waste by the effective date at any plant that still generates electricity (by any fuel source). This is because these units may contain free liquids and pose a risk of structural failure. Under the rule, inactive SIs are thus defined as SIs that no longer receive CCR but still contain free liquids and are not yet capped. Based on this definition, a former SI that still contains CCR but does not impound water is not subject to the rule, even if not capped.

EPA retained its prior Bevill Amendment exclusion for beneficially used CCR and found that hazardous

waste regulation was not warranted, although EPA deferred a final regulatory determination. The rule specifically allows a number of beneficial uses and contains a new definition as to what constitutes CCR beneficial use. Existing CCR beneficial use activities that do not fall within this definition are potentially subject to regulation under the rule as a CCR landfill. Allowable beneficial uses include many unencapsulated applications (e.g., flowable fill, agricultural soil amendments, waste solidification, aggregates, and highway and road construction projects), subject to demonstrations that the CCR substitutes for virgin material and meets applicable specifications and standards, or is not used in excess quantities where no other standards apply. Unencapsulated uses in quantities greater than 12,400 tons in non-roadway applications are subject to an additional demonstration that environmental releases will be comparable to or lower than those from analogous non-CCR products or regulatory benchmarks. Unencapsulated placement of CCR in quarries and surface mines is prohibited.

Technical Requirements

The main technical requirements for CCR units under the rule are summarized below. A more in-depth discussion is provided in the companion article in this newsletter by Wallace et al.

1. *Location Restrictions (§§ 257.60-.64)*: New CCR units and existing SIs must meet minimum requirements regarding depth to uppermost aquifer as well as proximity of wetlands, faults, seismic impact zones, and unstable areas (represented by susceptibility to events or forces capable of impairing the structural integrity of the unit). Existing CCR landfills are exempt from all of these requirements except for the minimum requirement for unstable areas. Owners of SIs must demonstrate compliance by October 17, 2018. Owners of noncompliant SIs have six months to cease CCR placement and initiate closure.
2. *Liner (§§ 257.70-.71)*: Composite liners or approved alternative liner designs are required

for all new CCR units. Owners must document whether an existing CCR unit is lined or unlined by October 17, 2016. If an existing SI does not have a composite liner or a two-foot thick clay liner per section 257.71(a), it is considered “unlined.” If an unlined SI does not meet the groundwater protection requirements it must cease CCR placement within six months following that determination. This is a significant deviation from the 2010 draft rule, which proposed requiring existing SIs to install a composite liner within five years or close. All existing CCR landfills may remain in operation, regardless of their liner type.

3. *Structural Integrity (§§ 257.72-.74)*: All existing SIs must satisfy several structural integrity requirements or cease CCR placement activities within six months of either failing to perform the required assessments or meeting the minimum safety requirements of the rule. Structural integrity assessments must include design verification and evaluation of hazard potential classification, structural stability, and factor of safety (FS). Assessments must be certified by a qualified professional engineer. The required slope stability FS ranges from 1.50 for static long-term conditions to 1.00 for seismic conditions. Again, this is a deviation from the 2010 draft rule, which did not include a specific minimum FS value. The minimum FS of 1.50 may be problematic for some existing SIs. This requirement is interesting also in that EPA cited a U.S. Army Corps of Engineers engineering manual that allows a FS less than 1.50 for existing embankments but the rule does not follow this approach. Periodic structural integrity testing is required for all SIs that are not incised. Emergency action plans (EAPs) are required for high or significant potential hazards SIs. Owners must install a permanent marker locating a CCR unit by December 17, 2015, and compile the history of construction and conduct stability and FS assessments by October 17, 2016.
4. *Operating Requirements (§§ 257.80-.84)*: All CCR units must prepare and implement fugitive dust control plans by October 19, 2015. By

October 17, 2016, CCR landfills must develop run-on and run-off controls for a 24-hour, 25-year storm event, while SIs must demonstrate hydrologic and hydraulic capacity for the design flood (which is the probable maximum flood for high hazard potential CCR SIs, less for lower hazard SIs). Requirements for weekly visual and monthly instrumentation inspections by a qualified person as well as annual inspections by a qualified professional engineer and reports are specified. Owners must initiate inspections by October 19, 2015.

5. *Groundwater Monitoring and Corrective Action (§§ 257.90-.98)*: The rule requires monitoring of groundwater at all CCR units other than certain inactive units, with completion of the monitoring network and testing of groundwater quality by October 17, 2017. Annual reports must be prepared. For existing CCR units, initial reports are due no later than January 31, 2018. Existing unlined SIs that exceed the groundwater protection standard must cease CCR placement within six months. Lined SIs and landfills that exceed groundwater protection standards must perform assessment monitoring and, if needed, implement corrective action. Corrective actions must meet a “restoration” standard for groundwater quality, including removing contaminants to the maximum contaminant level (MCL) or background conditions. A public meeting is required prior to remedy selection and cost is not listed as a screening criterion.
6. *Closure and Post-Closure Care (§§ 257.100-.104)*: Owners must prepare written closure and post-closure care plans for all existing CCR units by October 17, 2016. Existing inactive SIs that complete closure in accordance with section 257.100(b) within three years of the *Federal Register* publication date will be exempt from all other parts of the subpart. Inactive CCR landfills that do not receive waste after the effective date are exempt from the rule. Existing unlined SIs that cannot meet the groundwater protection requirements of section 257.95(h) must cease CCR placement within six months. Existing SIs that cannot

demonstrate compliance with applicable location standards (i.e., proximity of waste to groundwater, wetlands, unstable area, fault areas, seismic impact zones, etc.) must cease CCR placement within six months. Existing and new SIs have five years to complete closure, and closure construction activities must begin within two years after CCR placement ceases. For SIs larger than 40 acres, extensions of the closure duration requirements in two-year increments up to a maximum of 10 years are available for facilities that demonstrate need. Shorter extensions are available for SIs less than 40 acres. Alternative closure durations are available for facilities that cannot obtain alternate disposal capacity, or if the coal-fired boilers at the generating station will be closed within six years (for a CCR landfill), 8½ years (for a <40 acre SI), or 13 years (for a >40 acre SI) of the date of *Federal Register* publication of the rule. Post-closure care is required for 30 years for all CCR units, except clean-closed units and inactive SIs closed under section 257.101(a).

7. *Recordkeeping and Reporting* (§§ 257.105-.107): By October 19, 2015, owners must assemble records and maintain files of all information required to demonstrate compliance with the rule, and maintain those files for five years following the date of each required demonstration. Notifications to the state director are required for the demonstrations mandated under the rule. Owners must maintain a publicly accessible Internet site (CCR website) containing the information specified in section 257.107, which includes most of the demonstrations required to show compliance with the rule.

Finally, although the 2010 draft rule proposed prohibiting construction of new CCR units over existing CCR landfills and SIs, such overfills are specifically allowed under the rule. If the existing unit is an SI, it must be dewatered and closed before being overfilled. Overfills constructed over SIs are considered to be new CCR units; for these overfills, both the closure requirements for the existing SI and the design requirements for the

overlying landfill must be complied with. Based on comments provided by EPA during a March 4, 2015, webinar, overfill SIs are allowed provided they meet all the requirements for new CCR SIs. There has been no significant guidance provided on several issues of importance to certain sites, including the acceptability of certain alternative liner configurations, the acceptability of clean-water storage ponds (e.g., storm water management ponds) on closed landfills and SIs, and the amount of CCR that must accumulate in a SI before it is considered to be a CCR unit covered by the rule.

Implications for Utility Owners

The rule imposes a number of new CCR management obligations on utility owners. Many of these obligations will have an impact on generating operations, and many of them must be implemented by Q4 2015. Because of the self-implementation provision, owners will essentially be required to perform a “self-regulation” role in terms of interpretation and application of the rule. Upon a state implementing its own CCR program and obtaining EPA approval, compliance with state requirements generally should serve to demonstrate compliance with federal standards.

Owners should assess the need to value and report new asset retirement obligations and other financial liabilities that will be required as a result of the rule, and begin to develop and implement compliance strategies as well as define the assessments needed to demonstrate compliance with the rule. It may be impractical or uneconomical to continue operating some CCR units, in particular SIs, in which case owners will need to develop strategies for transitioning to new/ alternative units. Owners will need to perform cost estimates and long-term cash flow projections to evaluate what capital projects and/or operational changes are needed to comply with the rule.

Suggested Compliance Template and Time Frame

Based on the summary of the technical requirements provided above, owners should begin

to assess which units will remain open and which will close according to the definition of CCR units per section 257.53. Owners should also decide if any future units will be overfills over a currently inactive or active SI, to comply with design/closure requirements for the SI, accordingly.

Surface Impoundments: Inactive SIs must meet requirements of the rule or close within three years of the *Federal Register* publication date (i.e., by April 17, 2018. If eventually activated, then SIs would be required to meet all rule requirements. Active SIs must meet the liner requirement of section 257.71 to operate beyond 24 months after the *Federal Register* publication date. For SIs that will remain in operation, owners should assemble records for information pertaining to:

1. Location restrictions compliance per sections 257.60-.64;
2. Liner system compliance with section 257.71;
3. Structural stability and safety factor assessments per sections 257.73-.74;
4. Construction history per section 257.73(c);
5. Assessments of hazard potential classification per section 257.73(a)(2);
6. Development of:
 - a. Emergency action plan per section 257.73(a)(3) for high or significant hazard SIs;
 - b. Run-off/run-on control system that complies with the design storm of section 257.82(a)(3);
 - c. Groundwater sampling and analysis plan for compliance with section 257.90;
 - d. Closure plan meeting requirements of section 257.102(b).

Landfills: Active CCR landfills must meet all rule requirements except for the need for a liner (i.e., there will be no benefit to closing early). For landfills that will remain in operation, owners should assemble records for information pertaining to:

1. Location restrictions for unstable areas in compliance with section 257.64;
2. Development of:
 - a. Run-off/run-on control system that complies with the design storm of section 257.81;
 - b. Groundwater sampling and analysis plan for compliance with section 257.90;
 - c. Closure plan meeting requirements of section 257.102(b).

Early-Stage Activities: At all existing CCR units that will remain in operation, utility managers should consider the following early-stage activities:

1. Begin collecting the data that will be needed to make the recordkeeping demonstrations of section 257.105 and the Internet-posting requirements of section 257.107, and begin planning to make the notifications required under section 257.106.
2. Initiate weekly inspections of CCR units and monthly monitoring of CCR unit instrumentation per section 257.83.
3. Prepare a fugitive dust control plan per section 257.80.
4. Groundwater monitoring:
 - a. For sites that do not have a groundwater monitoring system, begin collecting groundwater data for reporting per section 257.80 and performing annual inspections per section 257.84;
 - b. For sites that are currently monitoring groundwater, assess the compliance of the existing system with the requirements of section 257.90, and modify the system if needed.

Resources

EPA's CCR rule website: <http://www2.epa.gov/coalash/coal-ash-rule>.
Background on the Beville exclusion of CCR

rom regulation as a hazardous waste: <http://nationalaglawcenter.org/wp-content/uploads/assets/crs/R43149.pdf>.

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TECHNICAL REQUIREMENTS OF EPA'S FINAL COAL ASH RULE

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Introduction

This article presents the technical requirements included in the location restrictions, design criteria, operating criteria, and groundwater monitoring and corrective action sections of the “Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule” as promulgated by the Environmental Protection Agency (EPA) on April 17, 2014. The rule becomes effective on October 19, 2015. Circumstances that will trigger closure if compliance with technical requirements cannot be demonstrated are also identified. The rule is self-implementing, meaning that owners/operators (O/Os) must certify compliance through certifications (by a qualified professional engineer) that are placed in a facility’s operating record, provided to the state, and placed on a company’s publicly available Internet site. The rule is enforceable only through the filing of RCRA citizen suits by either a state or citizen groups. While the rule can be adopted by a state and incorporated into a state’s solid waste management program, the federal rule remains in place as an independent set of federal criteria that must be met and can be independently enforced through RCRA citizen suits.

The technical requirements of the “Disposal of Coal Combustion Residuals from Electric Utilities, Final Rule” establish applicability, location, design, operating, groundwater monitoring and corrective action, closure and post-closure, and recordkeeping and notification criteria for existing and new coal combustion residual (CCR) landfills and surface impoundments (SIs). If an existing landfill or SI unit fails to demonstrate compliance with certain technical requirements (existing landfills must close only if they cannot comply with the unstable areas location restriction) within specified implementation time frames O/Os will be required to cease placing CCR and non-CCR into the unit