



Overview of the EPA RCRA Coal Ash Rule

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Introduction

The *Disposal of Coal Combustion Residuals from Electric Utilities final rule* (the “Coal Ash Rule,” or the “Rule”), signed December 19, 2014, sets first-ever minimum federal standards for the disposal of coal ash under the Resource Conservation and Recovery Act (RCRA). Through this rulemaking, EPA has elected to classify coal ash as a non-hazardous solid waste subject to regulation under subtitle D of RCRA. This means that the federal government cannot enforce the rule, and cannot mandate that states adopt and enforce the federal standards. EPA “strongly encourages states to revise their Solid Waste Management Plans to implement the standards.”¹ Because the Rule is not enforceable by EPA, and state enforcement is uncertain, a primary enforcement mechanism for the Rule is citizen suits under RCRA. Other standards, such as those found in the Clean Water Act, still apply to coal ash.

Critics of the Rule argue that it will fail to protect people and the environment from coal ash pollution, including catastrophic events such as the 2008 Kingston, TN spill and the 2014 Dan River spill. The Rule does, however, impose the first federal standards on the disposal of coal ash and provides some helpful tools to citizen advocates seeking to address risks and problems associated with coal ash disposal sites.

¹ Preamble at 19.

I. RCRA Citizen Suit Provisions

Under RCRA, citizens may bring a lawsuit:

1. To enforce the standards set forth in RCRA.²
2. When the wastes “present an imminent and substantial endangerment.”³
3. To challenge EPA’s failure to do a non-discretionary duty under RCRA.⁴

II. Scope of the Federal Coal Ash Rule

The Rule addresses the disposal of coal ash, referred to as “coal combustion residuals (CCR)” in the Rule. It includes all active landfills and ponds. Coal ash ponds no longer receiving waste but located at an active power plant⁵ must dewater and close within 3 years or comply with all the requirements of the rule. (§257.100).

The Rule does not apply to:

- The placement of coal ash in coal mines.
- Coal ash landfills that ceased receiving coal ash prior to the effective date of the Rule
- Coal ash units at facilities that have ceased producing electricity prior to the effective date of the Rule.⁶
- Practices that meet the definition of “beneficial use” of coal ash (< 12,400 tons of fill) or any type of past beneficial uses.
- The disposal of coal ash from non-utility boilers burning coal (e.g., paper plants, industrial boilers generating electricity for their own use, university power plants, etc.)

III. Major Deficiencies of the Rule:

1. Treats coal ash as a nonhazardous solid waste rather than a hazardous waste, thus regulating coal ash under subtitle D rather than subtitle C.
2. Relies on states voluntarily adopting standards and citizen suits for enforceability.
3. Continues to allow coal ash to be stored in unlined ponds. Unlike the proposed rule, the final Rule does not call for the lining or closure of all coal ash ponds within 5 years.
4. Only requires assessment work to be done by a “qualified professional engineer,” not an independent engineer

² “... any person may commence a civil action on his own behalf - against any person ... who is alleged to be in violation of any permit, standard, regulation, condition, requirement, prohibition, or order which has become effective pursuant to this chapter.” 42 U.S.C. § 6972(a)(1)(A).

³ “...any person may commence a civil action on his own behalf - against any person, including the United States and any other governmental instrumentality or agency, to the extent permitted by the eleventh amendment to the Constitution, and including any past or present generator, past or present transporter, or past or present owner or operator of a treatment, storage, or disposal facility, who has contributed or is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present an imminent and substantial endangerment.” 42 U.S.C. § 6972(a)(1)(B).

⁴ 42 U.S.C. § 6972(a)(1)(A).

⁵ “Active” means any electricity generation—whether from coal combustion or any other method—is occurring at the facility, i.e., sites with retired coal units that have been replaced with natural gas units, for example, are considered to be active.

⁶ *Id.*

5. There are no groundwater protection standards for: aluminum, boron, chloride, copper, iron, manganese, pH, sulfate, sulfide, and TDS, so high levels of these pollutants will not trigger corrective action.
6. All inactive landfills are not regulated.
7. Inactive ponds at inactive power plants are not regulated.
8. Closure deadlines provide for multi-year extensions.
9. Inactive coal ash ponds closed in the next 3 years will require no post-closure care requirements such as groundwater monitoring and corrective action.
10. No specific standards for particulates in the air at coal ash plants.
11. Structural fill that is less than 12,400 tons does not require an affirmative demonstration in order to be considered beneficial use.

IV. Major Advances of the Rule

1. All CCR units must conduct groundwater monitoring, and all groundwater monitoring data must be posted on a publicly accessible Internet site.
2. Cleanup standards require strict adherence to groundwater cleanup standards.
3. All new CCR landfills and ponds must be lined with a composite liner or equivalent.
4. All existing coal ash ponds and new landfills must be constructed at least 5 feet above the upper limit of the aquifer. Those that have an intermittent, recurring or sustained connection between the CCR and aquifer must close.
5. All coal ash ponds must be regularly inspected, establish Emergency Action Plans, and determine that their structural stability meets federal standards. Those ponds that don't meet federal structural stability standards must close.
6. Unlined coal ash impoundments that pollute groundwater above specified standards (of certain constituents) must cleanup and groundwater and close.
7. Existing and new surface impoundments and landfills are prohibited from placement in "unstable areas," unless an engineering demonstration is made that the unit is safe as designed.

V. General Solid Waste Regulation under RCRA

RCRA regulates storage, handling, and disposal of solid wastes. With this rulemaking, EPA has classified coal ash as a nonhazardous solid waste under RCRA, subjecting owners and operators to a new set of RCRA standards for disposal. Facilities that fail to adhere to these standards are considered "open dumps" and violate RCRA.⁷ CCR units also remain subject to some of the older standards in EPA's solid waste management guidelines found in 40 C.F.R. Part 257. These regulations pertain to floodplains, surface water, and endangered species.

1. Floodplains (40 C.F.R. § 257.3-1)
 - a. Coal ash units located in floodplains are considered illegal "open dumps" if they pose a hazard to human life, wildlife, or land or water resources as a result of:
 - i. Restricting the flow of the base flood (\geq 1% chance of occurring in any given year, i.e., a 100-year flood);
 - ii. Reducing the temporary water storage capacity of the floodplain; or

⁷ 40 C.F.R. §§ 257.1-257.2.

- iii. Allowing a washout of coal ash.
2. Clean Water Act incorporated (40 C.F.R. § 257.3-3)
3. Endangered Species Act incorporated (40 C.F.R. § 257.3-2)

VI. New Coal Ash-Specific Regulations

A. Location restrictions (§§ 257.61-64)

There are restrictions on the location of coal ash units regarding: aquifers, wetlands, fault areas, seismic impact zones, and unstable areas. Failure of existing units to comply with these requirements leads to the eventual closure of the unit. The demonstrations must be made available to the public, but are not required until 42 months after the Rule is published. New coal ash landfills and ponds, existing ponds, and all lateral expansions may not be located:

1. Less than five feet above the upper limit of the uppermost aquifer.
 - Exception: if there is a demonstration that there will not be an intermittent, recurring, or sustained hydraulic connection between any portion of the base and the aquifer due to normal fluctuations in groundwater elevations.
2. In wetlands
 - Exception: if there is a demonstration of the following requirements: that no other option other than wetlands exists, that it will not result in violations of federal laws such as the Clean Water Act, it does not have the potential to significantly degrade the wetlands, and that steps are being taken to achieve no net loss of wetlands.
3. Within 200 feet of certain fault lines
 - Exception: if there is a demonstration that an alternative setback distance of less than 200 feet will prevent damage to the structural integrity of the unit.
4. In seismic impact zones
 - Exception: if there is a demonstration that all structural components including liners, leachate collection and removal systems, and surface water control systems, are designed to resist the maximum movement for ground in that area.
5. In “unstable areas” (also applies to existing landfills)
 - “Unstable area” is a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity, including structural components of some or all of the unit that are responsible for preventing releases from such unit.
 - Exception: if there is a demonstration that recognized and generally accepted good engineering practices have been incorporated into the design of the unit to ensure that the integrity of the structural components of the CCR unit will not be disrupted. Note that many utilities do not have engineering documents for old impoundments and landfills.

B. Liner Requirements (§§ 257.70- 72)

New coal ash ponds and landfills, as well as any expansions, require composite or “alternate” composite liners. Existing ponds and landfills are not required to install liners, but unlined ponds that cause groundwater contamination are subject to closure requirements.

1. Existing coal ash ponds:
 - Categorized as “lined” or “unlined” is based on composition and condition of the liner, if any, and hydraulic conductivity of the substrate. Documentation of this must be made publically available
 - If no documentation is provided or if the pond is determined to be unlined, and groundwater monitoring shows contamination from certain pollutants, then the pond is subject to closure requirements.
2. New coal ash ponds and expansions:
 - Need either composite liner or an alternate composite liner that meets certain hydraulic conductivity requirements. The liner must cover all earth in contact with coal ash, and no dikes may be constructed on top of it.
3. New landfills and expansions:
 - Need either composite liner or an alternate composite liner that meets certain hydraulic conductivity requirements. (§ 257.70)

C. Other Design Requirements (§§ 257.72- 74)

1. Coal ash ponds with above-ground berms or dikes:
 - a. Must conduct periodic hazard potential classification assessments. Any units with high or significant hazard potential must have an emergency action plan placed in the facility’s operating record. (§ 257.73)
2. Coal ash ponds that have a height of five feet or more and a storage volume of 20 acre-feet or more or have a height of 20 feet or more:
 - a. Must compile a history of construction, and conduct periodic structural stability assessments and safety factor assessments. (§ 257.72)
3. New Landfills and expansions:
 - a. Leachate collection and removal system. (§ 257.70)
4. These design assessments must be made publically available.

D. Groundwater Monitoring Program

The Rule establishes a groundwater monitoring program consisting of detection monitoring, assessment monitoring, and corrective action (cleanup). All active landfills, active ponds, expansions, and inactive ponds located at sites with an active power plant that do not shut down within 3 years are subject to these groundwater monitoring and corrective action requirements. (§ 257.90) There is no set radius for where groundwater monitoring must occur, or number of wells, but the monitoring must “accurately represent the quality of groundwater passing the waste boundary” of the coal ash unit. (§ 257.91)

Groundwater Monitoring Requirements:

1. At least semi-annually: detection monitoring for Appendix III pollutants (boron, calcium, fluoride, pH, sulfate, and TDS)

2. May seek less frequent sampling requirements if adequate justification provided.
3. Establish groundwater protection standards for Appendix IV pollutants (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, Radium 226 and 228 combined) based on maximum contaminant levels or background levels. (§§ 257.90,94)
4. Within 90 days of detecting a statistically significant increase over background levels for any Appendix III pollutant and annually thereafter, must begin an “assessment monitoring program” focused on monitoring the levels of Appendix IV pollutants in the groundwater. (§§ 257.94-95)
5. Notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if sampling of wells indicates that contaminants have migrated off-site (§ 257.95)

Groundwater Monitoring Report:

Within 30 months of publication, groundwater monitoring wells must be installed and monitoring must begin. By January 31, 2018, owners/operators must prepare an annual groundwater monitoring and corrective action report for all active coal ash storage sites (§257.90(e):(e))

The report must include:

1. A map, aerial image, or diagram of the unit including all groundwater monitoring wells;
2. Identification of monitoring wells that were installed or decommissioned that year and a explanation of why those actions were taken;
3. Summary of the groundwater monitoring, including the number of samples collected, dates they were collected, and whether the samples were required by detection monitoring or assessment monitoring programs; and
4. A narrative discussion of any transition from one monitoring program to the other.

Corrective Action

The owner or operator must:

1. “In the event of a release from a CCR unit, the owner or operator must immediately take all necessary measures to control the source(s) of releases so as to reduce or eliminate, to the maximum extent feasible, further releases of contaminants into the environment. The owner or operator of the CCR unit must comply with all applicable requirements” (§ 257.90(d))
2. Within 90 days of finding that any statistically significant level Appendix IV pollutants exceeding standards, begin assessing corrective measures or demonstrate that the levels are caused by some other factor. (§ 257.95)
3. Finish assessing corrective measures within 90 days (with possibility of extension) and discuss the results of the assessment in a public meeting 30 days before selecting the remedy. (§ 257.96)
4. Implement the measures 90 days after a remedy has been selected. (§§ 257.96,98)

Remedies must: (§ 257.97)

1. Be protective of human health and the environment;

2. Attain the groundwater protection standard;
3. Control the sources of releases so as to reduce or eliminate, to the maximum extent feasible, further releases of pollutants;
4. Remove from the environment as much of the contaminated material as is feasible, taking into account factors such as avoiding inappropriate disturbance of sensitive ecosystems;
5. Comply with standards for management of wastes.

The Rule also provides a list of “evaluation factors” to assist in choosing a remedy. (§257.97(c))

E. Closure

Conditions triggering a requirement to cease sending coal ash to the unit and to begin closure in 6 months (§ 257.101):

1. Unlined coal ash ponds:
 - a. Exceedance of groundwater protection standards for Appendix IV pollutants
2. All coal ash ponds:
 - a. Failing to complete safety factor assessments or failing to meet federal safety factor of structural stability
 - b. Failing to demonstrate compliance with any location standard
3. All active coal ash landfills:
 - a. Failing to demonstrate compliance with the location restriction for unstable areas

Extensions (§ 257.103):

1. If there is no alternative coal ash disposal capacity, then owner/operators can keep using unit until alternative capacity is determined, with up to a 5-year extension.
2. If there are concrete plans to shut down the plant in the future, extensions provided based on the size of the unit.

Closure Procedure (§§ 257.100, 102)

1. CCR units can be closed either by leaving coal ash and installing a cap or by removal of all CCR.;
2. Inactive ponds closing within 3 years of the effective date of the rule: must provide progress reports and follow measures outlined below (§ 257.100);
3. Active ponds: Need to write a closure plan and follow measures below.

Measures to be taken during closure where coal ash is not removed (§ 257.100,102):

1. Ponds:
 - a. Eliminate free liquids and stabilize remaining wastes to before putting on cover system.
2. Landfills and ponds:
 - a. Cover system must meet certain requirements;
 - b. Minimize the post-closure infiltration of liquids into the waste and releases of coal ash or leachate;
 - c. Preclude the probability of future impoundment of water, sediment, or slurry;
 - d. Provide for stability of slopes;
 - e. Minimize the need for further maintenance.

- f. For active units: be completed in the shortest amount of time, consistent with good engineering practices

F. Post-closure care requirements (§ 257.104)

A written post-closure care plan is required for all coal ash pond and landfills. There is no post-closure care requirement if the coal ash is removed or if inactive pond is closed within 3 years of the Rule becoming effective. Otherwise, post-closure requirements apply for 30 years after closure, unless the unit was being assessed for groundwater contamination, in which case the requirements continue until the groundwater monitoring can switch back to detection monitoring.

Requirements for ponds and landfills post-closure:

1. Maintenance requirements for cover;
2. Leachate collection;
3. Groundwater monitoring.

G. Inspection requirements

Coal ash ponds (§ 257.83)

1. At least every 7 days: structural weakness and discharge;
2. At least every 30 days: all unit instrumentation;
3. Some ponds will also require yearly assessments and periodic structural stability assessment every 5 years.

Landfills (§ 257.84)

1. At least every 7 days: structural weakness.
2. Annually: overall structural check by a qualified engineer.

H. Air quality

Must take measures to effectively prevent coal ash from becoming airborne at the facility and must create a fugitive dust control plan. (§ 257.80) Annual reports detailing activities to control fugitive dust must be posted.

I. Water Flow

Run-on and run-off controls for landfills:

- Must create run-on and run-off controls for water volume resulting from a 24-hour, 25-year storm (§ 257.81)

Capacity requirements for coal ash ponds

- Must design, construct, operate, and maintain an inflow design flood control system. (§ 257.82)

J. Structural Fill (§ 257.53)

For un-encapsulated fill not used for roadways over 12,400 tons, the fill must both meet the Rule's definition of beneficial use and certain documentation must be provided. The "user" of the coal ash must provide, on request, documentation that releases to groundwater, surface water, soil, and air will be at or below regulatory and health-based benchmarks. It is unclear if the public can make a request for these documents.

K. Recordkeeping requirements

All information and demonstrations required by this Rule must be kept in a written operating record at the facility for five years. It must be provided to the state director or tribal authority when requested.. There is no indication that the public can get access to all of the information in the operating record. (§ 257.105)

L. Publicly accessible Internet site requirements

Much of the information and demonstrations required under this Rule must be posted on a public website. The information must be made available to the public for at least five years and must be posted to the website within 30 days of placing the information in the operating record.

The information includes:

1. Demonstrations of compliance with:
 - a. Location restrictions;
 - b. Design criteria, including design and construction certifications for new units.
2. Assessments: Hazard potential, structural stability, and safety factor.
3. Liner type.
4. The most recent emergency action plan and if the plan was ever activated.
5. Documentation of face-to-face meetings with local emergency responders.
6. History of construction and any revisions.
7. Most recent fugitive dust control plan and annual report.
8. Run-on and run-off, and inflow design control control system plans.
9. Inspection reports.
10. Annual groundwater monitoring and corrective action report.
11. Notifications regarding assessment monitoring & detection monitoring, including detection of Appendix IV pollutants at high levels.
12. Reports on corrective actions being taken.
13. Documentation on progress of closure.
14. *EPA has stated that the Rule will be clarified to include a requirement to post groundwater monitoring data.*

VII. EPA Tables

CCR Surface Impoundment Requirements								
Requirement	Existing Surface Impoundments				New Surface Impoundments and Lateral Expansions			
	Five feet high AND 20 acre-feet, or 20 feet high				Five feet high AND 20 acre-feet, or 20 feet high			
	Yes		No		Yes		No	
	Required? ¹	Rule Section	Required? ¹	Rule Section	Required? ¹	Rule Section	Required? ¹	Rule Section
Location Restrictions:	√	§257.60 - §257.64	√	§257.60 - §257.64	√	§257.60 - §257.64	√	§257.60 - §257.64
Placement Above the Uppermost Aquifer	√	§257.60	√	§257.60	√	§257.60	√	§257.60
Wetlands	√	§257.61	√	§257.61	√	§257.61	√	§257.61
Fault Areas	√	§257.62	√	§257.62	√	§257.62	√	§257.62
Seismic Impact Zones	√	§257.63	√	§257.63	√	§257.63	√	§257.63
Unstable Areas	√	§257.64	√	§257.64	√	§257.64	√	§257.64
Design Requirements:	√	§257.71	√	§257.71	√	§257.72	√	§257.72
Composite Liner	2	§257.71	2	§257.71	√	§257.72	√	§257.72
Leachate Collection and Removal System								
Groundwater Monitoring and Corrective Action	√	§257.90 - §257.98	√	§257.90 - §257.98	√	§257.90 - §257.98	√	§257.90 - §257.98
Structural Integrity Criteria:	√	§257.73 & §257.83	√	§257.73 & §257.83	√	§257.74 & §257.83	√	§257.74 & §257.83
History of Construction	√	§257.73 (c)						
Construction Plan					√	§257.74 (c)		
Marker ³	√	§257.73 (a)(1)	√	§257.73 (a)(1)	√	§257.74 (a)(1)	√	§257.74 (a)(1)
Hazard Potential Classification Assessments ³	√	§257.73 (a)(2)	√	§257.73 (a)(2)	√	§257.74 (a)(2)	√	§257.74 (a)(2)
Structural Stability Assessments	√	§257.73 (d)			√	§257.74 (d)		
Safety Factor Assessments	√	§257.73 (e)			√	§257.74 (e)		
Emergency Action Plan ³	√	§257.73 (a)(3)	√	§257.73 (a)(3)	√	§257.74 (a)(3)	√	§257.74 (a)(3)
Weekly Inspections	√	§257.83 (a)	√	§257.83 (a)	√	§257.83 (a)	√	§257.83 (a)
Annual Inspections	√	§257.83 (b)			√	§257.83 (b)		
Fugitive Dust Controls	√	§257.80	√	§257.80	√	§257.80	√	§257.80
Hydrologic & Hydraulic Capacity Requirements	√	§257.82	√	§257.82	√	§257.82	√	§257.82
Surface Water Protection ⁴	√	§257.3-3	√	§257.3-3	√	§257.3-3	√	§257.3-3

CCR Surface Impoundment Requirements								
Requirement	Existing Surface Impoundments				New Surface Impoundments and Lateral Expansions			
	Five feet high AND 20 acre-feet, or 20 feet high				Five feet high AND 20 acre-feet, or 20 feet high			
	Yes		No		Yes		No	
	Required? ¹	Rule Section	Required? ¹	Rule Section	Required? ¹	Rule Section	Required? ¹	Rule Section
Closure Requirements	√	§257.100 - §257.103	√	§257.100 - §257.103	√	§257.100 - §257.103	√	§257.100 - §257.103
Post-Closure Care	√	§257.104	√	§257.104	√	§257.104	√	§257.104
Recordkeeping Requirements	√	§257.105	√	§257.105	√	§257.105	√	§257.105
Notification Requirements	√	§257.106	√	§257.106	√	§257.106	√	§257.106
Publicly Accessible Internet Site Requirements	√	§257.107	√	§257.107	√	§257.107	√	§257.107

¹ √ = required, □ = not required.
² Existing CCR surface impoundments are required to be constructed with two feet of compacted soil with a hydraulic conductivity of no more than 1x10⁻⁷ cm/sec, a composite liner that meets the requirements of §257.70(b), or an alternative liner that meets the requirements of §257.70(c).
³ This requirement does not apply to an incised CCR surface impoundment.
⁴ In existing regulations at 40 CFR part 257, subpart A.

CCR Landfill Requirements				
Requirement	Existing CCR Landfills		New CCR Landfills and Lateral Expansions	
	Required? ¹	Rule Section	Required? ¹	Rule Section
Location Restrictions:	√	§257.64	√	§257.60 - §257.64
Placement Above the Uppermost Aquifer			√	§257.60
Wetlands			√	§257.61
Fault Areas			√	§257.62
Seismic Impact Zones			√	§257.63
Unstable Areas	√	§257.64	√	§257.64
Design Requirements:			√	§257.70
Composite Liner			√	§257.70 (b & c)
Leachate Collection and Removal System			√	§257.70 (d)
Groundwater Monitoring and Corrective Action	√	§257.90 - §257.98	√	§257.90 - §257.98
Weekly Inspections	√	§257.84 (a)	√	§257.84 (a)
Annual Inspections	√	§257.84 (b)	√	§257.84 (b)
Fugitive Dust Controls	√	§257.80	√	§257.80
Run-on, Run-off Controls	√	§257.81	√	§257.81
Surface Water Protection ²	√	§257.3-3	√	§257.3-3
Closure Requirements	√	§257.100 - §257.103	√	§257.100 - §257.103
Post-Closure Care	√	§257.104	√	§257.104
Recordkeeping Requirements	√	§257.105	√	§257.105
Notification Requirements	√	§257.106	√	§257.106
Publicly Accessible Internet Site Requirements	√	§257.107	√	§257.107

¹ √ = required, = not required.
² In existing regulations at 40 CFR part 257, subpart A.