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**6560-50-P**

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 257**

**[EPA–HQ–OLEM–2017–0286; FRL–9973-31-OLEM]**

**RIN 2050-AG88**

# Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Amendments to the National Minimum Criteria (Phase One); Proposed Rule

**AGENCY**: Environmental Protection Agency (EPA).

**ACTION**: Proposed rule.

**SUMMARY:** On April 17, 2015, the Environmental Protection Agency (EPA or the Agency) promulgated national minimum criteria for existing and new coal combustion residuals (CCR) landfills and existing and new CCR surface impoundments. The Agency is proposing a rule that will address four provisions of the final rule that were remanded back to the Agency on June 14, 2016 by the U.S. Court of Appeals for the D.C. Circuit. The Agency is also proposing six provisions that establish alternative performance standards for owners and operators of CCR units located in states that have approved CCR permit programs (participating states) or are otherwise subject to oversight through a permit program administered by EPA. Finally, the Agency is proposing an additional revision based on comments received since the date of the final CCR rule.

**DATES:** *Comments*. Written comments must be received on or before **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].** Comments

postmarked after the close of the comment period will be stamped "late" and may or may not be considered by the Agency.

*Public Hearing*. EPA will hold a hearing on this proposed rule on April 24, 2018 in the Washington, DC metropolitan area. Additional information about the hearing will be posted in the docket for this proposal and on EPA's CCR website (*https://www.epa.gov/coalash*).

**ADDRESSES:** *Comments*. Submit your comments, identified by Docket ID No. EPA–HQ–OLEM-2017-0286, at https://www.regulations.gov. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from Regulations.gov. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (i.e. on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit https://www.epa.gov/dockets/commenting-epa-dockets.

*Instructions*. Direct your comments on the proposed rule to Docket ID No. EPA-HQ-OLEM-2017-0286. The EPA's policy is that all comments received will be included in the public docket and may be made available online at https://www.regulations.gov, including any personal information provided, unless the comment includes information claimed to be CBI or other information whose disclosure is restricted by statute. Do not submit information that you

consider to be CBI or otherwise protected through https://www.regulations.gov or email. The https://www.regulations.gov Web site is an ``anonymous access'' system, which means the EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to the EPA without going through https://www.regulations.gov, your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, the EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If the EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, the EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses.

*Docket*. The EPA has established a docket for this action under Docket ID No. EPA-HQ-OLEM-2017-0286. The EPA has previously established a docket for the April 17, 2015, CCR final rule under Docket ID No. EPA-HQ-RCRA-2009-0640. All documents in the docket are listed in the https://www.regulations.gov index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy form. Publicly available docket materials are available either electronically at https://www.regulations.gov or in hard copy at the EPA Docket Center (EPA/DC), EPA WJC West Building, Room 3334, 1301 Constitution Ave. NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the EPA Docket Center is (202) 566-1742.

**FOR FURTHER INFORMATION CONTACT:** For information concerning this proposed rule, contact Mary Jackson, Office of Resource Conservation and Recovery, Environmental Protection Agency, 5304P, Washington DC 20460; telephone number: (703) 308-8453; email address: jackson.mary@epa.gov. For more information on this rulemaking please visit https://www.epa.gov/coalash.

**SUPPLEMENTARY INFORMATION:**

*Submitting CBI*. Do not submit information that you consider to be CBI electronically through http://www.regulations.gov or email. Send or deliver information identified as CBI to only the following address: ORCR Document Control Officer, Mail Code 5305-P, Environmental Protection Agency, 1200 Pennsylvania Avenue, N.W., Washington, DC 20460; Attn: Docket ID No. EPA-HQ-OLEM-2017-0286.

Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or DC-ROM that you mail to the EPA, mark the outside of the disk or CD-ROM as CBI and then identify electronically within the disk or CD-ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. If you submit a CD-ROM or disk that does not contain CBI, mark the outside of the disk or CD-ROM clearly that it does not contain CBI. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 Code of Federal Regulations (CFR) part 2.

*Public Hearing*. This notice also announces that EPA will be holding a public hearing on this proposed rule. A public hearing provides interested parties the opportunity to present data, views, or arguments concerning the proposed rule. EPA may ask clarifying questions during the oral

presentations, but will not respond formally to any comments or the presentations made. Additional information about the hearing will be posted in the docket for this proposal and on EPA's CCR website (*https://www.epa.gov/coalash*).

## I. General Information

### *A. Executive Summary*

1. Purpose of the Regulatory Action

The EPA is proposing to amend the regulations for the disposal of coal combustion residuals (CCR) in landfills and surface impoundments in order to: (1) address provisions of the final rule that were remanded back to the Agency on June 14, 2016; (2) to provide States with approved CCR permit programs (or EPA where it is the permitting authority) under the Water Infrastructure Improvements for the Nation (WIIN) Act the ability to set certain alternative performance standards; and (3) address one additional issue raised by commenters that has arisen since the April 2015 publication of the final rule, namely the use of CCR during certain closure situations.

2. Summary of the Major Provisions of the Regulatory Action

EPA is proposing two categories of revisions plus one additional revision to the regulations at 40 CFR 257 subpart D. The first category is associated with a judicial remand in connection with the settlement agreement entered on April 18, 2016 that resolved four claims brought by two sets of plaintiffs against the final CCR rule. See *USWAG et al v EPA*, No. 15-1219 (DC Cir. 2015). The second category is a set of revisions that are proposed in response to the WIIN Act. The last revision in the proposal deals with an issue that has been raised by commenters since the publication date of the final CCR rule. In the 2015 CCR final rule, EPA organized the regulations for the recordkeeping requirements, notification requirements and

publicly accessible internet site requirements into 40 CFR §§ 257.105, 257.106, and 257.107, respectively.[1] There are recordkeeping, notification and internet posting requirements associated with the revisions that are in this proposal. Those requirements have not all been added to the regulatory language. Those requirements will be added to §§ 257.105-257.107 when the final rule is developed.

a. Proposals associated with judicial remand

The Agency is proposing four changes from the CCR final rule that was promulgated on April 17, 2015 associated with the judicial remand. The proposed revisions would: 1) clarify the type and magnitude of non-groundwater releases that would require a facility to comply with some or all of the corrective action procedures set forth in 40 CFR §§ 257.96-257.98 in meeting their obligation to clean up the release; 2) add boron to the list of constituents in Appendix IV of part 257 that trigger corrective action and potentially the requirement to retrofit or close the CCR unit; 3) determine the requirement for proper height of woody and grassy vegetation for slope protection; and 4) modify the alternative closure provisions.

b. Proposals associated with the WIIN Act

The Agency is proposing six alternative performance standards that would apply in participating states (i.e., those which have an EPA-approved CCR permit program under the WIIN Act.) or in those instances where EPA is the permitting authority. Those alternative performance standards would allow a state with an approved permit program or EPA to: 1) use alternative risk-based groundwater protection standards for constituents where no Maximum Contaminant Level exists; 2) modify the corrective action remedy in certain cases; 3) suspend groundwater monitoring requirements if a no migration demonstration can be made; 4) establish

[1] Unless otherwise specified, all references to part 257 in this preamble are to title 40 of the Code of Federal Regulations (CFR).

an alternate period of time to demonstrate compliance with the corrective action remedy; 5) modify the post-closure care period; and 6) allow Directors of states to issue technical certifications in lieu of the current requirement to have professional engineers issue certifications. These alternative standards are discussed in more detail later in this proposal.

Under the WIIN Act, EPA is the permitting authority for CCR units located in Indian County. EPA would also serve as the permitting authority for CCR units located in nonparticipating states subject to a Congressional appropriation to carry out that function. At this time, Congress has not provided appropriations to EPA to serve as the permitting authority in nonparticipating states. EPA is therefore proposing that in those cases where it is the permitting authority, it will have the same ability as a Director of a State with an approved CCR program to apply the alternative performance standards. In addition, EPA seeks comment on whether and how these alternative performance standards could be implemented by the facilities directly (even in States without a permit program), given that the WIIN Act provided authority for EPA oversight and enforcement.

c. Proposal to allow CCR to be used during certain closure situations

EPA is proposing to revise the current regulations to allow the use of CCR in the construction of final cover systems for CCR units closing pursuant to § 257.101 that are closing with waste-in-place. EPA is also proposing specific criteria that the facility would need to meet in order to allow for the use of CCR in the final cover system.

With this action EPA is not reconsidering, proposing to reopen, or otherwise soliciting comment on any other provisions of the final CCR rule beyond those specifically identified as such in this proposal. EPA will not respond to comments submitted on any issues other than

those specifically identified in this proposal and they will not be considered part of the rulemaking record.

3. What are the incremental costs and benefits of this action?

This action is expected to result in net cost savings amounting to between $32 million and $100 million per year when discounting at 7 percent and annualized over 100 years. It is expected to result in net cost savings of between $25 million and $76 million per year when discounting at 3 percent and annualized over 100 years. Further information on the economic effects of this action can be found in Unit V of this preamble.

*B. Does this action apply to me?*

This rule applies to all CCR generated by electric utilities and independent power producers that fall within the North American Industry Classification System (NAICS) code 221112 and may affect the following entities: electric utility facilities and independent power producers that fall under the NAICS code 221112. This discussion is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This discussion lists the types of entities that EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your entity is regulated by this action, you should carefully examine the applicability criteria found in § 257.50 of title 40 of the Code of Federal Regulations. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the **FOR FURTHER INFORMATION CONTACT** section.

## **II**. **Background**

*A. CCR Rule*

On April 17, 2015, EPA finalized national regulations to regulate the disposal of CCR as solid waste under subtitle D of the Resource Conservation and Recovery Act (RCRA) titled, "Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities," (80 FR 21302) (CCR rule). The CCR rule established national minimum criteria for existing and new CCR landfills and existing and new CCR surface impoundments and all lateral expansions of CCR units that are codified in Subpart D of Part 257 of Title 40 of the Code of Federal Regulations. The criteria consist of location restrictions, design and operating criteria, groundwater monitoring and corrective action, closure requirements and post-closure care, and record keeping, notification and internet posting requirements. The rule also required any existing unlined CCR surface impoundment that is contaminating groundwater above a regulated constituent's groundwater protection standard to stop receiving CCR and either retrofit or close, except in limited circumstances.

The rule was challenged by several different parties, including a coalition of regulated entities and a coalition of environmental organizations. See, *USWAG et al v EPA*, No. 15-1219 (DC Cir. 2015). Four of the claims, a subset of the provisions challenged by the industry and environmental Petitioners, were settled. The rest were briefed and are currently pending before the U.S. Court of Appeals for the D.C. Circuit, awaiting resolution.

As part of that settlement, on April 18, 2016 EPA requested the court to remand the four claims back to the Agency. On June 14, 2016 the U.S. Court of Appeals for the D.C. Circuit granted EPA's motion.

One claim, which was settled by the vacatur of the provision allowing inactive surface impoundments to close early and thereby avoid groundwater monitoring, cleanup, and post-

closure care requirements, was the subject of a recent rulemaking. See, 81 FR 51802 (August 5, 2016).

The remaining claims that were remanded back to the Agency are the subject of this proposed rule. As part of the settlement, EPA committed to issue a proposed rule or rules to: (1) Establish requirements for the use of vegetation as slope protection on CCR surface impoundments; (2) Clarify the type and magnitude of non-groundwater releases for which a facility must comply with some or all of the rule's corrective action procedures; and (3) Add Boron to the list of contaminants in Appendix IV, whose detection trigger more extensive monitoring and cleanup requirements. Each of these are discussed further in Unit III of the preamble. As specified in the settlement, EPA presently intends to take final action on these proposals by June 2019. The issue of alternative closure requirements (due to lack of capacity for non-CCR wastestreams) was also remanded, but was not part of the settlement agreement. That issue is also discussed in Unit III of this preamble.

In addition, on September 13, 2017, EPA granted petitions from the Utility Solid Waste Activities Group (USWAG) and from AES Puerto Rico LLP requesting the Agency initiate rulemaking to reconsider provisions of the 2015 final rule.[2] EPA determined that it was appropriate and in the public interest to reconsider provisions of the final rule addressed in the petitions, in light of the issues raised in the petitions as well as the new authorities in the WIIN Act.

This determination raised some questions as to how the remaining issues in the CCR litigation should be handled. In response to various motions filed with U.S. Court of Appeals for the D.C. Circuit, the court ordered EPA to submit a status report indicating which provisions of

[2] A copy of both rulemaking petitions are included in the docket to this proposed rule.

the final CCR rule were being or were likely to be reconsidered by the Agency and a timeline for this reconsideration. EPA filed that status report on November 15, 2017 indicating that the following provisions were or were likely to be reconsidered. These included issues that were before the court as well as those that were not:

| PROVISION OF THE CCR RULE | DESCRIPTION |
|---|---|
| Provisions under Reconsideration Subject to Challenge in Litigation | |
| § 257.50(c), § 257.100 | EPA Regulation of Inactive Surface Impoundments |
| § 257.53 – definition of beneficial use | The Criteria for Determining Whether Activities Constitute Beneficial Use or Disposal |
| § 257.95(h)(2) | Use of Risk-Based Alternative Standards for Remediating Constituents Without an MCL |
| § 257.53 – definition of CCR pile | The criteria for determining Whether a Pile will be Regulated as a Landfill or as Beneficial Use |
| § 257.96-98 | Regulatory Procedures Used to Remediate Certain Non-Groundwater Releases |
| §§ 257.73(a)(4), 257.73(d)(1)(iv), 257.74(a)(4), 257.74(d)(1)(iv) | Requirements for Slope Protection on Surface Impoundments, Including Use of Vegetation |
| § 257.103(a) and (b) | Whether to Allow Continued Use of Surface Impoundments Subject to Mandated Closure if No Capacity for Non-CCR Wastestreams |
| § 257.50(e) | Regulation of Inactive Surface Impoundments, Including Legacy Ponds |
| § 257.100 | Exemption for Certain Remediation and Post-Closure Requirements for Inactive Surface Impoundments that Close by April 17, 2018<br><br>Note: EPA completed reconsideration of the issues associated with this claim. See 81 FR 51802 (August 5, 2016). |
| Appendix IV to Part 257; §§ 257.93(b), 257.94(b), 257.95(b), 257.95(d)(1) | Addition of Boron to the List of Constituents that Trigger Corrective Action |
| Provisions under Reconsideration Not Before the Court | |
| § 257.97 | Whether to Allow Modification of the Corrective Action Remedy |
| § 257.90 | Whether to Suspend Groundwater Monitoring Requirements Where "No Migration" Demonstration is Made |
| § 257.98(c) | Whether to Allow Alternate Period of Time to |

| | |
|---|---|
| | Determine Remediation is Complete |
| § 257.104 | Whether to Allow Modification of the Post-Closure Care Period |
| § 257.101, 257.102 | Whether to Allow CCR to be Used to Close Surface Impoundments Subject to Mandated Closure |
| § 257.53 | Clarify Placement of CCR in Clay Mines |

EPA further stated that it anticipates it will complete its reconsideration of all provisions identified in two phases. EPA indicated that in the first phase EPA would continue its process with respect to those provisions which were remanded back to EPA in June of 2016. These provisions are: the requirements for use of vegetation as slope protection; the provisions to clarify the type and magnitude of non-groundwater releases that would require a facility to comply with some or all of the corrective action procedures set out in §§ 257.96-257.98 in meeting its obligation to clean up the release; and provisions to add Boron to the list of contaminants in Appendix IV of the final rule that trigger corrective action. As noted elsewhere, the settlement agreement associated with the remand contemplates final action on these by June 14, 2019. EPA also indicated that as part of Phase One it would review the additional provisions to determine whether proposals to revise or amend some of these could be developed quickly enough so that they could be included in this first phase, and meet the schedule set out in the settlement agreement (i.e., final action by June 2019). A number of these are associated with the WIIN Act which is discussed in detail in Unit II.B of this preamble.

EPA also indicated in its status report that it factored in two separate 90-day interagency review periods and assumed a 90-day public comment period as the minimum amount of time needed to provide comment based on the complexity of the issues involved. However, in developing this proposal, EPA now believes that a 90-day public comment period would be unnecessary. Instead, based on its assessment of the contents of the proposal, EPA will seek

public comment for a period of 45 days. This proposal addresses four issues that were subject to legal challenge and included in the 2016 judicial remand. The legal authorities and policy options associated with these provisions have been addressed in comments to the 2015 CCR rule, as well as the litigation briefs filed by the United States and the industry and environmental petitioners. The remaining proposals included in this proposed rule largely reflect policy options that were discussed in the preamble to the 2015 final CCR rule and are based in large measure on the established record supporting the longstanding regulations for Municipal Solid Waste Landfills codified at 40 CFR Part 258. By focusing this proposal on specific regulatory proposals that are largely rooted in existing requirements for how other nonhazardous waste is already regulated under Part 258, EPA has sought to minimize potential confusion and unnecessary burden on the public by basing many of these proposed changes to the 2015 CCR rule on well-understood legal theories and an existing scientific record.

EPA stated that it plans to complete review of all remaining matters identified on the chart and not covered in the Phase One proposal and determine whether to propose revisions to the provisions. EPA currently expects that if further revisions are determined to be warranted it will sign a Phase Two proposed rule no later than September 2018 and complete its reconsideration and take final action no later than December 2019.

Thus, this proposal includes those provisions where EPA has completed its review and has sufficient information to propose revisions. EPA continues to evaluate the other matters and will make a determination as to whether revisions are appropriate and if so anticipates signing a proposal by September of this year.

*B. Water Infrastructure Improvements for the Nation Act*

As noted in this preamble, the CCR rule was finalized in April 2015. As discussed in detail in the preamble to the final rule in the Federal Register (80 FR 21310-21311, April 17, 2015), these regulations were established under the authority of sections 1006(b), 1008(a), 2002(a), 3001, 4004, and 4005(a) of the Solid Waste Disposal Act of 1970, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984(HSWA), 42 U.S.C. 6900(B), 6907(A), 6912(A), 6944, and 6945(a). "Subtitle D of RCRA establishes a framework for federal, state, and local government cooperation in controlling the management of non-hazardous solid waste." (80 FR 21310, April 17, 2015). EPA's role is to create national minimum criteria; however, states are not required to adopt or implement them; thus under subtitle D, these self-implementing criteria operate even in the absence of a regulatory entity to oversee them. "As a consequence of this statutory structure - the requirement to establish national criteria and the absence of any requirement for direct regulatory oversight - to establish the criteria EPA must demonstrate, through factual evidence available in the rulemaking record, that the final rule will achieve the statutory standard ("no reasonable probability of adverse effects on health or the environment") at all sites subject to the standards based exclusively on the final rule provisions. This means that the standards must account for and be protective of all sites, including those that are highly vulnerable." (80 FR 21311, April 17, 2015).

Given the existing statutory authorities, the final rule provided very limited site-specific flexibilities and did not provide for a State program which could adopt and be authorized to implement the federal criteria.

In December 2016, the Water Infrastructure Improvements for the Nation (WIIN) Act was enacted, establishing new statutory provisions applicable to CCR units, including: (a)

authorizing States to implement the CCR rule through an EPA-approved permit program; and (b) authorizing EPA to enforce the rule and in certain situations to serve as the permitting authority.[3]

The legislation amended RCRA section 4005, creating a new subsection (d) that establishes a Federal permitting program similar to other environmental statutes. States may submit a program to EPA for approval and permits issued pursuant to the approved state permit program operate in lieu of the Federal requirements. 42 U.S.C. 6945(d)(1)(A). To be approved, a State program must require each CCR unit to achieve compliance with the part 257 regulations (or successor regulations) or alternative State criteria that EPA has determined are "at least as protective as" the part 257 regulations (or successor regulations). State permitting programs may be approved in whole or in part. 42 U.S.C. 6945(d)(1)(B). States with approved CCR permitting programs are considered "participating states".

In states without an approved program, EPA is to issue permits, subject to the availability of appropriations specifically provided to carry out this requirement. 42 U.S.C. 6945(d)(2)(B). In addition, EPA must issue permits for CCR units in Indian Country. The legislation also authorized EPA to use its RCRA subtitle C information gathering and enforcement authorities to enforce the CCR rule or permit provisions, both in nonparticipating and participating States subject to certain conditions. 42 U.S.C. 6945(d)(4).

The statute expressly provides that facilities are to continue to comply with the CCR rule until a permit (issued either by an approved state or by EPA) is in effect for that unit. 42 U.S.C. 6945(d)(3), (6).

*C. What is the agency's authority for taking this action?*

[3] P.L 114-322.

These regulations are established under the authority of sections 1008(a), 2002(a), 4004, and 4005(a) and (d) of the Solid Waste Disposal Act of 1970, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA) and the Water Infrastructure Improvements for the Nation (WIIN) Act of 2016, 42 U.S.C. 6907(a), 6912(a), 6944, and 6945(a) and (d). While the 2015 final CCR rule, and today's proposed revisions, implement EPA's authority under RCRA, as amended by HSWA and the WIIN Act, EPA does not intend for these proposed revisions to impose any other separate requirements under any other statute or regulation, including under the Clean Water Act and its implementing regulations.

## III. What Amendments Associated with the Judicial Remand Is EPA Proposing?

### *A. Addition of Boron to Appendix IV of Part 257*

The final CCR rule establishes a comprehensive system of groundwater monitoring and corrective action so that facilities detect and address groundwater releases. (80 FR 21396, April 17, 2015). The final rule requires facilities to employ a two-stage groundwater monitoring program. The first stage is "detection monitoring" for the constituents listed in Appendix III of the rule. Appendix III constituents are intended to provide an early detection as to whether contaminants are migrating from the disposal unit into groundwater.

If during detection monitoring, the facility determines there to be a statistically significant exceedance of any constituent over the established background level, the facility must begin the second stage of the monitoring program, "assessment monitoring," by sampling for an expanded set of constituents, which are listed in Appendix IV of the rule. Appendix IV constituents are those that EPA has determined present risks of concern to human health or the environment. These are generally determined by risk assessment and/or damage cases, and are based on the characteristics of the wastes in the unit.

If an owner or operator determines, based on assessment monitoring, that concentrations of one or more of the constituents listed in Appendix IV have been detected at statistically significant levels above the site's established groundwater protection standards, that facility must initiate corrective action as described in the final rule. This determination (i.e., that constituent concentrations are at statistically significant levels above the site's established groundwater protection standard) also triggers the requirement that an existing unlined CCR surface impoundment retrofit or close. Thus, the primary difference between listing on Appendix III and IV is that detection of a constituent on Appendix III initiates requirements for more extensive monitoring, while detection of a constituent on Appendix IV compels a facility to initiate remedial actions to clean up the contamination and, in some cases, to close the unit.

In the proposed CCR rulemaking (June 21, 2010), EPA included boron in both the detection monitoring (Appendix III) and the assessment monitoring (Appendix IV) lists, 75 FR 35253. The parameters that EPA proposed that facilities use as early indicators of groundwater contamination (Appendix III) were boron, chloride, conductivity, fluoride, pH, sulfate, sulfide, and total dissolved solids (TDS). EPA selected these constituents because they are present in CCR and would move rapidly through the subsurface and thus provide an early detection as to whether contaminants were migrating from the disposal unit. EPA also proposed a list of constituents for inclusion on Appendix IV. The list included all of the constituents found in CCR or leachate based on the data EPA had at the time:  aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chloride, chromium, copper, fluoride, iron, lead, manganese, mercury, molybdenum, selenium, sulfate, sulfide, thallium, and TDS. EPA then specifically asked for comment on this list and received a number of comments on these specific constituents.

In developing the final rule EPA generally relied on the same considerations it had relied on in the proposed rule. However, in response to comments, the final rule removed boron from Appendix IV, 80 FR 21500, April 17, 2015. The primary reason was that a Maximum Contaminant Level (MCL) had not yet been established under the Safe Drinking Water Act for boron. EPA generally preferred to include on Appendix IV only constituents that had established MCLs, as MCLs provide clear risk-based clean up levels in the event that corrective action is required. EPA also reasoned that because boron would remain on Appendix III it was unnecessary to include it on Appendix IV as facilities would be required to continue monitoring its concentration. Out of all the coal ash constituents modeled by EPA, boron has the fastest travel time, meaning that boron is likely to reach potential receptors before other constituents. Therefore, boron is expected to be one of the earliest constituents detected if releases to groundwater are occurring; consequently, EPA reasoned that retaining boron on Appendix III was more appropriate as it would function as a "signal" constituent that would ensure that assessment monitoring was quickly triggered in response to any release.

After the final rule was published, this decision was challenged as one claim in the multiparty litigation on the final rule. *See USWAG v. EPA*, No. 15-1219 (DC Cir.). In response to the litigation, EPA reexamined its decision to remove boron and concluded at that time that removing boron from Appendix IV had been inconsistent with other actions taken in the final rule. Specifically, fluoride had been included on both Appendix III and Appendix IV. Removing boron from Appendix IV because of a lack of a MCL was also inconsistent with the approach to other constituents: lead, molybdenum, cobalt and lithium were included on Appendix IV, and they lack MCLs. EPA also concluded, as discussed in greater detail below, that the facts independently warranted reconsidering the exclusion of boron from Appendix IV. In light of

these conclusions, EPA settled this claim, agreeing to reconsider its decision through a new rule making. The settlement of this claim was presented to the Court without challenge, and on June 14, 2016, the Court severed this claim from the rest of the litigation over the final rule.

Accordingly, EPA is proposing to add boron to Appendix IV of part 257. This proposal is based on a number of considerations. First, the risk assessment (RA) conducted to support the final CCR rule shows that boron is one of nine constituents determined to present unacceptable risks under the range of scenarios modeled.[4] Of these constituents, boron is the only one associated with risks to both human and ecological receptors. Specifically, the 2014 risk assessment shows that boron can pose developmental risk to humans when released to groundwater and can result in stunted growth, phytotoxicity, or death to aquatic biota and plants when released to surfacewater bodies. EPA is proposing to rely on the existing 2014 risk assessment to support this part of this proposal, and EPA seeks public comment on whether this reliance is appropriate. The risks identified therein support including boron on Appendix IV along with arsenic, cadmium, cobalt, fluoride, lithium, mercury, molybdenum and thallium.

Second, when reviewing damage cases collected for the CCR rulemaking, EPA identified one or more "contaminants of concern" (COCs) for each damage case. Boron is a COC in more damage cases (approximately 50 percent of the total) than any Appendix IV constituent with the exception of arsenic. The damage cases reflect a range of waste types disposed in both surface impoundments and landfills. These damage cases corroborate the findings of the RA and also capture other risk scenarios that were not modeled in the RA, such as units that intersect with the groundwater table.

[4] USEPA, "Human and Ecological Risk Assessment of Coal Combustion Residuals", December 2014; docket identification number EPA-HQ-RCRA-2009-0640-11993.

Third, as noted, out of all the coal ash constituents modeled by EPA, boron has one of the shortest travel times, meaning that boron is likely to reach potential receptors before other constituents. As such, including it on Appendix IV would ensure corrective action occurs soon after a potential release, prior to the appearance of slower-moving constituents hydrologically downstream from the source of contamination. Early detection and remediation would better protect human health and the environment by allowing for a response to contamination more quickly and preventing further and more extensive contamination, thereby limiting the exposures to human and ecological receptors. And although this consideration is not relevant under RCRA section 4004(a), early action will also have the benefit of reducing the costs to the facility of remediation, as the cost is necessarily greater to remediate more numerous contaminants and more extensive contamination.

Finally, inclusion of boron on Appendix IV would also be consistent with EPA's previous decisions for other constituents. EPA added cobalt, molybdenum, and lithium to Appendix IV even though these constituents do not currently have MCLs because they were found to be risk drivers in the 2014 risk assessment (80 FR 21404, April 17, 2015).

EPA included lithium on Appendix IV even though it does not have an MCL because it was detected in "several" damage cases (80 FR 21404, April 17, 2015). Lead was also detected in at least nine damage cases; and, as noted above, boron is a COC in approximately 51 percent of the total damage cases. By contrast, EPA removed aluminum, copper, iron, manganese and sulfide from Appendix IV because "they lack maximum contaminant levels (MCLs)" and were not shown to be constituents of concern based on either the risk assessment conducted for the rule or the damage cases (80 FR 21404, April 17, 2015).

In light of all of the information presented above, EPA is proposing to add boron to Appendix IV of part 257 and seeks comment on the appropriateness of including boron on Appendix IV in the absence of an MCL for the constituent.

*B. Performance standards to increase and maintain slope stability*

As part of the Assessment Program[5] EPA determined that slope protection is an essential element in preventing slope erosion and subsequent deterioration of CCR unit slopes, and that the protective cover of slopes was a significant factor in determining the overall condition rating of all units.

So, in the final CCR rule EPA promulgated specific requirements for all CCR surface impoundments (except incised units) to install and maintain adequate slope protection. Specifically, the final rule required facilities to document that "the CCR unit has been designed, constructed, operated, and maintained with… [adequate slope protection to protect against surface erosion, wave action, and adverse effects of sudden drawdown." §§ 257.73(d)(1)(ii); and 257.74(d)(1)(ii).

In developing the specific technical requirements for the final rule, EPA relied on existing dam safety technical literature, which universally recommends that vegetative cover not be permitted to root too deeply beneath the surface of the slope. Deep roots can potentially introduce internal embankment issues such as pathways for water intrusion and piping, precipitating erosion internally, or uprooting which is the disruption of the embankment due to the sudden uplifting of the root system. Based on these data, the final rule also required a vegetative cover height limitation to prevent the establishment of rooted vegetation, such as a

[5] In March 2009, the Agency's CCR Assessment Program (herein referred to as the Assessment Program) was initiated to evaluate the structural stability and safety of coal ash impoundments throughout the country. By September 2014, 559 impoundments had been assessed at over 230 coal-fired power plants. 80 FR 21313, April 17, 2015.

tree, a bush, or a shrubbery, on the CCR surface impoundment slope, 80 FR 21476, April 17, 2015, and to prevent the obscuring of the slope during routine and emergency inspection. Based on the available information, EPA concluded that a vegetative cover height limitation of six inches above the face of the embankment was adequate to achieve these dual goals of preventing woody vegetation, while allowing inspectors adequate observation of the slope.

After the final rule was published, this provision was challenged on the grounds that EPA had failed to provide adequate notice of this requirement in the proposal. See, *USWAG et al v EPA*, No. 15-1219 (DC Cir. 2015). In response, EPA reexamined its decision, and agreed to reconsider this provision. This claim was settled, and the court vacated the requirement that vegetation on all slopes "not…exceed a height of 6 inches above the slope of the dike" within §§ 257.73(a)(4), 257.73(d)(1)(iv), 257.74(a)(4), and 257.74(d)(1)(iv). EPA is not proposing to reopen any other provisions of §§ 257.73 and 257.74, and will not respond to any comments received on those provisions. Because, as described below, slope protection is an essential element in preventing destabilization of a CCR surface impoundment, EPA is proposing to expand on the existing general performance standard with more specific slope protection requirements for existing and new surface impoundments. EPA is also proposing to establish distinct definitions and height limitations for grassy vegetation and woody vegetation to replace the vacated requirement. Finally, EPA is also proposing definitions for engineered slope protection measures, pertinent surrounding areas, slope protection, and vegetative height.

1. Performance Standards

Slope protection is an essential element in preventing destabilization of a CCR surface impoundment. Surficial and internal erosion, wave action, and rapid drawdown are some phenomena that can destabilize a surface impoundment. Surficial erosion is the removal of

surface material, typically resulting from regular, intermittent physical phenomena such as surface run-off and wind action. Internal erosion, due to seepage and piping, is the removal of material beneath the surface of an embankment through the infiltration and transmission of water into and through the embankment. Wave action can cause erosion of embankment material typically caused by wave run-up in wind or storm events. Rapid drawdown is the rapid lowering of the water level of a reservoir which may precipitate slope failure due to residual high pore-water pressure in the embankment with a lack of counteracting pressure from the reservoir. In each of these phenomena, slope protection provides mitigating effects to counteract the phenomena through cohesion of the surface of the embankment. Furthermore, slope protection is necessary to ensure that dike or embankment erosion does not occur, both from the surface of the upstream or downstream slope, crest, or adjacent areas or from internal areas of the unit. Erosion of the embankment can precipitate more significant structural or operational deficiencies, such as beaching upstream from wave action, sloughing or sliding of the crest, discharge of solids to adjacent surface waters, and increased internal erosion. Finally, slope protection is necessary to maintain the stability of the CCR surface impoundment slope under rapid drawdown events[6] and low pool conditions of water bodies that may abut the CCR surface impoundment and are outside the reasonable control of the owner or operator, *e.g.,* a natural river which the slopes of the CCR surface impoundment intercept and abut. Accordingly, EPA is proposing to establish a number of new performance standards to ensure the stability of CCR surface impoundments.

First, EPA is proposing to modify the current regulation to require the owner or operator to ensure that both the slopes and the pertinent surrounding areas of any CCR surface

[6] In this provision, EPA is concerned with the rapid drawdown of adjacent water bodies acting upon the downstream slope of the CCR surface impoundment rather than the rapid drawdown of the impounded reservoir of the CCR surface impoundment acting upon the upstream slope of the CCR surface impoundment. Presumably, the water body of concern acting upon the downstream slope of the impoundment is outside the control of the owner or operator.

impoundment (both existing and new) are designed, constructed, operated, and maintained with one or more of the forms of slope protection specified in the regulation. EPA has defined slope protection for this proposal as measures installed on the upstream or downstream slope of the CCR unit that protect the slope against wave action, erosion or adverse effects of rapid drawdown. Slope protection includes but is not limited to grassy vegetation, rock riprap, concrete revetments, vegetated wave berms, concrete facing, gabions, geotextiles, or fascines. EPA's proposed definition was developed from the available technical literature for dam safety, geotechnical engineering, and hydrology and hydraulics. The definition of slope protection includes examples of common modes of slope protection utilized in embankment dams, levees, dikes, and other engineering structures which interface with water or other impounded fluids.

EPA is proposing to define pertinent surrounding areas because adequate slope protection in surrounding areas is critical to the overall stability of the CCR surface impoundment. EPA has defined pertinent surrounding areas for this proposal as all areas immediately surrounding the CCR surface impoundment that have the potential to affect the structural stability and condition of the CCR surface impoundment, including but not limited to the toe of the downstream slope, the crest of the embankment, abutments, and unlined spillways. EPA intends this term to include all areas in the vicinity of the CCR unit that may influence the condition of the CCR unit. This would include all areas that good engineering practice dictates should be protected against adverse effects of erosion. See e.g., Federal Emergency Management Agency's "FEMA 534: Technical Manual for Dam Owners, Impacts of Plants on Earthen Dams" (September 2005), a copy of which is available in the docket to this rulemaking.

However, the slope protection requirement would exclude certain areas on, adjacent, or near the CCR unit for which it is infeasible, impractical, or unsafe to maintain vegetation. These

areas include specific design features of the unit that may occupy portions of the surface of the CCR unit. Such design features may include lined spillways, decant structures, access ways such as roads, paths, or stairs, or sluice pipes. Therefore, an owner or operator does not need slope protection to be designed, constructed, operated, and maintained in these areas. Furthermore, by the nature of these engineered structures, the integrity of the slope or pertinent surrounding area is typically maintained through the construction of the structure or the potential adverse effects to the integrity of the slope or pertinent surrounding area are limited by the nature of the structure. For instance, a properly designed, constructed, and maintained sluice pipe or decant structure may include preventative measures, such as a collar or a boot, which prevents the infiltration of water and potential erosion of the slope at the exit-point of the structure on the slope. An additional example of limited potential adverse effects would be that of a road or path on the crest of the embankment of the impoundment. Due to regular vehicle traffic, it may prove difficult to maintain vegetative cover on the surface of the travel path. Furthermore, due to the location and typical characteristics of the road, e.g., located on the crest of the embankment with ample clearance from the edge of the upstream and downstream slopes, EPA does not anticipate substantial adverse effects due to erosion of the roadway based on its observations during the Assessment Program. Finally, the existing inspection and monitoring requirements of the final rule provide protection against the deterioration of the slopes and pertinent surrounding areas of the CCR surface impoundment in the locations where these structures are found. The integrity of these appurtenant design structures must be ensured by the professional engineer (PE) during regular assessments required in § 257.73 and § 257.74, to confirm that effects from erosion, wave action, or other adverse phenomena are not introduced by the structures.

Similar to the original rule, EPA is proposing to require that slope protection consist of either grassy vegetation, engineered slope protection measures, or a combination of such measures. EPA is also proposing to establish specific performance standards that all slope protection measures must meet. First, the proposed rule would require that the owner or operator ensure that the slope protection measures are maintained in such a manner that allows for the adequate observation of and access to the CCR surface impoundment during routine and emergency events. Second, the regulation would require that the cover provide effective protection against surface erosion, wave action, and adverse effects of rapid drawdown.

2. Vegetative Cover

*Grassy vegetation.* Adequate slope protection can be achieved in most climates through vegetation, typically a healthy, continuous dense stand of low-growing native grass species, or other similar vegetative cover. The most desirable form of slope protection, based on the technical literature, is a cover of native grass that creates cohesive coverage across the slope; this is due to its feasible maintenance, low cost of installation, and effective performance in maintaining slope integrity. In arid climates or submerged areas of the unit where the upkeep of vegetation is inhibited, alternate engineered slope protection measures, including rip-rap, or rock-armor, are typically used.

EPA is proposing to define grassy vegetation for this proposal as vegetation which develops shallow roots that do not penetrate the slope or pertinent surrounding areas of the CCR unit to a depth that introduces the potential of internal erosion or risk of uprooting and improves on the condition of the slopes and pertinent surrounding areas of the CCR unit. This definition is being proposed to provide a distinction between grassy vegetation--which EPA acknowledges can improve embankment slope stability, provided the vegetation does not inhibit adequate

observation of or access to the slope or pertinent surrounding areas of the CCR unit--and woody vegetation, which can create unacceptable adverse risk to the structural stability and operational ability of the CCR unit. EPA has based the definition of grassy vegetation on "FEMA 534: Technical Manual for Dam Owners, Impacts of Plants on Earthen Dams" (September 2005) and the U.S. Army Corps of Engineers' "ETL 1110-2-583: Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures" (April 30, 2014).[7] This proposed definition helps to ensure that any vegetation installed by the owner or operator has a net positive effect on the condition of the unit. A continuous cover of grassy vegetation will prevent erosion of the surface or interior areas of the embankment, protect against the effects of wave action, and mitigate the effects of run-off from the CCR unit. EPA has identified some species of non-woody vegetation that do not provide protection against these adverse effects. These species would be considered weeds, which typically create a patch work of vegetative cover that do not provide a benefit to slope stability and are not intentionally installed by the owner or operator, and therefore do not meet the definition of grassy vegetation.

Weeds for this proposal can be wild vegetation that develops shallow-roots and are non-woody plants that do not create a contiguous cover, inhibit adequate observation of the slope and pertinent surrounding areas of the CCR unit and do not provide an advantageous effect on the condition of the slopes and pertinent surrounding areas of the CCR unit. EPA's description of weeds is based on FEMA guidance titled "FEMA 534: Technical Manual for Dam Owners, Impacts of Plants on Earthen Dams" (September 2005). EPA intends for all non-woody, grassy vegetation that do not provide an advantageous effect to the condition of the CCR unit to fall

[7] A copy of these documents are available in the docket of this rulemaking.

within this definition. Some examples of commonly found species considered to be weeds are: herbaceous plants, vines, pigweed, ragweed, and thistle.

*Woody vegetation.* EPA has defined woody vegetation for this proposal as vegetation that develops woody trunks, root balls, or root systems which can penetrate the slopes or pertinent surrounding areas of the CCR unit to a substantial depth and introduce the potential of internal erosion or risk of uprooting. Woody vegetation is not desirable when located on slopes or pertinent surrounding areas of CCR units; technical guidance consistently identifies the substantial risk of uprooting and internal erosion as a result of root system development from woody vegetation. This can lead to dam failure. Some examples of woody vegetation, as defined by the rule, include: trees, bushes, and shrubbery.

*Height Restrictions.* The Assessment Program showed that the ability to adequately observe the surface of the slope and pertinent surrounding areas of the CCR surface impoundment are critical to early detection of deficiencies and overall maintaining of structural and operational integrity of the CCR units so EPA finalized height limitations in the CCR rule. However, EPA is now proposing new height limitations for any grassy and woody vegetative cover. Based on comments submitted from industry after the final rule was published, relating to the feasibility of vegetation management on CCR surface impoundments and the varied nature of technical guidance from federal agencies and organizations with jurisdiction or oversight over dam safety[8,9], EPA has subsequently determined that the 6 inch height limitation for grassy vegetation was overly restrictive and presented implementation problems for owners and operators.

[8] U.S. Army Corps of Engineers, EM 1110-2-583, "Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures," April 30, 2014.
[9] Federal Emergency Management Agency, "FEMA 534: Technical Manual for Dam Owners, Impacts of Plants on Earthen Dams," September 2005.

In reviewing technical guidance from federal and state agencies and organizations, EPA found that the original 6 inch vegetative height limitation was a more conservative technical standard than is typically recommended in guidance. The U.S. Army Corps of Engineer's EM 1110-2-583 generally recommends that vegetation be limited to 12 inches in a "vegetation free zone" on and around embankment dams. In addition, the U.S. Army Corps of Engineer's EM 1110-2-583 recommends a minimum height of 3 inches to ensure the health of the grass species providing erosion protection and EPA agrees with this recommendation. The FEMA 534 technical manual does not prescribe a specific vegetative height limitation, but recommends that vegetation be maintained on the basis of achieving several dam safety goals, e.g., permitting effective inspection and monitoring of the embankment, allowing adequate access, discouraging rodent, varmint, or other animal activity through elimination of habitat. Industry commenters have stated that maintaining a 6 inch or less vegetative cover in many regions of the United States was impractical during seasons of high precipitation, when the growth of grassy vegetation is at its greatest rate and access to the slopes of the embankment is limited due to precipitation. They have also stated that when the slopes of the embankments are saturated due to precipitation, mowing may present undue risk of damaging the slopes of the embankment by mowing equipment.

In light of the above, EPA is proposing a vegetative height maximum limitation of 12 inches for grassy and woody vegetation. The 12-inch limit is drawn from the U.S. Army Corps of Engineer's EM 1110-2-583, which as previously noted, generally recommends that grassy vegetation be limited to 12 inches.

EPA is also proposing to define vegetative height as the linear distance measured between the ground surface where the vegetation penetrates the ground surface and the

outermost growth point of the vegetation. This definition is being proposed in order to accurately identify the measurable height of vegetation for use in complying with the vegetative height limits of this rule. EPA intends this definition to reflect the maximum exposed length of the vegetative member along the main stalk of the member.

*Woody Vegetation Maintenance.* Finally, EPA is proposing to require that the vegetative cover be maintained so that all woody vegetation is removed and that any removal of woody vegetation with a diameter greater than 1/2 inch be directed by a qualified person, who must ensure that removal is conducted in a manner that does not introduce adverse risk to the stability and safety of the CCR unit or personnel undertaking the removal. EPA is proposing the specific numeric value of 1/2 inch for the maximum diameter of woody vegetation based on ease of reference and because the diameter represents the threshold for what EPA considers substantial woody vegetation. EPA seeks public comment as to whether a specific numeric value of greater than 1/2 inch for the maximum diameter of woody vegetation would be more appropriate.

Vegetative maintenance, particularly removal of a large tree or a shrubbery, must be undertaken with care so as not to allow for the uprooting of the root system and disturbance of substantial portions of the slope or surrounding pertinent areas of the CCR unit.[10] The removal and maintenance of such vegetation needs to be undertaken under the supervision of personnel familiar with the design and operation of the unit and in consideration of the complexities of removal of a tree or a shrubbery. Furthermore, the removal of vegetation must be conducted in a manner to ensure compliance with relevant environmental statutes, e.g., National Environmental

[10] U.S. Department of Interior, Bureau of Reclamation, "Water Operation and Maintenance, Bulletin No. 150" which includes Guidelines for Removal of Trees and Vegetative Growth from Earth Dams, Dikes, and Conveyance Features, December 1989.

Policy Act, Endangered Species Act. EPA also seeks comment on requiring a specific timeframe in which woody vegetation must be removed.

*Alternatives to vegetative cover.* To accommodate climates or areas where it is infeasible for the owner or operator to maintain a vegetative cover, EPA is proposing to allow alternative forms of slope protection, i.e., engineered cover or combination cover. EPA has proposed these alternative engineered slope protection measures to allow flexibility for owners or operators in maintaining an adequate slope protection cover system in locations where maintenance of vegetation may prove infeasible or where they do not wish to use grassy vegetation. These engineered slope protection measures, i.e., engineered cover or combination cover, are available and effective in certain circumstances, and include but are not limited to rock or concrete revetments, vegetated wave berms, concrete facing, gabions, geotextiles, or fascines.

*C. Clarify the type and magnitude of non-groundwater releases that would require a facility to comply with some or all of the corrective action procedures in §§ 257.96-257.98*

The CCR final rule establishes a number of requirements related to the detection and remediation of releases from a CCR unit. First, the groundwater monitoring and corrective action regulations in § 257.90 state that 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 regulation specifies detailed procedures that must be followed in such cases, requiring that the owner or operator of the CCR unit comply with all applicable requirements in §§ 257.96, 257.97, and 257.98.

Section 257.96(a) also establishes two different standards for triggering corrective action, one for groundwater releases and one for non-groundwater releases. The requirement that a

facility commence corrective action "immediately upon detection of a release from a CCR unit" applies only to non-groundwater releases. By contrast, the regulation requires corrective action for groundwater releases only upon a determination that contaminants are present in concentrations exceeding the groundwater protection standards in § 257.95(h).

In a separate section, the regulations also require that if a deficiency or release is identified during an inspection of a surface impoundment or landfill, the owner or operator must remedy the deficiency or release as soon as feasible, and prepare documentation detailing the corrective measures taken. See, §§ 257.73(d)(2), 257.74(d)(2), 257.83(b)(5), and 257.84(b)(5). However, these provisions do not require the facility to follow a particular process in cleaning up such releases.

After the final rule was published, the requirement that a facility must remediate any non-groundwater release using the same procedures applicable to the corrective action of groundwater releases in §§ 257.96-257.98 was challenged on the ground that EPA had failed to provide adequate notice of this requirement in the proposal. See, *USWAG et al v EPA*, No. 15-1219 (DC Cir. 2015). In response, EPA reexamined the provision and determined that some revision might be warranted to tailor the procedural requirements to the size or magnitude of the release. Specifically, EPA agreed that, in principle, for some non-groundwater releases, it may not be necessary for facilities to follow all of the corrective action procedures in §§ 257.96-257.98 in cleaning up or remedying the releases. Rather, for certain releases, such as releases that are small in scale, it might be preferable for the facility to focus primarily on the rapid remediation of these releases, consistent with §§ 257.90(d), 257.73(d)(2), and 257.83(b)(5), without requiring adherence to all of the corrective action procedures in §§ 257.96-257.98. Accordingly, EPA settled this claim by agreeing to reconsider the procedures a facility must use

to clean up non-groundwater releases in a subsequent rulemaking. The settlement of this claim was presented to the Court without challenge, and on June 14, 2016, the Court severed this claim from the rest of the litigation over the final rule.

This portion of the proposed rule addresses whether the entire set of procedural requirements for corrective actions from the final CCR rule should apply to all non-groundwater releases. EPA is proposing to establish a subset of the corrective action procedures currently found in §§ 257.96-257.98 that would apply to non-groundwater releases that can be completely remediated within 180 days from the time of detection. Under these modified procedures, EPA would compress the reporting requirements into two steps: the initial notification of a release and the documentation that the release has been remediated. These revised procedures would be consolidated in a new section at § 257.99.

EPA designed many of the specific procedural requirements for non-groundwater releases in sections §§ 257.96-257.98 based on several notable "catastrophic" releases from CCR surface impoundments in recent history, such as the release of CCR materials from CCR surface impoundments from the Tennessee Valley Authority's (TVA) Kingston Fossil Plant in Harriman, TN, and the Duke Energy Dan River Steam Station in Eden, NC. However, EPA recognizes that all non-groundwater releases are not of a "catastrophic" nature, and may in some instances, be quite minor. Consequently, EPA is proposing to establish revised provisions to facilitate the most expeditious response to a release from a CCR unit from the owner or operator, and thereby to mitigate degradation.

EPA is proposing a 180-day time limit to complete remediation of the non-groundwater release. This time frame effectively serves to limit these provisions to releases that are expected to have limited potential for harm to human health and the environment. In this regard, EPA

considers that the size and magnitude of the release, i.e., the volume of harmful constituents released, is directly related to the time required to remedy the release.

EPA has identified a number of types of releases that may occur at CCR surface impoundments, and from those, identified the subset that EPA believes could be completely remediated under the existing performance standards within 180 days. Releases that can be cleaned up within 180 days are necessarily of a minimal volume. EPA expects that these reduced procedures are most likely to apply to incidental releases (including fugitive dust) that occur from seepage through the embankment, minor ponding of seepage at the toe of the embankment of the CCR unit, seepage at the abutments of the CCR unit, seepage from slopes, or ponding at the toe of the unit, rather than releases that of a "catastrophic" nature, as catastrophic releases are normally of a magnitude that remediation cannot be completed within 180 days. EPA seeks comment on whether 180 days is the appropriate timeframe in which an owner/operator would be expected to complete remediation of a non-groundwater release under this proposed provision, or whether a shorter deadline, e.g. 120 days, or a longer deadline, e.g., 240 days, would be more appropriate for remediating non-groundwater releases that are expected to have minimal impact to human health and the environment. EPA anticipates that these releases will typically be detected by qualified personnel or qualified professional engineers during weekly or annual inspections or during periodic assessments, as specified in the design and operating criteria of the CCR rule. These types of releases can indicate concerns regarding the structural stability of the unit and that further assessment for structural stability issues is warranted, but they do not typically constitute a substantial release of constituents to the environment in and of themselves.

On this basis, EPA has preliminarily concluded that this subset of small releases may not warrant all of the corrective action procedures specified in §§ 257.96-257.98. In these cases, it is preferable that the owner/operator focus on the rapid remediation of the release. However, EPA requests comment on whether 180-days is the appropriate time frame that best balances EPA's objective to ensure that small releases are remediated expeditiously, with the public's interest in understanding the practices occurring at the site that have the potential to affect their exposures and their groundwater.

Consistent with the proposed overall 180-day deadline for completing the cleanup, EPA is proposing to remove certain deadlines and to waive or compress certain reporting requirements found in the existing regulation, either because under the current regulation the requirement would fall due after the 180-day deadline, or because EPA considers that the benefit from the additional reporting requirement may be outweighed by the more expeditious clean-up of the site. Specifically, § 257.96 requires a facility to complete a written assessment of corrective measures within 90 days of detecting a release, place that assessment in the operating record, hold a public meeting to discuss the results of the corrective action assessment at least 30 days before selecting a remedy, and post the corrective action assessments to the publicly accessible facility website. Section 257.97 further requires a semiannual report describing the progress in selecting and designing a remedy, as well as a report upon selection of a remedy, describing the selected remedy and how it meets the standards in the regulation. Upon completion of the cleanup, section 257.98 requires the facility to prepare a report stating that the remedy has been completed, along with a certification from a qualified professional engineer attesting that the remedy has been completed in compliance with the regulation. This potentially multi-year structure was designed primarily to address releases that are large scale or that will

otherwise require a substantial amount of time to remediate. It is less clear that this full process is truly necessary for smaller scale releases that could easily be completely cleaned up within a short period of time.

In lieu of the existing procedures EPA is proposing that within 15 days of discovering a non-groundwater release, the owner or operator must prepare a notification of discovery of a non-groundwater release, and place it in the facility's operating record as required by § 257.105. EPA is proposing this requirement to provide transparency, consistent with EPA's overall approach to corrective action under the existing regulations. Additionally, EPA is proposing that within 30 days of completing the corrective action of a non-groundwater release, the owner or operator must prepare a report documenting the completion of the corrective action. This report must include: (1) the facility's assessment of corrective measures to prevent further releases, to remediate any releases and to restore the affected area to original conditions; (2) the selected remedy, with an explanation of how it meets the standards specified in § 257.97; and (3) the certification by a professional engineer that the remedy has been completed in accordance with the regulation. Consistent with the existing regulation, the proposal also specifies that the remedy has been completed when the certification has been placed in the facility's operating record. The proposed rule would also require that the owner or operator comply with the recordkeeping requirements specified in § 257.105(h), the notification requirements specified in § 257.106(h), and the internet requirements specified in § 257.107(h). In the event the remedy has not been successfully completed within 180 days, the owner or operator must comply with the entire suite of corrective action requirements in §§ 257.96-257.98.

Under these modified procedures, EPA would compress the reporting requirements into two steps: the initial notification of a release and the documentation that the release has been

remediated. Note that the same basic analytical steps would continue to apply—e.g., the criteria for assessing the corrective measures in § 257.96(c) and for evaluating the effectiveness of the remedy in § 257.97(b) remain in place. EPA is proposing that the facility document these analyses and solicit public input after conducting the cleanup, instead of before the cleanup. EPA is also proposing to waive the requirement in § 257.97(a) to prepare a semiannual report describing the progress in selecting and designing the remedy. Given that the remedy must be entirely completed within 180 days of discovering the release, a semiannual progress report is likely to be superfluous.

EPA recognizes that requiring public notification after the fact is different than requiring public consultation before the remedy is completed, and that in some situations the difference can be quite significant. For small or contained releases, EPA generally believes that the balance of interests is best struck in ensuring that these releases are remediated as quickly as possible, because the potential impact on the public is likewise limited. That balance shifts, however, as the potential for public impact increases. EPA therefore requests comment on whether some limited public involvement prior to completion of the clean-up would be appropriate. This could be achieved, for example, by delaying the initial notification and requiring the facility to provide details about the release and the planned remediation. Another alternative would be to require some kind of brief interim report to provide that information.

As noted, under the existing requirements, remediation is considered complete when a professional engineer has certified that the corrective action has met all the requirements of the section and the certification has been placed in the facility's operating record as required by § 257.105. Following the revisions to RCRA in the WIIN Act, EPA is proposing to expand this to allow a permitting authority in a participating state to make this determination.

As also noted previously, EPA is not proposing to modify the requirement to clean up all non-groundwater releases or the substantive performance standards that all remediation actions must meet. EPA is only proposing to revise the procedures the owner/operator must follow for non-groundwater releases that can be cleaned up within 180 days. However, in the interest of clarity, EPA is considering whether to incorporate the existing performance standards into the new subsection § 257.99 or whether it is sufficient to rely on cross-references to sections §§ 257.96-257.98. EPA specifically solicits comment on which approach would be most useful.

The provisions set forth in this rulemaking are intended solely to facilitate and expedite corrective action, without modifying the existing requirements to address all releases that occur or to ensure the protectiveness of the remedy. Therefore, no risk assessment was conducted to support this provision of the rulemaking.

*D. Alternative closure requirements*

The current regulations require that an owner or operator of a unit closing for cause pursuant to § 257.101, cease placing CCR and non-CCR wastetreams in the unit within six months of an event triggering closure. The current regulations provide a limited exception to this requirement in two narrow circumstances. First, an owner or operator may certify that CCR must continue to be managed in a CCR unit due to the absence of alternative disposal capacity. Section 257.103(a). Second, an owner or operator may certify that the facility will cease operations of the coal-fired boilers no later than dates specified in the final rule. Section 257.103(b). Under either of these alternative closure provisions, owners or operators may continue to place CCR, and only CCR, in a unit designated to close for cause for an extended period of time. Furthermore, the facility must continue to comply with all other provisions of the rule including groundwater monitoring and corrective action.

These exemptions were challenged as part of the litigation on the final rule on the ground that the exemption was too narrow. See, *USWAG et al v EPA*, No. 15-1219 (DC Cir. 2015). Specifically, plaintiffs alleged that during the rulemaking, commenters had informed EPA that facilities were using the same units to manage both CCR and non-CCR wastestreams, but the exemption only allowed the facility to continue to use the unit to dispose of CCR alone. The plaintiffs argued that EPA had failed to address their comments, and to provide any explanation for limiting the exemption to exclude the continued disposal of non-CCR wastestreams.

In response, EPA reexamined the record and concluded that it had failed to address these comments, and to explain the basis for its decision to restrict the exemption to the continued disposal of CCR alone. Accordingly, EPA settled this claim by agreeing to consider whether to expand this provision to situations in which a facility needs to continue to manage wastestreams other than CCR in the waste unit. The settlement of this claim was presented to the Court without challenge, and on June 14, 2016, the Court of Appeals for the D.C. Circuit remanded "all of 40 CFR 257.103 (a) and (b)" back to EPA to allow the Agency for further consideration.

Industry-Provided Information

On December 12, 2016, USWAG sent EPA a letter outlining the need for § 257.103 to include non-CCR wastestreams.[11] This letter has been placed in the docket of this proposed rule. The letter laid out four key premises for such an expansion of the alternative closure provisions. First, the letter explained that power plant operations produce volumes of non-CCR wastestreams in excess of the volumes of CCR wastestreams. These include boiler blowdown, boiler cleaning wastes, demineralizer regeneration washwater, cooling tower blowdown, air heater washwater, stormwater, and water treatment plant waste. Second, the letter explained that

[11] USWAG (Utility Solid Waste Activities Group). 2016. Letter from Jim Roewer to Barnes Johnson. *Addition of Non-CCR Waste Streams to Alternative Closure Provision of Coal Combustion Residuals Rule*. December 12.

power plants do not have contingency plans in place to cover the inoperability of CCR surface impoundments. One anonymous company represented that the only time ponds are taken out of service for repairs and maintenance is during unit outages. Third, the letter provided examples of the new wastewater treatment systems that facilities would be forced to construct, including: brine concentrators, surface impoundments, tank systems, filtration systems, chemical treatment facilities, and wastewater treatment systems. These systems were expected to take between 1.75 years and 7 years to construct. Finally, USWAG represented that 64,000 MW of coal, oil, and gas-fired capacity were at risk of shutdowns as a consequence of the current closure requirements.

USWAG followed up this letter with an executive summary of an EEI (Edison Electric Institute) reliability analysis.[12] This analysis evaluated electric reliability during peak summer electricity usage when removing the capacity of all boilers with unlined CCR impoundments receiving non-CCR wastewaters. This analysis assumed that the CCR impoundments had to be shut down, and that no alternative capacity was available for the non-CCR wastewaters. According to the executive summary, the resulting boiler shut downs would result in substantial impacts in three NERC (North American Electric Reliability Corporation) regions (SERC-E (Southeastern Electric Reliability Council-East), SERC-N (Southeastern Electric Reliability Council-North), and MISO (Midcontinent Independent System Operator)), minor impacts in three NERC regions (ERCOT (Electric Reliability Council of Texas), PJM, and SERC-SE (Southeastern Electric Reliability Council-South East)), and no impacts in remaining NERC regions. The analysis considered substantial impacts to be those where peak demand may not be

[12] EEI (Edison Electric Institute). 2017. *Potential Electric Reliability Risks Due to Cessation of Power Generation as a Result of the Closure of Unlined Surface Impoundments Under 40 CFR Part 257.101 for the Failure to Meet Groundwater Protection Standards*. This document is available in the docket for this proposal.

met without shedding load and/or relying on imports. Minor impacts were those where reserves may fall below FERC standards.

EPA Proposal

EPA is not proposing to modify the alternative closure provisions of § 257.103(a) and will not respond to comments on those provisions. EPA is however, proposing to add a new paragraph (b) to allow facilities to qualify for the alternative closure provisions based on the continued need to manage non-CCR wastestreams in the unit. EPA is also not proposing to modify the alternative closure requirements of § 257.103(b) and will not respond to comments on those provisions (although EPA is proposing to redesignate § 257.103(b) as (c) as stated below). EPA is however, proposing to add a new paragraph (b) in this section to allow facilities to qualify for the alternative closure provisions based on the continued need to manage non-CCR wastestreams in a CCR unit that will cease operation of its coal-fired boilers within timeframes specified in the rule. Thus the facility, if it met the conditions, would be allowed to manage both CCR and non-CCR waste streams in the unit. EPA is also proposing to redesignate existing paragraphs (b) and (c) as paragraphs (c) and (e), respectively, and make conforming changes to this paragraph to reflect the non-CCR waste streams.

As noted previously, currently the alternative closure provisions remain unavailable for non-CCR wastestreams. The current regulation is explicit that the alternative closure provisions only allows for continued disposal of CCR, and therefore facilities must continue to comply with the current rule until an amendment is finalized.

EPA is proposing this exemption because substantial volumes of non-CCR wastestreams are generated at power plants, and may currently be managed in CCR surface impoundments. In the 2015 CCR rule, EPA discussed that the risks to the wider community from the disruption of

power over the short-term outweigh the risk associated with the increased groundwater contamination from continued use of these units. 80 FR 21423, April 17, 2015. As it did for CCR in the 2015 CCR rule, this same concern would apply to non-CCR wastestreams if the CCR unit were unavailable for use and the community was left without power for an extended period of time. EPA solicits comment on ways to evaluate whether sustained loss of power to community will occur.

Based on the appendix provided in the December 12, 2016 letter from USWAG, these non-CCR wastestreams can range from insignificant (e.g., 300 gallons per day for Company C's polisher regeneration waste) to massive (e.g., 47.99 million gallons per day for Company C's stormwater). However, volumes alone do not adequately explain the difficulties that facilities may face. Some volumes are discharged to surface waters without treatment, and may be more amenable to alternative capacity or recirculation at the facility. For example, cooling water wastestreams may be recirculated.[13] Such wastestreams may be manageable through simple modifications of plant water flows and/or use of other existing capacity. However, other non-CCR wastestream volumes are treated in the CCR surface impoundments through settling of suspended solids to meet Clean Water Act permits. For example, coal pile runoff may be treated through settling in surface impoundments before being discharged.[14] These non-CCR wastestream volumes may require some level of pond or tank treatment that would not be sufficient in other existing, or easily constructible technology. Finally, some waste streams are primarily solids being sluiced for disposal, and require a long-term, permanent resting place of

[13] ASHRAE (American Society of Heating, Refrigeration, and Air-Conditioning Engineers, Inc.). 2012. *Water/Electricity Trade-Offs in Evaporative Cooling, Part 2: Power Plant Water Use*. Available online at https://www.ashrae.org/File%20Library/docLib/Journal%20Documents/2012January/065-068_Emerging.pdf.
[14] TVA (Tennessee Valley Authority) and U.S. EPA (Environmental Protection Agency). 1979. *Characterization of Coal Pile Drainage: Interagency Energy/Environment R&D Program Report*. EPA-600-7-79-051. February.

sufficient cumulative volume. For instance, pyrites at some power plants are combined with bottom ash in sluice conveying systems to ponds for their ultimate disposal. This wastestream may continue to be sluiced, in which case disposal impoundment volumes may still be necessary. However, it may also be managed jointly with bottom ash in wet-to-dry conversions, in which case landfill capacity may be necessary.[15]

As a result of the differences between these various non-CCR wastestreams, capacity may mean different things in different contexts. For other non-CCR wastestreams, capacity may mean the capacity to handle daily volumes of wastewater flowing between areas of the facility. Thus, EPA is proposing to provide a definition of capacity for the new section 257.103(b) which would be a basis for qualifying for the exemption. EPA solicits comment on the proposed use of this definition, as well as whether any additional clarification is warranted.

The differences discussed above also demonstrate why various non-CCR wastestreams may require more simple or more complex alternative capacity. This can impact the amount of time necessary to construct or otherwise locate that capacity. In the December 12 USWAG letter, timeframes to construct alternative capacity varied from 1.75 to 7 years. To achieve closure in the fastest practicable timeframe, owners and operators of facilities should transition each non-CCR wastestream to alternative capacity as such capacity becomes available. Thus, EPA is considering adding a condition requiring the facility to demonstrate that it lacks alternative capacity for *each* wastestream that continues to be managed under the alternative closure provisions and seeks comment on the proposed regulatory text. Under this proposed condition, any waste stream for which that finding cannot be made may not be managed in the unit. This

[15] McDonough, Kevin L. 2014. *Coal Ash Management: Understanding Your Options*. Power Engineering. February 14. Available online at: http://www.power-eng.com/articles/print/volume-118/issue-2/abma-special-section/coal-ash-management-understanding-your-options.html.

condition would apply not only to the original determination, but to any subsequent determinations. Under the existing terms of the current regulation, the ability to continue to use the unit lasts only as long as no alternative capacity is available. Once the alternative capacity is identified, the owner or operator must arrange to use such capacity as soon as feasible. Section 257.103(a)(2)(ii). In addition, the current regulation requires the facility to annually document the continued lack of alternative capacity and the progress towards the development of alternative capacity. Section 257.103(a)(2)(iii). EPA is proposing to clarify that these conditions apply to each individual waste stream that will continue to be managed in the unit and seeks comment on this approach.

In developing this provision, EPA relied on information from commenters to determine that this five-year period was feasible. The December 12, 2016 USWAG letter provides construction timeframes for a further 10 alternative disposal methods. All but one of these methods takes less than five years to construct. It appears these timeframes are therefore generally consistent with the timeframes on in the existing regulation; however, EPA solicits comment on alternative technologies and associated construction timeframes that have the potential to impact this period.

As noted previously, USWAG submitted an executive summary of an EEI reliability analysis. EPA understands that this analysis indicates that in some instances there may be an impact on electric reliability caused by surface impoundment closure. Consequently, EPA is proposing to limit the new alternative closure requirements to facilities that have the potential to impact electric reliability. Specifically, EPA is proposing to limit the expanded exemption to facilities in one of the three FERC regions that the EEI analysis concludes are likely to suffer substantial reliability impacts.

EPA notes that the EEI executive summary cautioned:

> "Those reviewing the EEI findings should recognize that our findings were not part of any detailed planning study and provide a very high level review of possible worst case impacts on a regional level."

Although EPA was able to review only the executive summary of this analysis, and therefore cannot draw definitive conclusions, EPA agrees that these impacts appear to be worst-case for several reasons that were clear from the executive summary alone. First, the EEI analysis assumes that all unlined CCR impoundments leak above the groundwater protection standards and the CCR units would have to be closed for cause. Second, the analysis assumes that non-CCR wastestreams were being managed in all of those CCR impoundments. Third, the analysis assumes that alternative capacity for those non-CCR wastestreams could not be found or constructed within the six-month period for closure to commence. Finally, the analysis assumes that the lack of capacity would cause the associated coal boilers to cease operation. EPA considered each of these assumptions to be worst-case as explained below.

First, the assumption that *all* unlined surface impoundments leak above the groundwater protection standard is contrary to EPA's 2014 risk assessment. This conclusion is further bolstered by the final risk assessment which showed that even input porewater concentrations from some surface impoundments were below the groundwater protection levels. Thus, the assumption that all surface impoundments leak above groundwater protection standards is worst-case rather than a best estimate.

Similarly, not all unlined CCR units manage non-CCR wastestreams. Rather than use either the non-CBI (confidential business information) data available from the 2010 Office of Water (OW) questionnaire or some other industry-provided data set, EEI has assumed that all

unlined CCR units also manage non-CCR wastestreams. A quick scan of the information available in the non-CBI OW questionnaire reveals dozens of CCR surface impoundments that do not receive non-CCR wastewaters.[16]

Third, the assumption that no facility could construct alternative capacity within the time frames in the current regulation is contrary to other information presented in the USWAG letter. This letter documents several alternative disposal methods that take only two or three years to construct. It thus appears to generally be feasible for facilities with knowledge of leaking units to begin and complete the construction of these ponds, tanks, and other capacity in the time that the rule lays forth for closure to commence. If the facilities that believe that their units are leaking, or likely leaking, had already begun this construction when they first learned of the regulatory requirements, many would be nearing completion as of this rulemaking.

When taken as a whole, these worst-case assumptions result in an analysis may overestimate the effects to the electricity grid. In EPA's final rule Regulatory Impact Analysis (RIA)[17], EPA modeled electricity impacts using the Integrated Planning Model (IPM). This model exercise showed minimal retirements or effects on total capacity over the timeframe modeled. However, while the EEI analysis may be an overestimate of impacts on reliability, other entities have found that the combination of several environmental regulations may nevertheless contribute to regional reliability issues. For instance, in 2012 the GAO (Government Accountability Office) found that 18 percent of coal-fired capacity in the Midwest could retire.[18] Although the GAO concluded that EPA regulations were not expected to pose widespread concerns, it did find that these regulations could contribute to challenges in some regions.

[16] Available online at: https://www.epa.gov/eg/steam-electric-power-generating-effluent-guidelines-questionnaire.
[17] See docket item EPA-HQ-RCRA-2009-0640-12034, available at https://www.regulations.gov.
[18] GAO (Government Accountability Office). 2012. *EPA Regulations and Electricity: Better Monitoring by Agencies Could Strengthen Efforts to Address Potential Challenges*. GAO-12-635. July.

Similarly, NERC reviewed the potential reliability effects of combined EPA regulations on the power sector in 2010 and 2011.[19,20] In those long-term reliability analyses, NERC made several recommendations. NERC recommended that EPA defer compliance targets and grant extensions where there is a demonstrated reliability need. NERC also recommended that industry make investments to retrofit or replace capacity that might be affected by (at the time) forthcoming EPA regulations.

While the NERC and GAO reports both took account of numerous EPA regulations that have since been stayed, EPA nevertheless acknowledges that the impacts of environmental regulations can potentially affect reliability when deadlines are not flexible. As a result, EPA is considering restricting the alternative closure provisions to facilities in the NERC regions and sub-regions showing the potential for substantial impacts in the EEI report. The three regions are MISO, SERC-E, and SERC-N. For facilities that are located in, or regularly provide the majority of generated electricity to, those regions, the facilities may qualify for the alternative closure provisions due to non-CCR wastestreams provided the other requirements are met.[21] EPA notes that to demonstrate that a facility regularly provides the majority of its generated electricity to one of these regions, it is not necessary that the facility provide such quantities with a high frequency. For instance, if a facility outside of one of these regions only provided a majority of its generation to that region during peak times in summer months, the fact that this is done regularly, year after year, would be sufficient.

[19] NERC (North American Electric Reliability Corporation). 2010. *Special Reliability Scenario Assessment: Potential Resource Adequacy Impacts of U.S. Environmental Regulations*. October 5.
[20] NERC (North American Electric Reliability Corporation). 2011. *Potential Impacts of Future Environmental Regulations*. November.
[21] EPA estimates that the percentage of facilities located in the three NERC Assessment Areas showing the potential for substantial impacts is approximately 40 to 48 percent. This is based on the number of facilities with publically accessible websites.

EPA solicits comment on the proposal to limit the exclusion under proposed new paragraphs (b) and (d) of § 257.103 for non-CCR wastestreams to the three specific NERC regions and sub-regions that have a demonstrated reliability need. Without the EEI analysis, EPA can only conservatively assume, as industry does, that the three regions and sub-regions showing substantial impacts in the EEI analysis have such a demonstrated need. EPA also solicits comment on the appropriateness of allowing facilities outside a NERC region to qualify if they provide electricity to that region, as well as other reasonable standards for determining which facilities qualify.

## IV. What Amendments Associated with the WIIN Act Is EPA Proposing?

During the rulemaking for the current regulations for CCR in 40 CFR part 257, EPA received numerous comments requesting that EPA adopt alternative performance standards that would allow state regulators (or facilities) to "tailor" the requirements to particular site conditions. Many requested EPA adopt particular performance standards found in EPA's municipal solid waste landfill (MSWLF) regulations in 40 CFR part 258. As discussed in the preamble to the final 1991 rule establishing the part 258 requirements, EPA incorporated the concept of "differential protection of groundwater" as a basis for allowing regulatory flexibility depending on the quality of the groundwater source.[22] Although the CCR rule was largely modeled on the MSWLF regulations, as explained in both the proposed and final rules, under the statutory provisions relevant to the CCR rule, EPA lacked the authority to establish a program analogous to part 258, which relies on approved states to implement the federal criteria through a permitting program. In the absence of a mandated state oversight mechanism to ensure that the

[22] 56 FR 50978, 50995-96 (Oct. 9, 1991).

alternative standards would be technically appropriate, EPA concluded it could not adopt many of the "more flexible" performance standards in part 258 that commenters requested.

As fully explained in the preamble to the April 2015 CCR rule, the statutory structure established by Congress requires EPA to establish national minimum criteria that ensure there is "no reasonable probability of adverse effects on health or the environment." States may, but are not required to adopt or implement these criteria; thus the national minimum criteria apply to all facilities even in the absence of a regulatory entity to implement or oversee them. EPA in establishing these national minimum criteria had to show through its rulemaking record that the final rule would achieve the statutory standard of "no reasonable probability of adverse effects on health or the environment" at all sites subject to the standards. This means that the standards must be protective of all sites, including the most highly vulnerable sites. The statute provided no mechanism for site specific flexibility as in the MSWLF program in part 258.

However, in 2016 Congress amended RCRA to establish a permit program analogous to that established for MSWLFs. See Unit II.B for additional detail. Under these new provisions, States may now apply to EPA for approval to operate a permit program to implement the CCR rule. As part of that process, a State program may also establish alternative State technical standards, provided EPA has determined they are "at least as protective as" the CCR regulations in part 257. 42 U.S.C. §§ 6945(d)(1)(B), 6945(d)(1)(C).

In light of the legislation, EPA returned to the existing 40 CFR part 258 regulations to evaluate the performance standards that rely on a state permitting authority. EPA evaluated whether there was sufficient evidence in the record for those regulations to support incorporating either the part 258 MSWLF provision or an analogue into the part 257 CCR regulations. One complication is the statutory standard for the part 258 regulations is different than the standard

for the CCR regulations. The CCR regulations are based on RCRA section 4004(a), which requires the regulations to ensure "there is no reasonable probability of adverse effects on health or the environment from disposal of solid waste at such facility." 42 U.S.C. § 6944(a). By contrast, EPA was authorized to "take into account the [facility's] practicable capability" in developing the part 258 regulations. 42 U.S.C. § 6949a(c). As a consequence, the rulemaking record for some part 258 provisions may not fully support a determination that a particular provision meets the RCRA section 4004(a) standard or will be "at least as protective" as EPA's CCR regulations.

Based on the results of this evaluation, EPA is proposing to adopt several provisions modeled after the following in part 258: (1) The State Director may establish alternative risk-based groundwater protection standards for constituents for which Maximum Contaminant Levels (MCLs) have not been established (see § 258.55(i) and (j)); (2) The State Director may determine that remediation of a release of an Appendix IV constituent is not necessary under certain conditions (see § 258.57(e) and (f)); (3) The State Director may determine that groundwater monitoring requirements under §§ 257.91-257.95 may be suspended if there is evidence that there is no potential for migration of hazardous constituents to the uppermost aquifer during the active life of the unit and post-closure care (see § 258.50(b)); (4) The State Director may specify an alternative length of time to demonstrate that remedies are complete (see § 258.58(e)(2)); (5) The State Director may modify the length of the post-closure care period (see § 258.61(b)); and (6) The State Director may decide to certify that the regulatory criteria have been met in lieu of the exclusive reliance on a qualified professional engineer. These part 258 provisions in the MSWLF regulations were adopted based solely on a finding that they would protect human health and the environment, which is not appreciably different from the

standard under RCRA section 4004(a). See, 75 FR 35193 (June 21, 2010). Thus, in proposing these flexibilities, EPA believes that the statutory standard under RCRA section 4004(a) is met.

In addition, under the WIIN Act, EPA is the permitting authority for CCR units located in Indian County. EPA would also serve as the permitting authority for CCR units located in nonparticipating states subject to a Congressional appropriation to carry out that function. EPA is proposing that where it is the permitting authority, it will have the same authority as the Director in an approved or participating state to apply the alternative performance standards. In order to make this clear, EPA is proposing to revise the definition of State Director in § 257.53 to clarify that the term "State Director" includes EPA where EPA is the permitting authority (that is on Tribal lands and in nonparticipating states if EPA were to receive appropriations specifically for the purpose of issuing permits). EPA seeks comment on this approach or on the alternative of adding the words "or EPA where it is the permitting authority" to each of the proposed flexibilities.

Further EPA is considering further modifications to these provisions, analogous to the 2010 proposal, and is seeking comment on whether it is appropriate and consistent with the WIIN Act for these alternative performance standards to apply directly to a facility in a nonparticipating State on the basis that the units in the nonparticipating states are subject to oversight by EPA through the enforcement authorities provided directly to EPA under the WIIN Act. As discussed below, EPA seeks comment on alternatives for implementing such flexibilities, for example, through appropriate detailed technical analyses, certification(s) by an independent professional engineer (or other appropriate technical expert or experts), reliance on state ground water standards, notifications to EPA, posting on the facility's publically available web site, etc.

In addition, EPA is seeking comment on whether it would be appropriate and consistent with EPA's authority for an approved State or EPA in a nonparticipating state, or an owner or operator subject to EPA oversight, to establish alternative, risk-based location restrictions in lieu of the location restrictions found at §§ 257.60-257.64. For example, in the 2010 proposed CCR rule, EPA proposed a location restriction requiring demonstration that a CCR unit be located a minimum of two feet above the upper limit of the natural water table.[23] The final rule changed the requirement to five feet above the uppermost limit of the uppermost aquifer.[24] An owner or operator could also satisfy the location restriction by demonstrating the absence of an intermittent, recurring, or sustained hydraulic connection between the CCR unit and the uppermost aquifer.[25] EPA seeks comment on whether a State, or an owner/operator through a detailed technical analysis or certification(s) by an independent professional engineer (or other appropriate technical expert or experts), could establish alternative location restrictions that would satisfy the standard in RCRA section 4004(a). EPA also seeks comment on whether the October 17, 2018 compliance deadline for the location restrictions at §§ 257.60-257.64 is appropriate in light of the WIIN Act or whether an alternative deadline, either through a permit program established under the WIIN Act or one that applies directly to the facility itself during an interim period, would be more appropriate to facilitate implementation of the WIIN Act and any changes as a result of this rulemaking.

Moreover, for any adopted site specific performance standards (whether approved by the State, EPA, or implemented by the facility itself), EPA is requesting comments on whether the facility or owner operator should be required to post the specific details of the modification of

[23] 75 FR 35128, 35241 (June 21, 2010).
[24] 80 FR 21302, 21471-72 (April 17, 2015).
[25] Id.

the performance standard to the facility's publically accessible website or require any other recordkeeping options.

Finally, as described in Unit IV.G below, EPA is proposing one modification to the closure section in a certain situation to allow the use of CCR in construction of the cover system.

*A. Alternative risk-based groundwater protection standards*

The current regulations at § 257.95(h) require the CCR unit owner or operator to set the groundwater protection standard (GWPS) at the MCL or background for all constituents from Appendix IV to part 257 that are detected at a statistically significant level above background. The GWPS must be set at the MCL for all Appendix IV constituents for which there is a promulgated level under section 1412 of the Safe Drinking Water Act. If no MCL exists for a detected constituent, then the GWPS must be set at background. In cases where the background level is higher than the promulgated MCL for a constituent, the GWPS must also be set at the background level.

In the 2010 proposal, EPA proposed allowing an owner or operator to establish an alternative GWPS for constituents for which an MCL has not been established provided that the alternative GWPS has been certified by an independent registered professional engineer and placed in the operating record and on the owner's or operator's publicly available website. In finalizing the GWPS requirements, EPA declined to allow a qualified professional engineer to establish alternative GWPS because EPA determined it was "inappropriate in a self-implemented rule, as it was unlikely that a facility would have the scientific expertise necessary to conduct a risk assessment, and was too susceptible to potential abuse."[26]

[26] 80 FR at 21405 (April 17, 2015).

In this rulemaking EPA is proposing to adopt a provision analogous to 40 CFR 258.55(i), the regulations applicable to MSWLFs. Under the existing part 258 provision, the Director of a state permitting authority in a state with an approved MSWLF permitting program may establish an alternative GWPS for constituents without an MCL, provided that it is an appropriate health-based level established in accordance with the specific criteria in this regulation. The only constituents listed in Appendix IV of the final CCR rule that currently have no MCL (and therefore, the only ones that fall under this proposal) are cobalt, lead, molybdenum and lithium. Boron, which is proposed for addition to Appendix IV, also does not have an MCL. First, these are "health based levels," which means that the only relevant consideration is whether the alternate standard will protect potential receptors (both human and environmental); costs or any similar considerations may not be considered. In addition, 40 CFR 258.55(i) specifies that all of the following criteria must be met: (1) The level is derived in a manner consistent with Agency guidelines for assessing the health risks of environmental pollutants (51 FR 33992, 34006, 34014, 34028, Sept. 24, 1986); (2) The level is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act Good Laboratory Practice Standards (40 CFR part 792) or the equivalent; (3) For carcinogens, the level represents a concentration associated with an excess lifetime cancer risk level (due to continuous lifetime exposure) within the $1\times10^{-4}$ to $1\times10^{-6}$ range; and (4) For systemic toxicants (i.e., chemicals that cause effects other than cancer), the level represents a concentration to which the human population (including sensitive subgroups) could be exposed to on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime. For purposes of this subpart, systemic toxicants include toxic chemicals that cause effects other than cancer or mutation.

The Agency is proposing to allow participating states to set an alternative groundwater protection standard that is largely based on the four criteria specified in this part 258 provision. However, the criteria specified under the proposed revisions to § 257.95(h) would not be identical to those in 40 CFR 258.55(i). Rather EPA is proposing to use modified criteria in the CCR rule that would account for more recent science policies and for the specific characteristics of these wastes. EPA requests comments on the use of the modified criteria for CCR. These proposed modifications are described below.

As in the part 258 MSWLF regulation, EPA is proposing to allow the Director of a state with an EPA-approved CCR permitting program (and EPA where it is the permitting authority) to establish an alternative GWPS "health-based level" for constituents without an MCL. Consistent with part 258, this alternative GWPS is to be a health-based standard that will be protective of potential receptors (both human and ecological) and is not based on any non-risk based factors, such as the cost to achieve that standard. EPA is proposing to adopt these provisions without change. As an alternative, similar to the language in the 2010 proposal for § 257.95(h), EPA is also considering further modifying this provision and is seeking comment as to whether an alternative risk-based GWPS could be established by an independent technical expert or experts (where there is no approved permitting authority, that is in a "nonparticipating state"). That expert(s) would be required to derive the standard in a manner consistent with Agency guidelines (as described below); however, that alternative standard could be implemented by the facility without the intervention of a permitting authority, for example, through the use of a certified technical expert(s) or by reliance on state groundwater standards or other risk-based approach. EPA seeks comment on this approach and whether such an approach would satisfy the underlying statutory requirement of no reasonable probability of adverse

effects on health or the environment from disposal of solid waste at such a facility and whether the new authorities provided to EPA in the WIIN Act for oversight and enforcement make such an approach feasible and adequate to address the concerns EPA identified in the preamble to the 2015 CCR rule that an owner or operator would not be expected to have the requisite experience necessary to conduct a risk assessment and that such an approach would be susceptible to abuse. Depending on the comments received and EPA's analysis thereof, EPA may ultimately adopt such an approach.

The current § 257.95 establishes the requirements for an assessment monitoring program, including a series of 90-day time periods in which an owner or operator has to perform the required analysis and demonstrations. The 90-day time periods are based on similar requirements and time periods in the part 258 requirements. However, EPA seeks comment on whether 90 days is an appropriate time period for the assessment monitoring requirements for CCR in light of the WIIN Act or whether alternative time periods, e.g., 120 days or 150 days, are necessary to perform the required analysis and demonstrations for CCR and whether such alternative time periods would be more appropriate to facilitate implementation of the WIIN Act and any changes as a result of this rulemaking.

EPA is also proposing to adopt the part 258 provision that requires an alternative groundwater protection standard to be derived in a manner consistent with Agency guidelines. However, some of the guidelines cited in part 258 have since been replaced or supplemented. Therefore, EPA is proposing to replace the citations with the updated versions. Specifically, EPA is proposing to cite to the *Supplementary Guidance for Conducting Health Risk Assessment of*

*Chemical Mixtures*,[27] which supplements 51 FR 34014 (September 24, 1986); the *Guidelines for Developmental Toxicity Risk Assessment*,[28] which amends 51 FR 34028 (September 24, 1986); and the *Guidelines for Carcinogen Risk Assessment*,[29] which amends 51 FR 33992 (September 24, 1986). In addition, EPA proposes to add the guidance on deriving a reference dose, *Reference Dose (RfD): Description and Use in Health Risk Assessments*.[30] These are the current guidance documents that are most relevant to the constituents of concern for the wastes at issue. EPA seeks comment on this proposal.

EPA is also proposing to adopt, without modification, the part 258 provision that requires the alternative standard to be based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act Good Laboratory Practice Standards (40 CFR part 792) or the equivalent. EPA requests comment on this approach.

EPA is proposing to adopt, with modifications, the part 258 provisions specifying that the alternative standard is set at a level that is associated with an excess lifetime cancer risk within the $1\times10^{-4}$ to $1\times10^{-6}$ range for carcinogens and that is likely to be without appreciable risk of deleterious effects from daily exposures for systemic toxicants. For carcinogens, EPA is also proposing to require that States use a cancer slope factor to establish the alternate GWPS within the relevant risk range. For non-carcinogens, EPA is proposing to require that States use a reference dose to establish the alternative GWPS, with a hazard quotient (HQ) of 1 as the upper

[27] USEPA, "Supplementary Guidance for Conducting Health Risk Assessment of Chemical Mixtures", EPA/630/R-00/002, August 2000. This document can be accessed at https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=20533.
[28] USEPA, "Guidelines for Developmental Toxicity Risk Assessment", EPA/600/FR-91/001, December 1991. This document can be accessed at https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=23162.
[29] USEPA, "Guidelines for Carcinogen Risk Assessment", EPA/630/P-03/001F, March 2005. This document can be accessed at https://www.epa.gov/risk/guidelines-carcinogen-risk-assessment.
[30] This document can be accessed at https://www.epa.gov/iris/reference-dose-rfd-description-and-use-health-risk-assessments.

bound on risk. This is the same methodology used to establish the technical criteria in the existing CCR regulation. Reliance on his methodology is also reasonable in this regulation as it ensures that this provision (and any alternative GWPS under this provision) will meet the requisite statutory standards. Some examples of groundwater values consistent with these requirements (indeed all of the proposed requirements) are Action Levels promulgated under the Safe Drinking Water Act and the Regional Screening Levels for Chemical Contaminants at Superfund Sites.[31] EPA requests comment on this approach.

In addition, EPA is considering requiring that for systemic toxicants (i.e., for chemicals that cause effects other than of deleterious effects during a lifetime. This is largely the same as the current part 258 requirement; however cancer), the alternate level represents a concentration to which potential receptors (including sensitive subgroups) could be exposed to on a daily basis that is likely to be without appreciable risk, EPA seeks comment on whether it should revise the relevant target from "human population" to "potential receptors."

Although this proposed rulemaking sets a target risk based on a risk range of $1\times10^{-4}$ to $1\times10^{-6}$ for carcinogens and an HQ = 1 for non-carcinogens, States would not be precluded from setting more stringent standards. The existing regulation in 40 CFR 258.55(j) identifies three other site-specific factors that may indicate the need to establish a risk level for a particular contaminant that is more protective than these levels. These are: (1) the presence of multiple contaminants in the groundwater; (2) exposure threats to sensitive environmental receptors; and (3) other site-specific exposure or potential exposure to groundwater. These factors are equally relevant to CCR facilities, and so EPA is proposing to incorporate them without any modifications. EPA requests comment on this approach.

[31] This document can be accessed at https://www.epa.gov/risk/regional-screening-levels-rsls.

Because any alternate GWPS will be based on established risk levels, it is reasonable that a state may set a level above background so long that it is equal to or lower than this alternate threshold. Thus, any alternate GWPS that meets the requirements specified in this proposal would still protect potential receptors from the reasonable maximum exposures identified in the final risk assessment.

*B. Modification to corrective action remedy*

Once corrective action is triggered, the current regulations at § 257.97 require the CCR unit owner or operator to select a remedy for corrective action. In addition, § 257.98 requires the CCR unit owner or operator to begin implementing that remedy within 90 days of remedy selection.

EPA is proposing to adopt a provision analogous to 40 CFR 258.57(e) for municipal solid waste landfills (MSWLF). This part 258 provision allows the Director of a state permitting authority in participating states to determine that remediation of a release of an Appendix II to part 258 constituent from a MSWLF unit is not necessary if the owner or operator can make certain demonstrations to the satisfaction of the Director. Specifically, § 258.57(e) specifies that the Director may determine that remediation is not necessary if the owner or operator demonstrates to the satisfaction of the Director of a participating State that:

(1) The groundwater is additionally contaminated by substances that have originated from a source other than a MSWLF unit and those substances are present in concentrations such that cleanup of the release from the MSWLF unit would provide no significant reduction in risk to actual or potential receptors; or

(2) The constituent is present in groundwater that:

a. Is not currently or reasonably expected to be a source of drinking water; and

b. Is not hydraulically connected with waters to which the hazardous constituents are migrating or are likely to migrate in a concentration that would exceed the groundwater protection standards; or

(3) Remediation of the release is technically infeasible; or

(4) Remediation would result in unacceptable cross-media impacts.

Part 258 also states that even if the Director of a participating state does determine that remediation of the release is not necessary, this shall not affect the authority of the State to require the owner or operator to undertake source control measures or other measures that may be necessary to eliminate or minimize further releases to the groundwater, to prevent exposure to the groundwater, or to remediate the groundwater to concentrations that are technically practicable and significantly reduce threats to human health or the environment. 40 CFR 258.57(f).

EPA is proposing to adopt this same provision into part 257 with one modification. EPA is proposing that a State Director may, on a site-specific basis, decide not to require cleanup of part 257 Appendix IV constituents released to groundwater from a CCR disposal unit where: (1) The groundwater is contaminated by multiple sources and cleanup of the CCR release would provide no significant reduction of risk; or (2) the contaminated groundwater is not a current or potential source of drinking water and is not hydraulically connected with waters to which the part 257 Appendix IV constituents are migrating or likely to migrate in a concentration(s) that would exceed the groundwater protection standards; or (3) remediation is not technically feasible; or (4) remediation would result in cross-media impacts. In part 258, an owner or operator is not required to undertake source control measures unless ordered by a State Director to do so. Although today's proposal includes § 257.97(g), which would make source control

measures mandatory in a departure from part 258, EPA is considering making the source control measures for CCR units discretionary, similar to part 258, and seeks comment on this approach. For example, while the Director may determine that total remediation is not required, EPA seeks comment on whether source control measures (e.g., covers and/or flow control measures or closure, if triggered by § 257.101(a) – (c)) to minimize or eliminate further releases could not be waived. In other words, EPA seeks comment on whether a State or EPA as the permitting authority in a nonparticipating state, or a facility directly implementing the requirements of this rule and subject to EPA oversight and public notice, should have discretion not to require or perform source control measures, including closure, in certain situations, e.g., where there is no reasonable probability of adverse effect to human health or the environment. In addition, partial remediation of groundwater to concentrations that are technically feasible and that significantly reduce risks would also be required. EPA also seeks comment on this proposed approach. EPA describes each of these in further detail below. Under part 258, these provisions are discretionary. Depending on the comments EPA receives, EPA may modify the proposed requirements at § 257.97 to more closely reflect the source control measures contained in part 258. If EPA makes any such changes to § 257.97, it may also make conforming changes to § 257.101.

As noted, the Agency is proposing that participating states may waive the clean-up requirements where the groundwater is already contaminated by multiple sources and clean-up of the CCR release would provide no significant reduction of risk. In some cases, CCR units releasing part 257 Appendix IV constituents to the groundwater may be located in areas that already are significantly contaminated by other sources. Where releases from the CCR units are minor compared to the overall area-wide contamination, or where remedial measures aimed at

the CCR unit would not significantly reduce risk, EPA believes that remediation of releases from the CCR unit would not be necessary or appropriate. Proposed § 257.97(f) is intended to address such situations.

Section 258.57(e)(1) applies only where sufficient evidence exists that the groundwater is contaminated by a source other than the CCR unit. In such cases, the owner or operator must demonstrate that cleanup of a release from its unit would provide no significant reduction in risk to receptors due to concentrations of constituents from the other source. EPA has previously characterized this provision as requiring facilities to make a robust demonstration that other sources are significant contributors to the contamination; this provision is not intended to provide facilities with a general opportunity to seek a waiver from the existing cleanup requirements under part 257.

The Agency is not proposing to define "significant reductions" in risk in this rulemaking, but consistent with the MSWLF rules, believes the decision is best made on a case-by-case basis by the State. The Agency understands and anticipates that states may have difficulties in defining "significant reduction of risk" but expects that States will be able to draw from their experience in implementing the analogous requirement in § 258.57(e)(1). Consistent with that provision, participating states should take a protective approach when evaluating requests for such a waiver. As one potential example, EPA considers that where the facility could document that the risks to potential receptors from non-CCR constituents would still exceed acceptable levels of concern (i.e., risks greater than $1 \times 10^{-4}$ to $1 \times 10^{-6}$ for carcinogens, or an HQ greater than 1 for non-carcinogens) even if all CCR constituents had been removed, the facility could demonstrate there would be no significant reduction of risk from remediation of the CCR constituents. However, EPA solicits comment on whether there are additional criteria that would be useful in further

defining the proposed regulatory provision under § 257.97(f)(1), e.g., criteria that states have used in implementing the analogous provision in part 258.

Under proposed § 257.97(f)(2), the State may also determine that a hazardous constituent that has been released from a CCR unit to groundwater does not pose a threat to human health and the environment and, therefore, does not require remediation if: (1) The groundwater is not a current or potential source of drinking water and (2) the groundwater is not hydraulically connected with waters that could be a current or potential source of drinking water or are not likely to migrate in a concentration(s) that would exceed the groundwater protection standards established under § 257.95(h). EPA generally interprets this to require a determination that the quality of the water in the aquifer is such that it could not reasonably be expected to be used as drinking water, even if treated to remove the contaminants. The provision does not allow a waiver on the grounds that the cost of treating the water to remove the contaminants is too high. EPA realizes that it is difficult to predict future improvements in treatment technologies, or to determine hydraulic connection. In interpreting whether the aquifer meets these regulatory criteria, States may use the approach outlined in the Agency's Ground-Water Protection Strategy (August 1984) as guidance.[32] As described in this guidance, typically Class III groundwaters will be considered to meet the requirements specified in § 257.97(f)(2). Class III groundwaters are groundwaters not considered potential sources of drinking water. They are groundwaters with high salinity, total dissolved solids levels over 10,000 mg/l, or are otherwise contaminated beyond levels that allow cleanup using methods reasonably employed in public water system treatment. These groundwaters also must not migrate to Class I or II groundwaters or have a

[32] In addition to federal guidance, EPA is aware that States may currently use different or more sophisticated groundwater classification systems. In the preamble to the October 9, 1991 Final Rule promulgating the MSW landfill standards, on the matter of groundwater classification EPA noted that "States are expected to use groundwater classification and resource evaluations in making their State decisions." 56 FR 50995.

discharge to surface water that could cause degradation. The need to remediate Class III groundwaters should be assessed on a case-by-case basis. Under the second criterion, the owner or operator must also demonstrate that the uppermost aquifer is not hydraulically connected with a lower aquifer. The owner or operator may nevertheless seek an exemption if it can be demonstrated that attenuation, advection/dispersion or other natural processes can remove the threat to interconnected aquifers. The owner or operator may also seek the latter exemption if the contaminated zone is not a current or potential drinking water source.

EPA is also proposing under § 257.97(f)(3) and (4) to allow the State to determine that remediation of a release is not required when remediation is not technically feasible or when remediation presents unacceptable cross-media impacts. Such a determination may be made, for example, in some cases where the nature of the hydrogeologic setting would prevent installation and operation of an effective groundwater pump and treat system (or other effective cleanup technology), e.g., where the installation and operation of such a system could potentially increase environmental degradation by introducing the contaminant into groundwater that was not previously affected by the release. Additional examples of factors that may affect the efficacy of groundwater remediation can be found in EPA Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration (OSWER Directive 9234.2-25, September 1993).[33] The Agency is specifically soliciting comment on the types of situations that might warrant a determination that remediation of a release is technically impracticable or presents unacceptable impacts and would not, therefore, be required.

A successful demonstration that remediation is not technically feasible must document specific facts that attribute to this demonstration. Technical infeasibilities may be related to the

[33] Additional documents related to technical impracticability may be found at https://www.epa.gov/superfund/superfund-groundwater-groundwater-response-selection#TI_anchor.

accessibility of the groundwater to treatment, as well as the treatability of the groundwater using existing treatment technologies. If the owner or operator can demonstrate that unacceptable cross-media impacts are uncontrollable under a given remedial option (e.g., movement in response to groundwater pumping) and that the no action option is a less risky alternative, then the Director of approved participating state may determine that remediation is not necessary.

As noted, EPA is generally relying on the factual record developed for the part 258 regulations to support this rule. However, the record for that rule does not contain information that would demonstrate that removing the existing regulatory requirement that all CCR units impose source control would meet the RCRA section 4004(a) protectiveness standard. These existing CCR requirements were established to address the well-documented risks associated with CCR units, as detailed in the risk assessment and the numerous damage cases in the rulemaking record.[34] The part 258 regulations apply only to landfills, while the CCR regulations apply to both landfills and surface impoundments, the latter being of particular concern. Surface impoundments by their very nature pose a potential for releases to groundwater that is different than landfills (e.g., presence of a hydraulic head) that may impact the importance of source control for these types of units. As discussed above, EPA requests comment on whether the proposal is appropriate, and whether the record for either the existing CCR rule or the part 258 rules includes information, or whether other information exists, to support adoption of the more flexible corrective action provision based on part 258 for CCR units, which could allow an owner or operator to undertake corrective action for unlined surface impoundments in lieu if closure. Depending on comments received, EPA may revise this provision to more closely

[34] For example, risk estimates for unlined surface impoundments were the highest of all CCR unit types evaluated (80 FR 21319, April 17, 2015) and EPA's documented record of confirmed damage cases was dominated by "wet disposal' (e.g., impoundments; 80 FR 21456, April 17, 2015).

reflect the existing source control and corrective actions requirements in part 258 that would allow source control, including closure, to be discretionary in certain situations.

*C. Modification of groundwater monitoring requirements*

The current regulations at § 257.90 require all CCR units, without exception, to comply with the groundwater monitoring and corrective action requirements of §§ 257.90-257.98. The final CCR rule at § 257.91(a)(2) requires the installation of groundwater monitoring wells at the waste boundary of the CCR unit.

EPA is proposing to adopt a provision analogous to 40 CFR 258.50(b), which allows the Director of an approved participating state to suspend the groundwater monitoring requirements under § 258.51 through § 258.55 if the owner or operator can demonstrate that there is no potential for migration of hazardous constituents from that MSWLF unit to the uppermost aquifer during the active life of the unit and the post-closure care period. Under part 258, the demonstration must be certified by a qualified groundwater scientist and approved by the Director of a participating state, and must be based upon:

(1) Site-specific field collected measurements, sampling, and analysis of physical, chemical, and biological processes affecting contaminant fate and transport, and

(2) Contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and environment.

The Agency recognizes that certain hydrogeologic settings may preclude the migration of hazardous constituents from CCR disposal units to groundwater resources. Requiring groundwater monitoring in these settings would provide little or no additional protection to human health and the environment. Therefore, EPA is proposing to incorporate a nearly identical provision into the part 257 regulations. This would allow the Director of a participating state to

suspend the groundwater monitoring requirements in § 257.91 through § 257.95 for a CCR unit upon demonstration by the owner or operator that there is no potential for migration of hazardous constituents from the unit to the uppermost aquifer during the active life, closure, or post-closure periods. However, the requirements of § 257.96 through § 257.98 would not be suspended. As discussed below, the provision being proposed for the part 257 regulations would be identical to that in the part 258 regulations with the exception for the requirement to periodically demonstrate that conditions have not changed, that is, there is still no migration of Appendix III or IV constituents from the CCR unit to the uppermost aquifer.

EPA recognizes it may be difficult for many facilities to meet the "no potential for migration" standard in the regulations. The suspension of monitoring requirements is intended only for those CCR units that are located in hydrogeologic settings in which hazardous constituents will not migrate to groundwater during the active life of the unit, closure, and post-closure periods. The Agency reminds readers that the "no migration" waiver has been a component of both the part 258 and the RCRA subtitle C groundwater monitoring programs for many years, and; based on its experience under these programs, the Agency expects that cases where these criteria are met will be rare.

The part 258 requirements allow the Director of a state program to establish the relevant point of compliance; in an unapproved state, the point of compliance is set by regulation at the waste management unit boundary. EPA does not believe the record for the part 258 requirements would support an alternative means for establishing the relevant point of compliance for CCR groundwater monitoring wells under RCRA section 4004(a). EPA requests comment on whether a State Director or EPA in a nonparticipating state, or an owner/operator subject to EPA oversight and public notice, could establish an alternative point of compliance consistent with the

flexibility already allowed under the part 258 rules that would satisfy the standard of no reasonable probability of adverse effect on human health or the environment under section 4004(a).

In this action, EPA is not proposing to provide waivers from groundwater monitoring requirements except where the owner or operator in a participating state can demonstrate no potential for migration of hazardous constituents to the uppermost aquifer during the active life of the unit, closure, or post-closure periods. Consistent with the part 258 regulation, the Agency is proposing to allow this waiver only under the following conditions. EPA seeks comment on the use of each of these conditions. First, the suspension of groundwater monitoring requirements in § 257.91 through § 257.95 is available only for owners and operators of CCR units located in participating states or in those instances where EPA is the permitting authority. The Agency has limited the availability of the waiver because the Agency recognizes the need for the State to review a no-migration demonstration prior to granting a waiver from groundwater monitoring. However, the Agency seeks comment on an approach where a technical expert could make this demonstration (under the criteria described in the following paragraphs) and the facility could implement without the intervention of a permitting authority. In such an approach, the facility would keep records and post its determination on its web site and EPA would use the authorities in the WIIN act to oversee such a determination.

Second, the rule requires demonstrations of no potential for migration to be supported by both predictions that maximize contaminant migration and actual field data collected at the site. Field testing is necessary to establish the site's hydrogeological characteristics and must include an evaluation of unsaturated and saturated zone characteristics to ascertain the flow rate and pathway by which contaminants will migrate to groundwater. Any demonstration must be based

on site-specific field measurements and sampling and analyses to determine the physical, chemical, and biological processes affecting the fate and transport of hazardous constituents. Site-specific information must include, at a minimum, the information necessary to evaluate or interpret the effects of the following properties or processes on contaminant fate and transport:

(1) Aquifer Characteristics, including hydraulic conductivity, hydraulic gradient, effective porosity, aquifer thickness, degree of saturation, stratigraphy, degree of fracturing and secondary porosity of soils and bedrock, aquifer heterogeneity, groundwater discharge, and groundwater recharge areas;

(2) Waste Characteristics, including quantity, type, and origin;

(3) Climatic Conditions, including annual precipitation, leachate generation estimates, and effects on leachate quality;

(4) Leachate Characteristics, including leachate composition, solubility, density, the presence of immiscible constituents, Eh, and pH;

(5) Engineered Controls, including liners, cover systems, and aquifer controls (e.g., lowering the water table). These should be evaluated under design and failure conditions to estimate their long-term residual performance.

(6) Attenuation of contaminants in the subsurface, including adsorption/ desorption reactions, ion exchange organic content of soil, soil water pH, and consideration of possible reactions causing chemical transformation or chelation.

(7) Microbiological Degradation, which may attenuate target compounds or cause transformations of compounds, potentially forming more toxic chemical species.

Modeling may also be useful for assessing and verifying the potential for migration of hazardous constituents. However, any models used should be based on actual field collected data

to adequately predict potential groundwater contamination. When owners or operators prepare a no migration demonstration, they must use transport predictions that are based on the maximum contaminant migration (i.e., worst case scenario) both from the unit and through the subsurface media. Assumptions about variables affecting transport should be biased toward over estimating transport and the anticipated concentrations. Assumptions and site-specific data that are used in the fate and transport predictions should conform with transport principles and processes, including adherence to mass-balance and chemical equilibria limitations. Within these physicochemical limitations assumptions should be biased toward the objective of assessing the maximum potential impact on human health and the environment.

Third, the proposed rule would require the demonstrations to be certified by a qualified professional engineer and approved by the Director of a participating state to ensure that there is a high degree of confidence that no contamination will reach the uppermost aquifer.

Finally, the proposed rule would require the owner or operator of the CCR unit to make periodic demonstrations every 10 years in order to retain the suspension of groundwater monitoring. The Agency received comments on suspending the groundwater monitoring requirements for MSWLFs in part 258 that suggested EPA require periodic demonstrations every five or ten years. See, 56 FR 51061 (October 9, 1991). The Agency decided against requiring periodic demonstrations for MSWLFs because the demonstration required must be extremely rigorous and because of the additional costs associated with the continual reapplication for the suspension. As mentioned earlier in this proposed rulemaking, the statutory standard for the part 258 regulations is different than the standard for the CCR regulations: The CCR regulations are based on RCRA section 4004(a), which requires that the regulations ensure "there is no reasonable probability of adverse effects on health or the environment from disposal of solid

waste at such facility." 42 U.S.C. § 6944(a). This is a risk-only standard. By contrast, EPA was authorized to "take into account the [facility's] practicable capability" in developing the part 258 regulations. 42 U.S.C. § 6949a(c). Also, the part 258 regulations apply only to landfills, while the CCR regulations apply to both landfills and surface impoundments, the latter being of particular concern. Surface impoundments by their very nature pose a potential for releases to groundwater that is different than landfills (e.g., presence of a hydraulic head) that may impact the importance of source control for these types of units. The risk assessment for the CCR rule found that, even when key variables are controlled (e.g., liner type, waste type) for the long-term risks from surface impoundments are greater than from landfills. This is because the high and sustained hydraulic head present in these surface impoundments drives leachate into the groundwater table at an accelerated rate. Based on these factors, EPA is proposing to require an owner or operator to conduct a new demonstration once every 10 years to show that the suspension of groundwater monitoring continues to be appropriate. See proposed § 257.90(g). This new demonstration should be submitted to the State Director one year before the existing groundwater monitoring suspension is due to expire. If the suspension expires for any reason, the unit must begin groundwater monitoring according to §257.90(a) within 90 days.

Further guidance for conducting these evaluations can be found in the OSWER Solid Waste Disposal Facility Criteria Technical Manual for MSWLFs (EPA530-R-93-017, 1993) and the Ground-Water Monitoring Guidance Document for Owners and Operators of Interim Status Facilities (1983).

*D. Alternate period of time to demonstrate compliance with corrective action*

The current regulations at § 257.98(c)(2) require that facilities demonstrate that compliance with the groundwater protection standards (GWPS) established under § 257.95(h)

have been achieved by monitoring results documenting that concentrations of constituents listed in Appendix IV to part 257 have not exceeded the groundwater protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in § 257.93(f) and (g). EPA is proposing to modify this by adopting a provision analogous to 40 CFR 258(e)(2). Both the part 258 regulation and the proposed § 257.98(c)(4) counterpart allow the Director of a participating state to specify an alternative length of time during which the owner or operator must demonstrate that concentrations of Appendix II to part 258 constituents (or in the case of the proposed part 257 counterpart, Appendix IV to part 257 constituents) have not exceeded the groundwater protection standard(s). Under the current part 258 regulations, the State must make this determination after taking into consideration: (1) the extent and concentration of the release(s); (2) behavior characteristics of the hazardous constituents in the groundwater; (3) accuracy of monitoring or modeling techniques, including any seasonal, meteorological, or other environmental variabilities that may affect the accuracy; and (4) characteristics of the groundwater.

When establishing an alternative compliance period, the proposed regulation would require a State to consider the following site-specific conditions under § 257.98(c)(4): (1) The extent and the concentration of the release; (2) the behavior characteristics (fate and transport) of the part 257 Appendix IV constituents in the groundwater (e.g., mobility, persistence, toxicity); (3) the accuracy of monitoring or modeling techniques, including any seasonal, geotechnical/geophysical, meteorological, or other environmental variabilities that may affect the accuracy; and (4) the characteristics of the groundwater (e.g., flow rate, pH). These are the same factors included in part 258; consideration of these factors will allow the State to set an appropriate time period for demonstrating compliance with the groundwater protection standards

rather than relying on an arbitrary time period for all facilities or all situations at the same facility. In large part, EPA is relying on the longstanding experience with these criteria under part 258 for municipal solid waste landfills.

In summary, § 257.98(c)(2) and (4) of this proposal requires that the groundwater protection standard be achieved for a period of three consecutive years at all points within the plume of contamination unless an alternative period of time is established by a participating state. Those states may set an alternative period of compliance after taking site-specific conditions into consideration. In demonstrating compliance with the groundwater protection standard, the owner or operator would be required to use the statistical procedures in § 257.93.

*E. Length of post-closure care period*

The current regulations at § 257.104(c)(1) state that the owner or operator of a closed CCR unit must conduct post-closure care for 30 years unless at the end of the 30 years corrective action is on-going, or the CCR unit is operating under assessment monitoring, in which case the owner or operator must continue to conduct post-closure care until the unit has returned to detection monitoring.

EPA is proposing to adopt a provision analogous to 40 CFR 258.61(b), which allows the Director of a participating state to decrease the length of the post-closure care period if the owner or operator demonstrates that the reduced period is sufficient to protect human health and the environment and this demonstration is approved by the Director of approved participating state. It also allows the Director of the participating state to increase the length of the post closure period if the Director determines a lengthened period is necessary to protect human health and the environment.

The Agency is proposing this provision to account for situations where a 30-year post-closure care period may be inappropriate based on site-specific conditions. Overall, providing for variances in the post-closure care period in these states allows the flexibility to accommodate differences in geology, climate, topography, resources, demographics, etc. In all cases, however, these decisions must be reviewed carefully by the State to ensure units are monitored and maintained for as long as is necessary to protect human health and the environment.

In determining whether a revised post-closure care period is warranted, one critical factor is ensuring that the cover will continue to function effectively. EPA recognizes that no final cover, however well-constructed, will last forever. In 1988, EPA stated that "even the best liner and leachate collection system will ultimately fail due to natural deterioration…."[35] Although any impermeable barriers used in a final cover system will eventually fail, studies have shown that such natural deterioration can take thousands of years (Needham et al, 2006; Rowe & Islam, 2009).[36,37] This is consistent with the concept of bathtub (or U shaped) failure rate in reliability analysis (Shehla & Khan, 2016).[38] This failure pattern begins with a wear-in period where failure rates are high due to design and manufacturing problems. The failure rate then decreases to a low, constant rate for a period of time before rising in the third, wear-out phase.

Though this wear-out phase may take thousands of years, the wear-in phase for waste management unit covers is much shorter. In the context of CCR units, the wear-in phase of a closed unit would be due to imperfections in covers, either from a manufacturing defect or faulty

[35] US EPA, "Solid Waste Disposal Facility Criteria; Proposed Rule," 53 FR 33345 (August 30, 1988).
[36] Needham, A.D., Smith, J.W.N., Gallagher, E.M.G. 2006. *The service life of polyethylene geomembrane barriers. Engineering Geology* 85. 82-90.
[37] Rowe, R.K., Islam, M.Z. 2009. *Impact of landfill liner time-temperature history on the service life of HDPE geomembranes. Waste Management* 29. 2689-2699.
[38] Shehla, R., & Khan, A. A. (2016). Reliability analysis using an exponential power model with bathtub-shaped failure rate function: a Bayes study. *SpringerPlus*, *5*(1), 1076. http://doi.org/10.1186/s40064-016-2722-3.

installation. Manufacturing defects may include items such as pin holes, whereas faulty installation may be the result of a tear or failure to properly seal joints (Bonaparte et al, 1989).[39]

Settlement resulting from factors, such as the gradual dissolution of more soluble components within the ash mixture, is also a potential issue. Depressions caused by settlement may lead to ponding and should be filled with soil. Excessive settlement may warrant reconstructing or adding to portions of the infiltration layer. Settlement can also damage the cover through tension cracks and tears in the synthetic membrane. For example, topographic surveys of the unit(s) may be used every few years until settlement behavior is established, to determine whether settlement has occurred.

Consequently, EPA is proposing to require that part of determining whether a shorter post-closure care period will protect human health and the environment, a state must ensure that the post-closure care period is long enough to detect such issues. This would require the state to consider not only the type of cover placed on the unit (e.g., compacted soil), but also the placement of the groundwater monitoring wells with respect to the waste management unit. For instance, where a waste management unit is close to the groundwater table and the groundwater monitoring wells are located at the unit boundary, one would generally expect transit time of any contamination to be short, and thus a shorter post-closure monitoring period might be sufficient to catch wear-in defects in the cover system. However, where the unit is located further from the groundwater table, constituents may not have sufficient time to reach the monitoring wells under such a curtailed post-closure period.

In addition, under the current CCR regulations, once detection monitoring yields a statistically significant increase above background levels of any Appendix III constituent,

[39] Bonaparte, R., J.P. Giroud, and B.A. Gross. 1989. Rates of leakage through landfill liners. *Geosynthetics 1989 Conference*. San Diego, CA.

assessment monitoring is triggered, and the unit continues to be subject to the rule's post-closure care requirements so long as the CCR unit is operating under assessment monitoring. Section 257.104(c)(2). EPA is not proposing to amend this requirement, or to allow States to do so as part of this new provision. Thus, the State could not allow a facility to end the post-closure care period, once the detection of contamination above background triggers assessment monitoring. This would hold, even if the State had previously authorized a shorter post-closure care period. EPA is proposing to include language in this provision that clarifies how these two requirements interact.

*F. Allowing Directors of participating states to issue certifications in lieu of requiring a PE certification*

To ensure that the RCRA subtitle D requirements would achieve the statutory standard of "no reasonable probability of adverse effects on health and the environment" in the absence of regulatory oversight, the current CCR regulations require facilities to obtain third party certifications and to provide enhanced state and public notifications of actions taken to comply with the regulatory requirements. Specifically, in the final CCR rule EPA required numerous technical demonstrations made by the owner or operator be certified by a qualified professional engineer (PE) in order to provide verification of the facility's technical judgments and to otherwise ensure that the provisions of the rule were properly applied. While EPA acknowledged that relying upon a third party certification was not the same as relying upon a state or federal regulatory authority and was not expected to provide the same level of independence as a state permit program, the availability of meaningful third party verification provided critical support that the rule would achieve the statutory standard, as it would provide a degree of control over a facility's discretion in implementing the rule. However, the situation has changed with the

passage of the WIIN Act, which offers the opportunity for State oversight under an approved permit program. To reflect that, EPA is proposing to revise the regulations to allow the Director of a state with an approved CCR permit program (a participating state) to certify that the regulatory criteria have been met in lieu of the exclusive reliance on a qualified PE. EPA expects that States will generally rely on the expertise of its own engineers to evaluate whether the technical criteria have been met. Alternatively, States might choose to retain the required certification by a qualified PE and use its own expertise to evaluate that certification. Finally, EPA notes that under the existing regulations, a facility may already rely on a certification provided by a qualified PE in a State agency, who reviews the facility actions as part of a purely State-law mandated process. Thus, EPA is confident that the additional layer of oversight provided by the State under this proposal will be at least as protective than the status quo under the existing regulations.

*G. Revision to allow the use of CCR during certain closure situations*

EPA is proposing to revise the current regulations to allow the use of CCR in the construction of final cover systems for CCR units closing pursuant to § 257.101 that are closing with waste-in-place. EPA is also proposing specific criteria that the final cover system must meet in order to allow for the placement of CCR in the final cover system. EPA is proposing two performance standards: one that applies directly to facilities in any "non-participating state" and a second that applies to facilities that operate in states with an approved CCR permit program ("participating" state). Specifically, EPA is proposing to allow for the continued placement of CCR in units triggered for closure to construct a cover system under the following conditions: (1) only CCR generated on-site may be used in the construction of the cover system; (2) CCR may be used exclusively for the purposes of grading and contouring of the cover system; (3)

CCR must be placed within the vertical plane of the boundary of the unit; and (4) must be at either no steeper than a 5 percent grade or at a steeper grade, as determined by the Director of an approved program based on a stability analysis. These criteria are intended to ensure that the CCR utilized in construction of the final cover system does not exceed the necessary amount for grading and contouring.

The current CCR rules require that certain units must close for cause, as laid forth in § 257.101(a)-(c). As written, the regulation expressly prohibits "placing CCR" in any units required to close for-cause pursuant to § 257.101. This includes unlined CCR surface impoundments whose groundwater monitoring shows an exceedance of a groundwater protection standard (§ 257.101(a)(1)); existing CCR units that do not comply with the location criteria (§ 257.101(b)(1)); and CCR surface impoundments that are not designed and operated to achieve minimum safety factors (§ 257.101(b)(2) and (c)(1)). Note that the rule does not distinguish between placement that might be considered beneficial use and placement that might be considered disposal. All further placement of CCR into the unit is prohibited once the provisions of § 257.101 are triggered. By contrast, the regulations do not restrict further placement or use of CCR when the unit is closing under other provisions.

*Proposal for Closure with CCR*

After publication of the final rule, EPA received numerous requests that EPA clarify whether use of CCR in completing the closure of a unit was permitted under the regulation, either as part of a closure plan or under the theory that such an activity was "beneficial use." After evaluating the issue, EPA is proposing an exemption that would allow further placement of CCR in a CCR unit closing pursuant to § 257.101 for the purposes of construction of the final cover system. EPA is not proposing any other revisions to the existing closure requirements;

therefore, owners and operators who choose to place CCR as part of the final cover system as part of closure "for cause" will still need to comply with all of the existing closure requirements in §§ 257.101-104.

EPA is proposing this revision because there are environmental and health benefits in allowing use of CCR in this fashion, and as discussed below in more detail, provided the conditions outlined in this rule are met, the existing information demonstrate that the use of CCR in this fashion would not measurably affect the risks from the unit. Allowing the use of on-site CCR in lieu of other material to construct the cover furthers the general goal in § 257.102(d)(1)(v) of closing as quickly as possible. As EPA identified in the final rule, the process for procuring at-specification earthen material in the volumes necessary for the final cover system construction can complicate completion of closure requirements within the required time frames. This was explicitly described as a factor that could support an extension of the closure deadlines under § 257.102(f)(2)(i)(C). Thus, this proposed revision is expected to allow facilities to complete closure more quickly, and accordingly realize reduced risks more quickly.

This proposal is a narrow modification of the § 257.101 prohibition on CCR placement, and contains four requirements to ensure that the use of CCR is to accelerate closure rather than merely allow the facility continue the disposal of CCR in a deficient unit. First, the material placed under this exemption must have been generated on-site and be present at the time of closure. Second, the material may only be used for the grading and contouring of the cover system, not to fill up a partially full unit. Third, the placement of the material must be within the boundary or the vertical plane of the boundary of the waste management unit. Finally, the material may only be used to construct a cover at either no steeper than a 5 percent grade or at a

steeper grade, as determined by the Director of an approved program (or EPA where it is the permitting authority). Each of these requirements is discussed further below.

*On-site materials*. EPA is proposing that all CCR material utilized for construction of the final cover system must have been generated by the facility, i.e., by the coal-fired boilers that generated electricity at the facility and associated air pollution control devices, and that the CCR be located at the facility since the time of generation. CCR sourced exclusively from on-site will allow for timely construction of the final cover system. Moreover, EPA does not intend this proposed rule to allow owners and operators to continue disposal into a waste management unit that is closing for cause pursuant to § 257.101. Limiting the source of material will help to ensure that. Rather, the exemption is meant to allow for the genuine use of available materials for the closure of a waste management unit.

*For grading and contouring*. EPA is also proposing to limit the exemption to the design and construction of the final cover system. As noted previously, § 257.102(d)(2) requires that dewatering and stabilization be achieved prior to installation of a cover, and § 257.102(d)(3) requires that several protective layers be constructed at the uppermost areas of the final cover system. As a practical matter, these two existing provisions (which EPA is not proposing to modify or take comment on) would effectively limit the placement of CCR to grading and contouring. Nevertheless, to avoid confusion, EPA is proposing to include a specific condition to make this explicit. For the purposes of this rule, EPA considers grading and contouring as activities specifically related to creating elevation differences and travel pathways to encourage free drainage of liquids out of and away from the CCR surface impoundment. Accordingly, EPA is proposing to define grading to mean placement of CCR for the sole purpose of creating differences in elevation to support positive stormwater drainage. EPA is also proposing to define

contouring to mean placement of material to provide a continuous downward slope on the surface of a drainage area (i.e., the final cover system), except for erosion control features (e.g., swales, contour banks).

This proposal would not allow placement of CCR for the purposes of waste stabilization or to otherwise fill the unit to capacity. Placement of CCR for these purposes would involve the placement of substantial volumes of CCR into a leaking or otherwise deficient unit, and EPA lacks information that such further placement would be protective. To achieve this, EPA is proposing different criteria based on the construction of the unit. Many surface impoundments consist of an incised portion, or portion which is excavated below the surrounding grade. Incised units are units that hold an accumulation of CCR entirely below the adjacent natural ground surface, and do not consist of any constructed diked portion. For incised CCR surface impoundments, EPA is proposing that any CCR utilized for the final cover system must be placed above the highest elevation of the surrounding natural ground surface where the CCR unit was constructed.

EPA intends for this requirement to account for the preexisting topography in the area where the incised CCR unit was constructed. The owner or operator would be responsible for determining the preexisting topography of the CCR unit through means of historical documentation or by identifying the highest point of the perimeter of the excavated portion of the unit.

A primary purpose of a final cover system is to encourage free surface drainage in order to limit infiltration from precipitation into the underlying waste. CCR units with incised portions can present an issue with free drainage of liquids because much of the unit is located below the surrounding grade and does not allow for drainage by gravity, i.e., the drainage must occur

mechanically, by evapotranspiration, or by infiltration. Placement of CCR below the highest elevation of the surrounding topography would no longer serve the purpose of encouraging drainage, and therefore would not be considered part of constructing the final cover system.

For all other units, including CCR surface impoundments that consist of a diked portion, e.g., diked impoundments, cross-valley impoundments, side-hill impoundments, or some combination thereof, EPA is proposing to require the owner or operator to establish a baseline elevation above which all CCR would need to be placed when constructing the final cover system. EPA is proposing that this baseline elevation be defined as the highest elevation of CCR in the unit, following dewatering and stabilization as required by § 257.102(d)(2).[40] From that point forward, CCR material may only be placed above that elevation for grading and contouring.

These requirements are designed to establish clear and objective geometric boundaries for the permissible placement of CCR. With these two performance standards, EPA is effectively establishing a "lowest bound" plane; placement below that elevation would be considered to be disposal, and would still be prohibited. EPA is also proposing to establish an upper bound to ensure that only the amount of CCR necessary for grading and contouring is used. The "upper bound" is represented by the maximum final grade of the final cover system of 1:20, i.e., 5 percent (discussed further below). Furthermore, the "vertical plane" criteria discussed later in this preamble would also establish "horizontal bounds" for placement of CCR material in the cover system. In order to fulfill the "free drainage" criteria set forth in §

[40] As noted, under the existing regulations the owner or operator must first breach and dewater the CCR unit, allowing for free drainage of water, sediment, or slurry out of the CCR surface impoundment via surface runoff, prior to construction of the final cover system. Additionally, if the owner or operator intends to leave waste-in-place, the owner or operator must "preclude the probability of future impoundment of water, sediment, or slurry," per the requirements of § 257.102(d)(1)(ii).

257.102(d)(1)(ii), the geometry of the waste in the unit must allow for free drainage of all water, sediment, and slurry from any point within the CCR surface impoundment out of the breached portion of the embankment.

Collectively, these criteria are designed to ensure owners and operators place only the amount of CCR necessary to achieve adequate grading and contouring for free drainage.

For example, this proposal would not allow the owner or operator to raise the breached invert elevation and place CCR material above the previously placed "waste-in-place" CCR and effectively raise the invert elevation for drainage. EPA intends for the final level of CCR within the CCR unit to essentially be the ultimate height of the surface of the final cover system, with allowance for limited addition of material to ensure effective drainage from the unit. EPA does not intend for this proposal to allow the facility to unnecessarily raise the invert elevation of the breached portion of the embankment, as a means of further disposal of CCR in the interim space between initial invert and adjusted invert elevations.

*Within the vertical plane.* EPA is proposing that CCR used for construction of the final cover system may not be placed outside the vertical plane. The vertical plane for non-incised units is established as the line which extends from the intersection between the crest of the CCR within the surface impoundment and the berm or dike of the CCR surface impoundment. For incised CCR surface impoundments, the vertical plane is established as the line that extends at the intersection where the cap of the CCR surface impoundment with a slope of no steeper than 5 percent meets the natural topography of the land prior the construction of the CCR unit. Placement beyond this boundary would constitute a lateral expansion as defined in § 257.53.[41] EPA is proposing this requirement in order to prevent the potential release of CCR constituents

[41] *Lateral expansion* means a horizontal expansion of the waste boundaries of an existing CCR landfill or existing CCR surface impoundment made after October 19, 2015.

outside of the waste boundary without the protections EPA deliberately included in the final rule for such lateral expansions.

*At no steeper than a 5 percent grade*. EPA is proposing that the final cover system using CCR for grading and contouring be constructed with slopes no steeper than 1:20. This ratio of vertical rise to horizontal rise is equal to a 5 percent grade. EPA has identified 5 percent to generally be the maximum necessary grade to promote positive drainage in a vegetated slope runoff, as steeper grades may lead to erosion and deterioration of the final cover system[42]. EPA is proposing a maximum grade for the final cover system to minimize the potential for abuse whereby a facility might unnecessarily grade a cover steeply in order to dispose of additional CCR. EPA intends the grade of the final cover system to allow for free drainage to the invert elevation of the breached portion of the embankment.

However, in rare instances it may be possible that a cover requires a steeper grade. Consequently, EPA is proposing that the Director of a participating state may approve a grade steeper than 5 percent in a permit if such a grade is necessary for the proper function of the cover system. To support a steeper grade, a stability analysis must be performed to evaluate possible erosion potential. A stability analysis looks at the ability of soil to resist sliding on itself on the slope. The analysis, at a minimum, must evaluate: 1) the site geology, 2) characterize soil shear strength, 3) construct a slope stability model, 4) establish groundwater and seepage conditions, if any, 5) select loading conditions, 6) locate critical failure surface, and 7) iterate until minimum factor of safety is achieved.

Finally, EPA recently issued an interpretation that under the current regulations, the prohibition on the placement a unit closing for cause did not preclude the movement of

[42] USEPA, Solid Waste Disposal Facility Criteria-Technical Manual, EPA Document EPA530-R-93-017.

additional wastes (stormwater and associated/accompanying CCR) between the units that operate as part of a multiunit treatment system. The current regulations allow the facility to treat such units as a single unit. See, e.g., § 257.91(d)(1). Based the longstanding interpretation that EPA does not regulate the movement of wastes within a unit, EPA concluded that where the impoundments are being treated as a singular system, the movement of CCR within that system (i.e., from one impoundment to another) would not be considered "placing CCR" under the prohibitions of § 257.101. Under this same logic, a facility could conceivably consolidate the CCR from other units in the system into a single unit, even though the unit was deficient. There can be benefits to such a practice; for example, it may facilitate clean closure and allow owners and operators to focus their long term monitoring, care, and cleanup obligations on a single unit rather than many units. And presuming the unit meets all of the performance standards for closure with waste in place, it may be the risks associated with such consolidation are acceptable. However, there are also potentially significant risks associated with the continued placement of large volumes of CCR in a deficient unit. As discussed in the next section, although EPA has preliminarily concluded that the use of CCR in the construction of the cover system will meet the RCRA section 4004(a) standard, there were limitations in the assessment that raise questions about further extrapolation of that assessment to support the placement of large volumes of CCR in these units (e.g., EPA's risk assessment did not model the addition of CCR to partially-filled leaking units). Thus an interpretation that allowed consolidation of CCR into a single unit of a multi-unit system could be seen as inconsistent with the approach outlined in this proposal.

EPA has not determined whether allowing such a practice meets the statutory standard, and is therefore soliciting comment on two potential alternatives. Under one approach EPA would rely on its longstanding interpretation to allow the consolidation of CCR from units

operating within a multi-unit system, when the facility treats the system as a single unit for purposes of closure (i.e., all units within the system are closing). Alternatively, EPA would revise the regulations to explicitly clarify that only the use of CCR for purposes of grading and contouring is permitted, even between units within a multi-unit system closing for cause. Note that under either approach, EPA does not intend to revise its interpretation that the movement of stormwater (and associated CCR) between units within a multi-unit system that is closing for cause is permissible. EPA is concerned about the potential risks associated with the continued placement of large volumes of CCR, and similar concerns are not raised by the movement of stormwater and de minimis amounts of CCR between units in the process of clean closing.

*Analytic Support of Risk Assessment Results*

U.S. EPA (2009)[43] used a response-surface regression method to derive a statistical model for groundwater concentration (as the dependent variable) based on the input parameters from the probabilistic analysis (as independent variables). Concentration, rather than risk, was chosen as the dependent variable for the sensitivity analysis because the additional exposure factors used to calculate human health risk from environmental concentration (e.g., body weight) have well established, peer-reviewed distributions based on EPA policy. The outputs of the sensitivity analysis were goodness-of-fit values used to determine the relative importance of each input parameter. The most sensitive parameters identified are presented in **Table 1**.

**Table 1. Sensitive Parameters**

| Pathway: | GW to DW Pathway | | GW to SW Pathway |
|---|---|---|---|
| Constituents: | All Constituents | Strongly Sorbing | All Constituents |
| Sensitive Parameters | • Infiltration rate<br>• Leachate | • $K_d$ value<br>• Depth to | • Infiltration rate<br>• Leachate |

[43] U.S. EPA (Environmental Protection Agency). 2009. Sensitivity Analysis for the Coal Combustion Waste Risk Assessment. Draft Technical Report. Prepared by RTI International for U.S. EPA, Office of Solid Waste, Washington, DC.

| | | | |
|---|---|---|---|
| | concentration<br>• Hydraulic gradient<br>• Hydraulic conductivity | groundwater<br>• Distance to receptor well | concentration<br>• Water body flow rate |

*Note*: GW = Groundwater; DW = Drinking Water; SW = Surface Water

As seen in the table above, the groundwater to drinking water exposure pathway had more input parameters that were highly sensitive (seven) than the groundwater to surface water exposure pathways (three). The most sensitive parameters for the groundwater to drinking water pathways were parameters that impact flux (infiltration rate and leachate concentration) and groundwater flow (hydraulic conductivity and gradient). When modeling strongly sorbing constituents, the $K_d$ values and distance to receptor also become important. The most sensitive parameters for the groundwater to surface water exposure pathways were parameters impacting flux (infiltration rate to groundwater and leachate concentration) and the water body flow rate.

Depth to groundwater was a sensitive parameter for strongly sorbing constituents. However, the sensitivity analysis did not find total waste depth (i.e., total thickness of CCRs disposed in a unit filled to capacity) to be a sensitive parameter for closed landfills and surface impoundments. However, EPA sought to verify this through further analysis of the final risk assessment results (U.S. EPA, 2014).[44]

The risks EPA sought to further evaluate were those from surface impoundments closed for cause with waste in place. In Appendix K of the final risk assessment, EPA modeled dewatered surface impoundments post-closure with waste in place as equivalent to closed landfills. Because the results driving EPA's final rule were those for trivalent arsenic [As(III)]

[44] U.S. EPA. 2014. Human Health and Ecological Risk Assessment of Coal Combustion Residuals. Final. Office of Resource Conservation and Recovery. December. RIN: 2050-AE81.

cancer risks, EPA selected As(III) cancer risk results from landfills as the appropriate results on which to conduct this sensitivity analysis.

EPA used the probabilistic model inputs for waste depth to calculate 25$^{th}$, 50$^{th}$, and 75$^{th}$ percentile waste depths. These cutoffs were used to filter the model runs into four quartiles. For each quartile EPA calculated a 90$^{th}$ percentile As(III) cancer risk. Below are the As(III) cancer risk results EPA obtained when filtering the landfill risk results for the depth of the waste. As waste depth changed, EPA did not see significant changes in risk for any liner type. This confirms the findings of the sensitivity analysis where depth was not shown to be a sensitive parameter.

**Table 2. 90$^{th}$ Percentile As(III) Cancer Risks Across Waste Depth Quartile**

| Liner Type: | 1$^{st}$ Quartile | 2$^{nd}$ Quartile | 3$^{rd}$ Quartile | 4$^{th}$ Quartile |
|---|---|---|---|---|
| Unlined | 1.50E-05 | 1.28E-05 | 2.66E-05 | 1.79E-05 |
| Clay Lined | 1.28E-05 | 1.11E-05 | 1.32E-05 | 1.93E-05 |
| Composite | 1.39E-20 | 5.34E-29 | 3.84E-27 | <1.00E-30 |

EPA also notes that the volume of infiltration from precipitation relative to the volume of waste present in a unit is very small. This would lead to a low liquid-to-solid (L/S) ratio for water passing through landfills and dewatered surface impoundments. The low L/S ratio ensures that the leachate is saturated with constituent mass before it exits the bottom of the landfill or surface impoundment. Because the leachate is in equilibrium with the waste, the addition of more mass would not further increase leachate concentrations. Instead, the increased total mass would affect the time necessary for constituent mass to fully deplete from the waste. A majority of the model runs for arsenic already reached a steady state concentration at the well within the modeled timeframe. Therefore, an increase in leaching duration would not substantially alter long-term risks.

The addition of larger volumes of ash for purposes other than expediting closure would result in a greater amount of time without a cap and other appropriate controls in place. This would result in greater opportunity for precipitation to infiltrate into the unit prior to closure. The additional volume of water would increase the hydraulic head within the unit and, ultimately, the rate of infiltration down to the groundwater table. EPA identified infiltration to groundwater as one of the most sensitive variables when modeling risks. Thus, EPA concludes that the addition of ash for purposes other than expediting closure has the potential to increase the transport of constituent mass to groundwater and the associated risks.

Under this proposal, utilities could add ash to construct the cover system for closure of a unit for the purpose of achieving the necessary grade to safely close with waste in place. A review of both the 2009 sensitivity analysis and the final risk assessment found that the comparatively minor addition of CCR mass applied solely for grading purposes would not alter potential risks to receptors. Therefore, EPA finds that the use of ash for grading would remain protective of human health and the environment.

## V. The Projected Economic Impacts of this Action

### *A. Introduction*

EPA estimated the costs and benefits of this action in a Regulatory Impact Analysis (RIA) which is available in the docket for this action. The RIA estimates costs and cost savings attributable to the provisions of this action against the baseline costs and cost savings of the 2015 CCR final rule. The RIA estimates that the net annualized impact of these eleven provisions over a 100 year period of analysis will be cost savings of between $32 million and $100 million when discounting at 7 percent and cost savings between $25 million and $76 million when discounting

at 3 percent. This action is considered an economically significant action under Executive Order 12866.

*B. Affected universe*

The universe of affected entities for this rule consists of the same entities affected by EPA's 2015 CCR final rule. These entities are coal-fired electricity generating plants operated by the electric utility industry. They can be identified by their North American Industry Classification System (NAICS) designation 221112 "Fossil Fuel Electric Power Generation". The RIA estimates that there are 414 coal-fired electricity generating plants operating 922 CCR management units (landfills, disposal impoundments, and storage impoundments) that will be affected by this rule.

*C. Baseline costs*

The baseline costs for this rule are the costs of compliance with EPA's 2015 CCR final rule, as the provisions of this rule modify the provisions of the 2015 CCR final rule or modify the implementation of the 2015 CCR rule by WIIN Act participating states. The RIA for the 2015 CCR final rule estimated these costs at an annualized $509 million when discounting at 7 percent and an annualized $735 million when discounting at 3 percent.

*D. Cost savings, other benefits, and adjustments to the baseline*

The RIA estimates costs and costs savings for the four proposals associated with the 2015 CCR rule judicial remand as well as the six alternative performance standards that will apply in participating states under the WIIN Act, and the use CCR during certain closure situations. The RIA estimates that the net annualized impact of these eleven provisions over a 100 year period of analysis will be an annualized cost savings of between $32 million and $100 million when

discounting at 7 percent, and an annualized cost savings of between $25 million and $76 million when discounting at 3 percent.

The RIA also estimates potential adjustments to the baseline costs of the CCR final rule due to plant closures that occurred after the rule was published but before the effective date of the rule. The RIA accompanying the 2015 CCR final rule assigned compliance costs to these plants, which they are exempt from because they closed before the final rule's effective date. In all, 23 plants closed before the effective date of the final rule that were not accounted for in 2015 final rule RIA. The annualized compliance costs avoided for these plants equals between $22 million and $25 million per year when discounting at 7 percent and between $22 million and $31 million when discounting at 3 percent. This cost adjustment is detailed in the RIA that accompanies this rulemaking, however it is not factored into the baseline or the benefit estimates for this rule to keep comparisons with the 2015 CCR final rule straight forward.

*E. Solicitation of Comments on the Projected Economic Impacts*

EPA is soliciting comments on the following aspects of the Regulatory Impact Analysis (RIA), which is available in the docket for this rulemaking. The Agency is soliciting comment primarily on the assumptions and the data sources used in the analysis.

- Do you have information that would refine the RIA assumptions about the number of facilities both in and serving affected NERC regions that would request alternative closure under Additional Provision 1 (the amendment discussed in Unit III.D of this preamble)?
- Do you have information that would refine the RIA assumption that facilities seeking alternative closure requirements under Additional Provision 1 (the amendment

discussed in Unit III.D of this preamble) would delay closure by five years (the maximum allowed under the rule)?

- Do you have information that would refine the RIA assumptions about the maximum or minimum number of states that would likely adopt alternative performance standards under the WIIN Act?
- Do you have information that would refine the RIA assumptions about the changes in total corrective action costs for a release due to the Alternative Performance Standard 1 (the amendment discussed in Unit IV.A of this preamble)?
- Do you have information that would refine the RIA assumptions about the total number of CCR units that may avoid corrective action costs due to the Alternative Performance Standard 2 (the amendment discussed in Unit IV.B of this preamble)?
- Do you have information that would refine the RIA assumptions about the number of units that will receive a "no migration" waiver under Alternative Performance Standard 3 (the amendment discussed in Unit IV.C of this preamble)?
- Do you have information that would refine the RIA assumption that states adopting Alternative Performance Standard 4 (the amendment discussed in Unit IV.D of this preamble) would on average reduce the post-remedy monitoring from three years to one year?
- Do you have information that would refine the RIA assumption that states adopting Alternative Performance Standard 5 (the amendment discussed in Unit IV.E of this preamble) would on average reduce the period from 30 years to five years?

- Do you have information that would refine the RIA assumptions about the total number of CCR units that would use CCR as allowed under Additional Provision 2 (the amendment discussed in Unit IV.G of this preamble)?
- Do you have information that would refine the RIA assumptions about the average annual number of CCR units closing (RIA page 4-14)?
- Do you have information that would refine the RIA assumptions about the estimated tonnage of CCR that could be used for closure (RIA page 4-14)?
- Do you have information that would refine the RIA description and estimates of impacts related to interactions among CCR Remand Rule provisions (RIA pp. 5-1 through 5-3)?

## VI. Statutory and Executive Order (EO) Reviews

### *A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review*

This action is a significant regulatory action that was submitted to the Office of Management and Budget (OMB) for review. Any changes made in response to OMB recommendations have been documented in the docket. The EPA prepared an analysis of the potential costs and benefits associated with this action. This Regulatory Impact Analysis (RIA), entitled *Regulatory Impact Analysis; EPA's 2017 RCRA Proposed Rule; Disposal of Coal Combustion Residuals from Electric Utilities; Amendments to the National Minimum Criteria (October 2017)*, is summarized in Unit V of this preamble and the RIA is available in the docket for this proposal.

### *B. Executive Order 13771: Reducing Regulation and Controlling Regulatory Costs*

This action is expected to be an Executive Order 13771 deregulatory action. Details on the estimated cost savings of this proposed rule can be found in EPA's analysis of the potential costs and benefits associated with this action.

*C. Paperwork Reduction Act (PRA)*

The information collection activities in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the PRA. The Information Collection Request (ICR) document that the EPA prepared has been assigned EPA ICR number 1189.27, OMB control number 2050-0053. This is an amendment to the ICR approved by OMB for the Final Rule: Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities published April 17, 2015 in the Federal Register at 80 FR 21302. You can find a copy of the ICR in the docket for this action, and it is briefly summarized here. This rulemaking, specifically the provision clarifying the type and magnitude of non-groundwater releases that would require a facility to comply with some or all of the corrective action procedures set forth in §§ 257.96-257.98, reduces the paperwork burden attributable to provisions of the April 17, 2015 CCR Final Rule.

*Respondents/affected entities:* Coal-fired electric utility plants that will be affected by the rule.

*Respondent's obligation to respond:* The recordkeeping, notification, and posting are mandatory as part of the minimum national criteria being promulgated under Sections 1008, 4004, and 4005(a) of RCRA.

*Estimated number of respondents:* 414.

*Frequency of response:* The frequency of response varies.

*Total estimated burden:* EPA estimates the total annual burden to respondents to be *a reduction in burden of* approximately 4,267 hours from the currently approved burden. Burden is defined at 5 CFR 1320.3(b).

*Total estimated cost:* The total estimated annual cost of this rule is a *cost savings* of approximately $5,713,027. This cost savings is composed of approximately $519,832 in annualized avoided labor costs and $5,193,195 in avoided capital or operation and maintenance costs.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9.

*D. Regulatory Flexibility Act (RFA)*

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. In making this determination, the impact of concern is any significant adverse economic impact on small entities. An agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, has no net burden or otherwise has a positive economic effect on the small entities subject to the rule. This action is expected to result in net cost savings amounting to approximately $32 million per year to $100 million per year when discounting at 7 percent and annualized over 100 years. It is expected to result in net cost savings of between $25 million and $76 million when discounting at 3 percent and annualized over 100 years. Savings will accrue to all regulated entities, including small entities. Further information on the economic effects of this action can be found in Unit V of this preamble and in the Regulatory Impact

Analysis, which is available in the docket for this action. We have therefore concluded that this action will relieve regulatory burden for all directly regulated small entities.

*E. Unfunded Mandates Reform Act (UMRA)*

This action does not contain any unfunded mandate of $100 million or more as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. This action imposes no enforceable duty on any state, local or tribal governments or the private sector. The costs involved in this action are imposed only by participation in a voluntary federal program. UMRA generally excludes from the definition of "federal intergovernmental mandate" duties that arise from participation in a voluntary federal program.

*F. Executive Order 13132: Federalism*

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

*G. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments*

This action does not have tribal implications as specified in Executive Order 13175. For the "Final Rule: Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities" published April 17, 2015 in the Federal Register at 80 FR 21302, EPA identified three of the 414 coal-fired electric utility plants (in operation as of 2012) which are located on tribal lands; however, they are not owned by tribal governments. These are: (1) Navajo Generating Station in Coconino County, Arizona, owned by the Arizona Salt River Project; (2) Bonanza Power Plant in Uintah County, Utah, owned by the Deseret Generation and Transmission Cooperative; and (3) Four Corners Power Plant in San Juan County, New Mexico owned by the Arizona Public Service Company. The Navajo Generating Station and the Four

Corners Power Plant are on lands belonging to the Navajo Nation, while the Bonanza Power Plant is located on the Uintah and Ouray Reservation of the Ute Indian Tribe. Moreover, since this action is expected to result in net cost savings to affected entities amounting to approximately $32 million per year to $100 million per year when discounting at 7 percent and annualized over 100 years, or in net cost savings of between $25 million per year and $76 million per year when discounting at 3 percent and annualized over 100 years, it will not have substantial direct effects on one or more Indian tribes. Thus, Executive Order 13175 does not apply to this action.

*H. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks*

This action is not subject to Executive Order 13045 because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This action's health and risk assessments are contained in the document titled "Human and Ecological Risk Assessment of Coal Combustion Residuals" which is available in the docket for the final rule as docket item EPA-HQ-RCRA-2009-0640-11993.

As ordered by EO 13045 Section 1-101(a), for the "Final Rule: Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities" published April 17, 2015 in the federal register at 80 FR 21302, EPA identified and assessed environmental health risks and safety risks that may disproportionately affect children in the revised risk assessment. The results of the screening assessment found that risks fell below the criteria when wetting and run-on/runoff controls required by the rule are considered. Under the full probabilistic analysis, composite liners required by the rule for new waste management units showed the ability to reduce the $90^{th}$ percentile child cancer and non-cancer risks for the

groundwater to drinking water pathway to well below EPA's criteria. Additionally, the groundwater monitoring and corrective action required by the rule reduced risks from current waste management units. This action does adversely affect these requirements and, in fact it enhances the groundwater monitoring requirements by adding boron to the list of constituents in Appendix IV that trigger corrective action. Thus, EPA believes that this rule will be protective of children's health.

*I. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution or Use*

This action is not a "significant energy action" because it is not likely to have a significant adverse effect on the supply, distribution or use of energy. For the 2015 CCR rule, EPA analyzed the potential impact on electricity prices relative to the "in excess of one percent" threshold. Using the Integrated Planning Model (IPM), EPA concluded that the 2015 CCR Rule may increase the weighted average nationwide wholesale price of electricity between 0.18 percent and 0.19 percent in the years 2020 and 2030, respectively. As the proposed rule represents a cost savings rule relative to the 2015 CCR rule, this analysis concludes that any potential impact on wholesale electricity prices will be lower than the potential impact estimated of the 2015 CCR rule; therefore, this proposed rule is not expected to meet the criteria of a "significant adverse effect" on the electricity markets as defined by Executive Order 13211.

*J. National Technology Transfer and Advancement Act (NTTAA)*

This rulemaking does not involve technical standards.

*K. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*

The EPA believes that this action does not have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations and/or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629, February 16, 1994).

The documentation for this decision is contained in EPA's Regulatory Impact Analysis (RIA) for the CCR rule which is available in the docket for the 2015 CCR final rule as docket item EPA-HQ-RCRA-2009-0640-12034.

EPA's risk assessment did not separately evaluate either minority or low income populations. However, to evaluate the demographic characteristics of communities that may be affected by the CCR rule, the RIA compares the demographic characteristics of populations surrounding coal-fired electric utility plants with broader population data for two geographic areas: (1) one-mile radius from CCR management units (i.e., landfills and impoundments) likely to be affected by groundwater releases from both landfills and impoundments; and (2) watershed catchment areas downstream of surface impoundments that receive surface water run-off and releases from CCR impoundments and are at risk of being contaminated from CCR impoundment discharges (e.g., unintentional overflows, structural failures, and intentional periodic discharges).

For the population as a whole 24.8 percent belong to a minority group and 11.3 percent falls below the Federal Poverty Level. For the population living within one mile of plants with surface impoundments 16.1 percent belong to a minority group and 13.2 percent live below the Federal Poverty Level. These minority and low-income populations are not disproportionately high compared to the general population. The percentage of minority residents of the entire population living within the catchment areas downstream of surface impoundments is disproportionately high relative to the general population, i.e., 28.7 percent, versus 24.8 percent

for the national population. Also, the percentage of the population within the catchment areas of surface impoundments that is below the Federal Poverty Level is disproportionately high compared with the general population, i.e., 18.6 percent versus 11.3 percent nationally.

Comparing the population percentages of minority and low income residents within one mile of landfills to those percentages in the general population, EPA found that minority and low-income residents make up a smaller percentage of the populations near landfills than they do in the general population, i.e., minorities comprised 16.6 percent of the population near landfills versus 24.8 percent nationwide and low-income residents comprised 8.6 percent of the population near landfills versus 11.3 percent nationwide. In summary, although populations within the catchment areas of plants with surface impoundments appear to have disproportionately high percentages of minority and low-income residents relative to the nationwide average, populations surrounding plants with landfills do not. Because landfills are less likely than impoundments to experience surface water run-off and releases, catchment areas were not considered for landfills.

The CCR rule is risk-reducing with reductions in risk occurring largely within the surface water catchment zones around, and groundwater beneath, coal-fired electric utility plants. Since the CCR rule is risk-reducing and this action does not add to risks, this action will not result in new disproportionate risks to minority or low-income populations.

**List of Subjects in 40 CFR Part 257**

Environmental protection, Beneficial use, Coal combustion products, Coal combustion residuals, Coal combustion waste, Disposal, Hazardous waste, Landfill, Surface impoundment.

Dated: March 1, 2018.

E. Scott Pruitt,

Administrator.

For the reasons set out in the preamble, title 40, chapter I, of the Code of Federal Regulations is proposed to be amended as follows:

**PART 257—CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES**

1. The authority citation for part 257 is revised to read as follows:

Authority: 42 U.S.C. 6907(a)(3), 6912(a)(1), 6944(a), 6945(d); 33 U.S.C. 1345(d) and (e).

2. Section 257.53 is amended by:

a. Adding in alphabetical order the definition of "Contouring", "Engineered slope protection measures", "Grading", "Grassy vegetation", "Non-groundwater releases", "Participating state", "Pertinent surrounding areas", "Vegetative height", and "Woody vegetation" in alphabetical order.

b. Revising the definition of "Slope protection" and "State director."

The revisions and additions read as follows:

**§ 257.53 Definitions.**

* * * * *

*Contouring* means the placement of material to provide a continuous downward slope on the surface of a drainage area, except for erosion control features (e.g., swales, contour banks).

* * * * *

*Engineered slope protection measures* means non-vegetative cover systems, which include but are not limited to rock riprap, concrete revetments, vegetated wave berms, concrete facing, gabions, geotextiles, or fascines.

* * * * *

*Grading* means the placement of CCR only to the extent necessary to create sufficient differences in elevation to support stormwater drainage.

*Grassy vegetation* means vegetation that meets both of the conditions described in paragraphs (1) and (2) of this definition:

(1) The vegetation develops shallow roots which both do not penetrate the slopes or pertinent surrounding areas of the CCR unit to a substantial depth and do not introduce the potential of internal erosion or risk of uprooting; and

(2) The vegetation creates a continuous dense cover that prevents erosion and deterioration of the surface of the slope or pertinent surrounding areas, thereby preventing deterioration of the surface.

* * * * *

*Non-groundwater releases* mean releases from the CCR unit other than the releases directly to the groundwater that are detected through the unit's groundwater monitoring system. Examples of non-groundwater releases include seepage through the embankment, minor ponding of seepage at the toe of the embankment of the CCR unit, seepage at the abutments of the CCR unit, seepage from slopes, ponding at the toe of the unit, a release of fugitive dust and releases of a "catastrophic" nature such as the release of CCR materials from CCR surface impoundments from the Tennessee Valley Authority's (TVA) Kingston Fossil Plant in Harriman, TN and the Duke Energy Dan River Steam Station in Eden, NC.

* * * * *

*Participating state* means a state with a state program for control of CCR that has been approved pursuant to Section 4005 of the Resource Conservation and Recovery Act.

*Pertinent surrounding areas* means all areas of the CCR surface impoundment or immediately surrounding the CCR surface impoundment that have the potential to affect the structural stability and condition of the CCR surface impoundment, including but not limited to the toe of the downstream slope, the crest of the embankment, abutments, and unlined spillways.

* * * * *

*Slope protection* means measures installed on the slopes or pertinent surrounding areas of the CCR unit that protect the slope against wave action, erosion or adverse effects of rapid drawdown. Slope protection includes grassy vegetation and engineered slope protection measures.

* * * * *

*State Director* means the chief administrative officer of any State agency operating an approved CCR permit program or the delegated representative of the State Director. If responsibility is divided among two or more State agencies, State Director means the chief administrative officer of the State agency authorized to perform the particular function or procedure to which reference is made. On Tribal Lands and in non-participating States where Congress has specifically provided appropriations to EPA to administer a CCR permit program, State Director means the EPA Administrator or their designee.

* * * * *

*Vegetative height* means the linear distance between the ground surface where the vegetation penetrates the ground surface and the outermost growth point of the vegetation.

* * * * *

*Woody vegetation* means vegetation that develops woody trunks, root balls, or root systems which can penetrate the slopes or pertinent surrounding areas of the CCR unit to a substantial depth and introduce the potential of internal erosion or risk of uprooting.

3. Section 257.73 is amended by:

a. Revising paragraphs (a)(4) and (d)(1)(ii); and

b. Removing and reserving paragraph (d)(1)(iv).

The revisions read as follows:

**§ 257.73 Structural integrity criteria for existing CCR surface impoundments.**

(a) * * *

(4) The slopes and pertinent surrounding areas of the CCR unit must be designed, constructed, operated, and maintained with one of the forms of slope protection specified in paragraph (a)(4)(i) of this section that meets all of the performance standards of paragraph (a)(4)(ii) of this section.

(i) Slope protection must consist of one of the following:

(A) A vegetative cover consisting of grassy vegetation;

(B) An engineered cover consisting of a single form or combination of forms of engineered slope protection measures; or

(C) A combination of the forms of cover specified in paragraphs (a)(4)(i)(A) or (a)(4)(i)(B) of this section.

(ii) Any form of cover for slope protection must meet all of the following performance standards:

(A) The cover must be installed and maintained on the slopes and pertinent surrounding areas of the CCR unit;

(B) The cover must provide protection against surface erosion, wave action, and adverse effects of rapid drawdown;

(C) The cover must be maintained to allow for the observation of and access to the slopes and pertinent surrounding areas during routine and emergency events;

(D) Woody vegetation must be removed from the slopes or pertinent surrounding areas. Any removal of woody vegetation with a diameter greater than 1/2 inch must be directed by a person familiar with the design and operation of the unit and in consideration of the complexities of removal of a tree or a shrubbery, who must ensure the removal does not create a risk of destabilizing the unit or otherwise adversely affect the stability and safety of the CCR unit or personnel undertaking the removal; and

(E) The vegetative height of grassy and woody vegetation must not exceed 12 inches.

* * * * *

(d) * * *

(1) * * *

(ii) Slope protection consistent with the requirements under paragraph (a)(4) of this section.

* * * * *

4. Section 257.74 is amended by:

a. Revising paragraphs (a)(4) and (d)(1)(ii); and

b. Removing and reserving paragraph (d)(1)(iv).

The revisions read as follows:

**§ 257.74 Structural integrity criteria for new CCR surface impoundments and any lateral expansion of a CCR surface impoundment.**

(a) * * *

(4) The slopes and pertinent surrounding areas of the CCR unit must be designed, constructed, operated, and maintained with one of the forms of slope protection specified in paragraph (a)(4)(i) of this section that meets all of the performance standards of paragraph (a)(4)(ii) of this section.

(i) Slope protection must consist of one of the following:

(A) A vegetative cover consisting of grassy vegetation;

(B) An engineered cover consisting of a single form or combination of forms of engineered slope protection measures; or

(C) A combination of the forms of cover specified in paragraphs (a)(4)(i)(A) or (a)(4)(i)(B) of this section.

(ii) Any form of cover for slope protection must meet all of the following performance standards:

(A) The cover must be installed and maintained on the slopes and pertinent surrounding areas of the CCR unit;

(B) The cover must provide protection against surface erosion, wave action, and adverse effects of rapid drawdown;

(C) The cover must be maintained to allow for the observation of and access to the slopes and pertinent surrounding areas during routine and emergency events;

(D) Woody vegetation must be removed from the slopes or pertinent surrounding areas. Any removal of woody vegetation with a diameter greater than 1/2 inch must be directed by a person familiar with the design and operation of the unit and in consideration of the complexities of removal of a tree or a shrubbery, who must ensure the removal does not create a

risk of destabilizing the unit or otherwise adversely affect the stability and safety of the CCR unit or personnel undertaking the removal; and

(E) The vegetative height of grassy and woody vegetation must not exceed 12 inches.

* * * * *

(d) * * *

(1) * * *

* * * * *

(ii) Slope protection consistent with the requirements under paragraph (a)(4) of this section.

* * * * *

5. Section 257.83 is amended by revising paragraph (b)(5) to read as follows:

**§ 257.83 Inspection requirements for CCR surface impoundments.**

* * * * *

(b) * * *

(5) If a deficiency or release is identified during an inspection, the owner or operator must remedy the deficiency or release in accordance with applicable requirements in §§ 257.96 through 257.99.

* * * * *

6. Section 257.84 is amended by revising paragraph (b)(5) to read as follows:

**§ 257.84 Inspection requirements for CCR surface landfills.**

* * * * *

(b) * * *

(5) If a deficiency or release is identified during an inspection, the owner or operator must remedy the deficiency or release in accordance with applicable requirements in §§ 257.96 through 257.99.

* * * * *

7. Section 257.90 is amended by revising paragraphs (a) and (d) and adding paragraph (g) to read as follows:

**§ 257.90 Applicability.**

(a) All CCR landfills, CCR surface impoundments, and lateral expansions of CCR units are subject to the groundwater monitoring and corrective action requirements under §§ 257.90 through 257.99, except as provided in paragraph (g) of this section.

* * * * *

(d) The owner or operator of the CCR unit must comply with all applicable requirements in §§ 257.96, 257.97, and 257.98, or, if eligible, must comply with the requirements in § 257.99.

* * * * *

(g) *Suspension of groundwater monitoring requirements*. (1) Except as provided by paragraph (g)(2) of this section, the State Director of a participating state may suspend for up to ten years the groundwater monitoring requirements under §§ 257.90 through 257.95 for a CCR unit if the owner or operator provides written documentation that there is no potential for migration of the constituents listed in appendices III and IV to this part from that CCR unit to the uppermost aquifer during the active life of the CCR unit and the post-closure care period. This demonstration must be certified by a qualified professional engineer and approved by the State Director, and must be based upon:

(i) Site-specific field collected measurements, sampling, and analysis of physical, chemical, and biological processes affecting contaminant fate and transport; and

(ii) Contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and the environment.

(2) The owner or operator of the CCR unit may secure an additional ten years for the suspension of the groundwater monitoring requirements provided the owner or operator provides written documentation that there continues to be no potential for migration of the constituents listed in appendices III and IV to this part. The documentation must be supported by, at a minimum, the information specified in paragraphs (g)(1)(i) and (g)(1)(ii) of this section and must be certified by a qualified professional engineer and approved by the State Director. The owner or operator must submit the documentation of their re-demonstration for the state's review and approval of their extension one year before their groundwater monitoring suspension is due to expire. If the existing groundwater monitoring extension expires, the owner or operator must begin groundwater monitoring according to paragraph (a) of this section within 90 days. The owner or operator may obtain additional ten-year groundwater monitoring suspensions provided the owner or operator continues to make the written demonstration. The owner or operator must place each completed demonstration, if more than one ten-year suspension period is sought, in the facility's operating record.

8. Section 257.95 is amended by revising paragraph (h)(2) and adding paragraph (j) to read as follows:

**§ 257.95 Assessment monitoring program.**

* * * * *

(h) * * *

(2) For constituents for which an MCL has not been established, the background concentration for the constituent established from wells in accordance with § 257.91, except as provided by paragraph (j) of this section; or

* * * * *

(j) The State Director of a participating state may establish an alternative groundwater protection standard for constituents listed in appendix IV to this part for which MCLs have not been established.

(1) The alternative groundwater protection standards must be appropriate health-based levels that are protective of potential receptors (both human and ecological) and satisfy all of the following criteria:

(i) The alternative groundwater protection standard is at a level derived in a manner consistent with EPA guidelines for assessing the health risks of environmental pollutants, including "Supplementary Guidance for Conducting Health Risk Assessment of Chemical Mixtures", "Guidelines for Developmental Toxicity Risk Assessment", and "Reference Dose, (RfD): Description and Use in Health Risk Assessments" (incorporated by reference);

(ii) The alternative groundwater protection standard is at a level based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act Good Laboratory Practice Standards (40 CFR part 792) or equivalent; and

(iii) For systemic toxicants, the level represents a concentration to which the human population could be exposed to on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime; this must be the level that ensures a Hazard Quotient no greater than 1. For purposes of this subpart, systemic toxicants are toxic chemicals that cause effects other than cancer.

(2) In establishing alternative groundwater protection standards under paragraph (j)(1) of this section, the State Director may consider the following:

(i) Multiple contaminants in the groundwater;

(ii) Exposure threats to sensitive environmental receptors; and

(iii) Other site-specific exposure or potential exposure to groundwater.

(3) The owner or operator of the CCR unit must document in the annual groundwater monitoring and corrective action report required by § 257.90(e) or § 257.100(e)(5)(ii) the constituent(s) and level(s) for which an alternative groundwater protection standard has been established by the State Director.

9. Section 257.97 is amended by adding paragraphs (f) and (g) to read as follows:

**§ 257.97 Selection of remedy**.

* * * * *

(f) The State Director of a participating state may determine that remediation of a release of a constituent listed in appendix IV to this part from a CCR unit is not necessary if the owner or operator demonstrates to the satisfaction of the State Director that:

(1) The groundwater is additionally contaminated by substances that have originated from a source other than a CCR unit and those substances are present in concentrations such that cleanup of the release from the CCR unit would provide no significant reduction in risk to actual or potential receptors; or

(2) The constituent(s) is present in groundwater that:

(i) Is not currently or reasonably expected to be a source of drinking water; and

(ii) Is not hydraulically connected with waters to which the constituent(s) is migrating or are likely to migrate in a concentration(s) that would exceed the groundwater protection standards established under § 257.95 (h) or (i); or

(3) Remediation of the release(s) is technically impracticable; or

(4) Remediation results in unacceptable cross-media impacts.

(g) A determination by the Director of approved participating state pursuant to paragraph (f) of this section shall not affect the requirement under § 257.90(d) and § 257.97(b) for the owner or operator to undertake source control measures or other measures (including closure if triggered) that may be necessary to eliminate or minimize further releases to the groundwater, to prevent exposure to the groundwater, or to remediate the groundwater to concentrations that are technically feasible and significantly reduce threats to human health or the environment.

10. Section 257.98 is amended by revising paragraph (c) to read as follows:

**§ 257.98 Implementation of the corrective action program.**

* * * * *

(c) Remedies selected pursuant to § 257.97 shall be considered complete when:

(1) The owner or operator of the CCR unit demonstrates compliance with the groundwater protection standards established under § 257.95(h) has been achieved at all points within the plume of contamination that lie beyond the groundwater monitoring well system established under § 257.91;

(2) Except as provided by paragraph (c)(4) of this section, compliance with the groundwater protection standards established under § 257.95(h) has been achieved by demonstrating that concentrations of constituents listed in appendix IV to this part have not

exceeded the groundwater protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in § 257.93(f) and (g); and

(3) All actions required to complete the remedy have been satisfied.

(4) The Director of a participating state may specify an alternative length of time to that specified in paragraph (c)(2) of this section during which the owner or operator must demonstrate that concentrations of constituents listed in appendix IV to this part have not exceeded the groundwater protection standard(s) taking into consideration:

(i) Extent and concentration of the release(s);

(ii) Behavior characteristics of the constituents in the groundwater;

(iii) Accuracy of monitoring or modeling techniques, including any seasonal, meteorological, or other environmental variabilities that may affect the accuracy; and

(iv) Characteristics of the groundwater.

* * * * *

11. Add § 257.99 to read as follows:

**§ 257.99 Corrective action procedures to remedy eligible non-groundwater releases.**

(a) *General*. This section specifies the corrective action requirements that apply to non-groundwater releases from CCR units that can be completely remediated within 180 days from the detection of the release. A release is completely remediated when either a qualified professional engineer or the permitting authority of a participating state completes the certification required in subsection (c)(2) of this section. If the owner or operator determines, at any time, that the release will not be completely remediated within this 180-day timeframe, the owner or operator must comply with all additional procedural requirements specified in §§ 257.96, 257.97, and 257.98.

(b) *Corrective action requirements*. Upon detection of a non-groundwater release from a CCR unit, the owner or operator must comply with all of the following requirements:

(1) Meet the requirement in § 257.90(d) to "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;"

(2)(i) Determine the corrective measures that will meet the substantive standards in §257.96(a) to prevent further releases, to remediate any releases and to restore the affected area to original conditions; and

(ii) Analyze the effectiveness of potential corrective measures in meeting all of the requirements and objectives of the remedy as described in § 257.96(c);

(3) Select the corrective action that will remedy the non-groundwater release, taking into account, at a minimum, the results of the assessment in paragraph (b)(2)(ii) of this section and the factors specified in § 257.97(c); and

(4) Remediate the non-groundwater release to meet the standards specified in § 257.97(b)(1), (3), (4), and (5).

(5) Complete remedy within 180 days of the date of discovery of the release.

(c) *Required notices and reports*. An owner or operator of a CCR unit that complies with the requirements of this section to remediate a non-groundwater release is responsible for ensuring that the notices and reports specified in paragraphs (c)(1) through (c)(3) of this section are completed in accordance with this section. All required notices and reports must be signed by the owner or operator.

(1) Within 15 days of discovering a non-groundwater release, the owner or operator must prepare a notification of discovery of a non-groundwater release. The owner or operator has

completed the notification when it has been placed in the facility's operating record as required by § 257.105(h)(15).

(2) Within 15 days of completing the analysis of the effectiveness of potential corrective measures as required by paragraph (b)(2)(ii) of this section, place the completed analysis in the facility's operating record.

(3) Within 30 days of completion of a corrective action of a non-groundwater release, the owner or operator must prepare a report documenting the completion of the corrective action. The report must, at a minimum, describe the nature and extent of the non-groundwater release, the CCR unit(s) responsible for the non-groundwater release, and how the remedy selected achieves the corrective action requirements specified in paragraph (b) of this section. The notification must include a certification by a qualified professional engineer that the corrective action has been completed in accordance with the requirements of paragraph (b) of this section. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by § 257.105(h)(16).

(d) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(h), the notification requirements specified in § 257.106(h), and the internet requirements specified in § 257.107(h).

12. Section 257.102 is amended by adding paragraph (d)(4) to read as follows:

**§ 257.102 Criteria for conducting the closure or retrofit of CCR units.**

* * * * *

(d) * * *

(4) *Use of CCR in Design and Construction of Final Cover System.* (i) This paragraph specifies the allowable uses of CCR in the closure of CCR units closing pursuant to §

257.101. Notwithstanding the prohibition on further placement in § 257.101, CCR may be placed in such units but only for the purposes of grading and contouring in the design and construction of the final cover system, based either on:

(A) A determination by the Director of a participating state that the criteria in paragraph (d)(4)(ii) of this section have been met; or

(B) The certification by a qualified professional engineer that the criteria in (d)(4)(ii) of this section have been met, as required in paragraph (d)(4)(iii) of this section.

(ii) Use of CCR in Design and Construction of Final Cover System Requirements.

(A) The owner or operator of a CCR unit subject to §257.101 may continue to place CCR in the unit after initiating closure in order to construct the final cover system required under paragraph (d)(3) of this section but only for the following activities:

*(1)* Grading; and

*(2)* Contouring.

(B) The owner or operator of a CCR unit must meet all of the following criteria when placing CCR within a CCR unit for the purposes of grading or contouring:

*(1)* The CCR placed for construction of the final cover system must have been generated at the facility and be located at the facility at the time closure was initiated;

*(2)(i)* For incised CCR surface impoundments the CCR must be placed entirely above the highest elevation of the surrounding natural ground surface where the CCR surface impoundment was constructed;

*(ii)* For all other CCR units, CCR must be placed entirely above the highest elevation of CCR in the unit, following dewatering and stabilization as required by § 257.102(d)(2);

*(3)* The CCR must not be placed outside the plane extending vertically from the line formed by the intersection of the crest of the CCR surface impoundment and the upstream slope of the CCR surface impoundment; and

*(4)* The final cover system must be constructed with either:

*(i)* A slope not steeper than 5% grade after allowance for settlement; or

*(ii)* At a steeper grade, if the Director of a participating state determines that the steeper slope is necessary based on conditions at the site, to facilitate run-off and minimize erosion, and that side slopes are evaluated for erosion potential based on a stability analysis to evaluate possible erosion potential. The stability analysis, at a minimum, must evaluate the site geology; characterize soil shear strength; construct a slope stability model; establish groundwater and seepage conditions, if any; select loading conditions; locate critical failure surface; and iterate until minimum factor of safety is achieved.

(iii) If required by paragraph (d)(4)(i)(B) of this section, the owner or operator of the CCR unit must also include in the notification required by §257.102(h) a certification by a qualified professional that the CCR unit was closed in accordance with the requirements of paragraph (d)(4) of this section.

* * * * *

13. Section 257.103 is amended by:

a. Revising §257.103 introductory text; and

b. Redesignating paragraphs (b), (c), and (d) as (c), (e), and (f); and adding new paragraphs (b) and (d).

The revisions and additions read as follows:

**§ 257.103 Alternative closure requirements.**

The owner or operator of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit that is subject to closure pursuant to § 257.101(a), (b)(1), or (d) may continue to receive CCR and/or non-CCR wastestreams in the unit provided the owner or operator meets the requirements of either paragraph (a), (b), (c) or (d) of this section.

* * * * *

(b) *No Alternative capacity for non-CCR wastestreams*. (1) Notwithstanding the provisions of § 257.101(a), (b)(1), or (d), a CCR unit may continue to receive non-CCR wastestreams if the owner or operator of the CCR unit certifies that the wastestreams must continue to be managed in that CCR unit due to the absence of alternative capacity both on-site and off-site the facility. For these non-CCR wastestsreams, capacity means the capacity of impoundments, tanks, and other conveyances to manage daily flows currently handled by the unit that is closing pursuant to § 257.101(a) or (b)(1), or (d). To qualify under this paragraph (b)(1), the owner or operator of the CCR unit must document that all of the following conditions have been met for each non-CCR wastestream that will continue to be received by the CCR unit:

(i) No alternative disposal capacity is available. An increase in costs or the inconvenience of existing capacity is not sufficient to support qualification under this section;

(ii) The owner or operator has made, and continues to make, efforts to obtain additional capacity. Qualification under this subsection requires that efforts to obtain additional capacity were made at the earliest date that an owner or operator knew, or had reason to know, that such a unit may become subject to closure under § 257.101(a), (b)(1), or (d). Qualification under this subsection lasts only as long as no alternative capacity is available. Once alternative capacity is identified, the owner or operator must arrange to use such capacity as soon as feasible;

(iii) The owner or operator must certify that the facility generating any wastestream that continues to be placed into a CCR unit pursuant to this section would need to cease generating power and is located in or regularly provides the majority of generated electricity to, one of the following three North American Electric Reliability Corporation regions and sub-regions: the Midcontinent Independent System Operator, the Southeastern Electric Reliability Council-East, and/or the Southeastern Electric Reliability Council-North;

(iv) The owner or operator must remain in compliance with all other requirements of this subpart, including the requirement to conduct any necessary corrective action; and

(v) The owner or operator must prepare an annual progress report documenting the continued lack of alternative capacity and the progress towards the development of alternative capacity for the given wastestream.

(2) Once alternative capacity is available for a given wastestream, the CCR unit must cease receiving that wastestream, and in the case that alternate capacity has been found for all wastestreams, the facility must initiate closure of the CCR unit following the timeframes in § 257.102(e) and (f).

(3) If no alternative capacity is identified within five years after the initial certification as required under (b)(1) of this section, the CCR unit must cease receiving all wastestreams and close in accordance with the timeframes in § 257.102(e) and (f).

* * * * *

(d) *Permanent cessation of a coal-fired boiler(s) by a date certain*. (1) Notwithstanding the provisions of § 257.101(a), (b)(1), and (d), a CCR unit may continue to receive non-CCR wastestreams if the owner or operator certifies that the facility will cease operation of the coal-fired boilers within the timeframes specified in paragraphs (d)(2) and (3) of

this section, but in the interim period (prior to closure of the coal-fired boiler), the facility must continue to use the CCR unit due to the absence of alternative capacity. For wastewaters capacity means the capacity of impoundments, tanks, and other units to manage daily flows currently handled by the unit closing pursuant to § 257.101(a) or (b)(1). To qualify under this paragraph (d)(1), the owner or operator of the CCR unit must document that all of the following conditions have been met for each wastestream that will continue to be received by the CCR unit:

(i) No alternative capacity is available. An increase in costs or the inconvenience of existing capacity is not sufficient to support qualification under this section.

(ii) The owner or operator must certify that the facility is located in or regularly provides the majority of generated electricity to one of the following three North American Electric Reliability Corporation regions and sub-regions: The Midcontinent Independent System Operator, the Southeastern Electric Reliability Council-East, and/or the Southeastern Electric Reliability Council-North.

(iii) The owner or operator must remain in compliance with all other requirements of this subpart, including the requirement to conduct any necessary corrective action; and

(iv) The owner or operator must prepare an annual progress report documenting the continued lack of alternative capacity and the progress towards the closure of the coal-fired boiler.

(2) For a CCR surface impoundment that is 40 acres or smaller, the coal-fired boiler must cease operation and the CCR surface impoundment must have completed closure no later than October 17, 2023.

(3) For a CCR surface impoundment that is larger than 40 acres, the coal-fired boiler must cease operation, and the CCR surface impoundment must complete closure no later than October 17, 2028.

* * * * *

14. Section 257.104 is amended by revising paragraph (c) to read as follows:

**§ 257.104 Post-closure care requirements.**

* * * * *

(c) *Post-closure care period.* (1) Except as provided by paragraphs (c)(2) and (3) of this section, the owner or operator of the CCR unit must conduct post-closure care for 30 years.

(2) If at the end of the post-closure care period the owner or operator of the CCR unit is operating under assessment monitoring in accordance with § 257.95, the owner or operator must continue to conduct post-closure care until the owner or operator returns to detection monitoring in accordance with § 257.95.

(3)(i) The Director of a participating state may establish an alternate post-closure period upon a determination that the alternate period is sufficient to protect human health and the environment.

(ii) To reduce the post closure care period, the Director must ensure that the post-closure care period is long enough to establish settlement behavior and to detect to wear-in defects in the cover system. At a minimum, the Director must consider the type of cover placed on the unit (e.g., geosynthetic clay liner) and the placement of the groundwater monitoring wells with respect to the waste management units and the groundwater table.

(iii) A determination that a reduced post-closure care period is warranted does not affect the obligation to comply with paragraph (b) of this section.

*  *  *  *  *

15. Section 257.105 is amended by adding paragraphs (h)(14) through (h)(16) and paragraph (i)(14) to read as follows:

**§ 257.105 Recordkeeping requirements.**

*  *  *  *  *

(h)  *  *  *

(14) The demonstration, including long-term performance data, supporting the suspension of groundwater monitoring requirements as required by § 257.90(g).

(15) The notification of discovery of a non-groundwater release as required by § 257.99(c)(1).

(16) The report documenting the completion of the corrective action as required by § 257.99(c)(2).

(i)  *  *  *

(14) The demonstration, including long-term performance data supporting the reduced post-closure care period as required by § 257.104(c)(3).

*  *  *  *  *

16. Section 257.106 is amended by adding paragraphs (h)(11) through (h)(13) and paragraph (i)(14) to read as follows:

**§ 257.106 Notification requirements.**

*  *  *  *  *

(h)  *  *  *

(11) Provide the demonstration supporting the suspension of groundwater monitoring requirements specified under § 257.105(h)(14).

(12) Provide notification of discovery of a non-groundwater release specified under § 257.105(h)(15).

(13) Provide notification of the availability of the report documenting the completion of the corrective action specified under § 257.105(h)(16).

(i) * * *

(14) Provide the demonstration supporting the reduced post-closure care period specified under § 257.105(i)(14).

* * * * *

17. Section 257.107 is amended by adding paragraphs (h)(11) through (h)(13) and adding paragraph (i)(14) to read as follows:

**§ 257.107 Publicly accessible Internet site requirements.**

* * * * *

(h) * * *

(11) The demonstration supporting the suspension of groundwater monitoring requirements specified under § 257.105(h)(14).

(12) The notification of discovery of a non-groundwater release specified under § 257.105(h)(15).

(13) The report documenting the completion of the corrective action specified under § 257.105(h)(16).

(i) * * *

(14) The demonstration supporting the reduced post-closure care period specified under § 257.105(i)(14).

* * * * *

18. Revise Appendix IV to part 257 to read as follows:

APPENDIX IV TO PART 257—CONSTITUENTS FOR ASSESSMENT MONITORING

| **Common name** [1] |
|---|
| Antimony |
| Arsenic |
| Barium |
| Beryllium |
| Boron |
| Cadmium |
| Chromium |
| Cobalt |
| Fluoride |
| Lead |
| Lithium |
| Mercury |
| Molybdenum |
| Selenium |
| Thallium |
| Radium 226 and 228 combined |

[1] Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals

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