

## **MEMORANDUM**

**DATE:** October 8, 2020

**SUBJECT:** Comments Received during Executive Order 12866 Interagency Review of the  
CCR Part B Alternate Liner Demonstration Response to Comments Document

**FROM:** Michelle Long, U.S. EPA, Office of Resource Conservation and Recovery

**TO:** EPA Docket No. EPA-HQ-OLEM-2019-0173

The purpose of this memorandum is to document changes made to the CCR Part B final rule on the Alternate Liner Demonstration Response to Comments (RTC) document in response to the Office of Management and Budget (OMB) comments or recommendations.

EPA submitted the CCR Part B final rulemaking and certain supporting information such as the RTC document to OMB for interagency review on September 3, 2020. OMB concluded its review of the CCR Part B rulemaking on October 8, 2020. Regarding the RTC document, EPA provided OMB individual chapters of the RTC document on a rolling basis during this review period. EPA received no comments or recommendations from OMB on any of the RTC chapters. However, EPA revised several chapters during this review period. These EPA-initiated revisions are documented in the attachment to this memorandum.

Attachment

## Table of Contents

1.0 General Comments on Alternate Liner Demonstration Provision.....	6
1.1 General Support .....	6
1.2 General Opposition .....	11
Chapter 2 Other Comments/Out of Scope .....	33
Chapter 3 Factual Basis for the Rule .....	40
3.1 Existing Record.....	40
3.1.1 Existing Risk Record and Industry Reports are Insufficient .....	40
3.1.2 EPRI Comments on EPRI Report.....	63
3.2 Consistency of Rule with USWAG Decision and RCRA 4004(a) .....	71
3.2.1 Rule is Consistent .....	71
3.2.2 Rule is Not Consistent .....	78
Chapter 4 State Implementation Comments/Issues .....	91
Chapter 5 Site-Specific Evidence/Examples .....	95
5.1 Discussion of Specific Units.....	95
5.1.1 Industry Comments on Specific Impoundments .....	95
5.1.2 Environmental Group Comments on Specific Impoundments Outside of Part B Record .....	105
Chapter 6 Timing Comments.....	107
6.1 Effective Date of Final Rule .....	110
6.2 Deadline for Submission of Application.....	111
6.3 Deadline for Submission of Demonstration.....	116
6.4 Timeline for EPA Review of Demonstrations .....	119
6.5 Request for Clarification on Deadline Extension Requirements due to Analytical Limitations .....	119
6.6 Deadline Tolling Linked to Application/Demonstration Process.....	120
Chapter 7 Comments on Language within the proposal .....	126
7.1 Applicability of Rule to Multi-Unit Systems.....	126
7.2 "Has or Will Not" Standard in Application .....	127
7.3 Clarification on Language about Site Hydrogeology .....	132
7.4 Proposed Edits to Language for Clarity or Consistency .....	133

7.5 Potential Inconsistencies Between Preamble and Regulatory Text.....	135
7.6 Typographic Corrections .....	137
Chapter 8 Application Requirements.....	142
8.1 General Comments.....	142
8.1.1 General Agreement with Application Provisions .....	142
8.1.2 Request to Incorporate Information by Reference .....	143
8.2 Application Requirements .....	144
8.2.1 General Questions on what Constitutes “Complete” Application.....	144
8.2.2 Specific Comments on Proposed Requirements.....	147
8.2.3 Request for Additional Requirements .....	150
8.2.4 Additional Transport Pathways .....	152
8.3 Location Restrictions comments.....	153
8.3.1 Add Location Restriction: Floodplains.....	153
8.3.2 Request to Allow Application Despite not Meeting Location Restriction.....	154
Chapter 9 Demonstration Step.....	156
9.1 General Comments.....	156
9.1.1 General Requests for Greater Clarity/Flexibility.....	156
9.1.2 Qualifications for Demonstration Certification.....	157
9.2 Characterization of Site Hydrogeology .....	158
9.2.1 Adequate Site Characterization Not Possible .....	158
9.2.2 Comments on Required Measurements at Existing Wells .....	160
9.2.3 Request for Greater Flexibility in Sample Location.....	160
9.2.4 Request for Greater Flexibility in Sample Methods.....	171
9.2.5 Comments on Site Conceptual Model.....	173
9.3 Characterization of Liner Leakage and Potential for Releases.....	173
9.3.1 Sample Collection and Analysis.....	173
9.3.2 Comments Relevant to Permeant Liquid Used.....	176
9.3.3 Comments Relevant to Thixotropic Effects .....	177
9.3.4 Comments Relevant to Test Termination Criteria.....	178
9.4 Application of Models to Demonstrate Protectiveness.....	180
9.4.1 Need to Account for Relevant Parameters .....	180
9.4.2 Use of Groundwater Protection Standards at Unit Boundary.....	181

9.4.3 Risks from Constituents Outside of Appendix IV .....	182
9.4.4 Use of EPACMTP is Not Appropriate .....	184
9.5 Additional Lines of Evidence To Consider .....	186
9.5.1 Presence of a Geomembrane Liner.....	186
9.5.2 Previous Certification .....	188
9.5.3 Planned Closure Practices .....	189
9.5.4 Analysis of Groundwater Chemistry .....	190
9.5.5 No Migration Demonstration.....	191
Chapter 10 Review Process .....	193
10.1 Public Participation During Finalization of Part B Rule .....	193
10.2 Resources needed to review submissions by EPA and Participating States .....	195
10.3 Disqualification during Application Process .....	198
10.4 Opportunity for Input on Approval/Rejection Decisions.....	199
10.4.1 Pre-submittal Meetings Between Applicants and EPA .....	199
10.4.2 Ability to Provide Additional Information after Deadlines.....	200
10.4.3 Public Comment .....	205
10.4.4 Ability for Facility to Respond to Public Comment or Amend Demonstration .....	206
10.5 Other Comments on Compliance Requirements.....	208
Chapter 11 Documentation Required to Demonstrate Continued Compliance after Approval..	209
11.1 Need for Periodic Recertification .....	209
11.1.1 One-Time Certification is Appropriate.....	209
11.1.2 Facilities Should Periodically Recertify .....	211
11.2 Method to Determine Ongoing Compliance.....	212
11.2.1 Use of Groundwater Monitoring Not Appropriate to Determine Compliance.....	212
11.2.2 Use of Trend Analysis is Not Appropriate .....	213
11.3 Other Comments .....	215
11.3.1 Facilities Should be Allowed to Conduct Alternate Source Demonstration .....	215
11.3.2 Facilities Should Not be Granted Additional Time to Attempt Repairs.....	217
Chapter 12 Alternative Closure Availability for Facilities with Denied Application or Demonstration.....	218
12.1 Deadline Tolling of Seeking Alternative Capacity During Application/Demonstration Process .....	218

12.2 Deadline Tolling for § 257.103 Alternative Closure Deadlines for Facilities With Denied Applications/Demonstrations.....	221
Chapter 13 Economic Comments on the RIA for the Alternative Liner Provision .....	229
13.1 RIA Costs Too Low, Actual Costs will be Higher .....	230
13.2 RIA Costs Too High, Actual Costs will be Lower .....	231
13.3 RIA Benefits Too Low, Actual Benefits will be Higher .....	231
13.4 RIA Benefits Too High, Actual Benefits will be Lower .....	231
14.0 Risk Comments on the RIA for the Alternative Liner Provision.....	235
14.1 RIA Risk Modeling Too Low, Actual Risks will be Higher (Lower Benefits).....	235

## Response to Comments

### 1.0 General Comments on Alternate Liner Demonstration Provision

#### 1.1 General Support

**Commenter Affiliation:** Arizona Department of Environmental Quality (ADEQ)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0042

**Excerpt ID:** 58689

**Comment:** Additionally, ADEQ has found that leaving functioning alternative solutions in place can not only protect the environment, but also provide economic and social benefits as well. Without an ability to propose alternative or equivalent liners through demonstration, some CCR facilities would be forced to abandon expensive infrastructure that functions as well or better than CCR liner criteria. Implicated facilities may also have to inundate and disturb new acreage that was previously un-impacted in order to create an impoundment with a compliant liner, oftentimes at the expense of the rate payer. In conclusion, the letter stated that a CCR rule that does not take the aforementioned factors into account would be needlessly limiting and inappropriate in protecting human health and the environment. With the publishing of this proposed rule, ADEQ's requests have largely been answered. We thank you for that. ADEQ supports the proposed rules.

**Response:** EPA agrees with these comments in support of this action. Specific comments are addressed elsewhere in this document or in Unit III of the preamble of the final rule. That said, cost cannot be a consideration for facilities choosing to pursue an alternate source demonstration under RCRA.

**Commenter Name:** Paul Pike

**Commenter Affiliation:** Ameren

**Comment Number:** EPA-HQ-OLEM-2019-0173-0117

**Excerpt ID:** 59022

**Comment:** AMO strongly supports the proposed process for making an alternative liner demonstration.

**Commenter Affiliation:** American Coal Council (ACC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0088

**Excerpt ID:** 58892

**Comment:** ACC supports EPA's position regarding alternate liners, the two-step process for making an alternative liner demonstration with site-specific information, and a one-time approach for the alternative liner demonstration, with our additional comments below.

**Comment:** Step two in the process would require submission of information for a facility containing two lines of evidence – characterization of site hydrogeology and potential for

infiltration. EPA has recognized the need for flexibility, including because the site-specific data and complexity of analysis for a demonstration will vary with the size of the facility, whether there is an engineered liner, and the diversity of site geology. AAC supports this flexibility. Additionally, since no two impoundment facilities are the same, rigid regulatory language or strict criteria or requirements for the development of alternative liner demonstrations should be avoided.

**Commenter Name:** Greg Snellen

**Commenter Affiliation:** Missouri Department of Natural Resources

**Comment Number:** EPA-HQ-OLEM-2019-0173-0093

**Page(s):** 2

**Excerpt ID:** 58915

**Comment:** Section IV.A. Alternate Liner Demonstration, p. 12459: “In order for an unlined surface impoundment to continue to operate, EPA is proposing that the owner or operator demonstrate that continued operation of the unit would pose no reasonable probability of adverse effects to human health or the environment in the future. This would require that, at a minimum, the owner or operator demonstrate that the surface impoundment has not and will not result in groundwater concentrations above relevant GWPS at the unit boundary (health-based or background, whichever is higher).”

Comment: The Department supports this language, which clarifies that risk-based decision making is appropriate, consistent with other Resource Conservation and Recovery Act (RCRA) programs such as 40 C.F.R. Part 258.

**Commenter Affiliation:** America’s Power

**Comment Number:** EPA-HQ-OLEM-2019-0173-0090

**Comment:** America’s Power supports EPA’s proposal to establish an alternative liner demonstration mechanism that will allow for the continued operation of those unlined CCR surface impoundments that do not pose an unreasonable risk to human health or the environment. Notably, the USWAG decision did not say every unlined impoundment poses such risks and must close. Rather, the court left open the possibility that owners and operators may demonstrate that their unlined impoundments can satisfy the RCRA Subtitle D standard for protecting human health and the environment due to site-specific characteristics.<sup>6</sup>

Evidence now shows that certain unlined CCR surface impoundments can operate safely due to the site-specific characteristics of alternate liner systems and therefore should not be forced to close simply because they have not installed a double-liner composite system meeting the specific requirements imposed under the CCR rule. Notable examples identified in the rulemaking record include coalfueled EGUs located in Arizona, North Dakota, Michigan, and Louisiana. In the case of these coal-fueled units, the evidence in the record clearly indicates that surface impoundments employing alternate liner systems with naturally low permeability clays and other site-specific characteristics can provide the same or better level of protection from potential migration of contaminants than a composite liner system meeting the requirements of the CCR rule.

These and other surface impoundments at coal-fueled EGUs should not be forced to close if they have in place an alternate liner system (which accounts for the impermeability of the underlying soils and other design features) that can meet the performance levels of the CCR rule's composite liner system. Such an approach will assure the protection of human health and the environment, while also avoiding the extremely costly closure requirements for some coal-fueled EGUs – costs that could force the premature retirement of additional coal-fueled generating capacity.

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Comment:** AEPCO commends EPA's decision to create a process for consideration of CCR impoundment liners that are sufficiently protective of human health and the environment. The current CCR Rule one-size-fits-all approach ignores liners, such as the one at Apache Station, that meet the RCRA Subtitle D Protectiveness Standard, the relevant legal standard for the CCR Rule.

**Commenter Affiliation:** Arizona Department of Environmental Quality (ADEQ)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0042

**Excerpt ID:** 58699

**Comment:** Again, ADEQ supports the "Alternate Demonstration for Unlined Surface Impoundments" proposed rule as a positive addition to the regulation of CCR facilities.

**Comment:** AEPCO commends EPA's decision to create a process for consideration of CCR impoundment liners that are sufficiently protective of human health and the environment. The current CCR Rule one-size-fits-all approach ignores liners, such as the one at Apache Station, that meet the RCRA Subtitle D Protectiveness Standard, the relevant legal standard for the CCR Rule.

**Commenter Affiliation:** Berkshire Hathaway Energy Company

**Comment Number:** EPA-HQ-OLEM-2019-0173-0085

**Excerpt ID:** 58864

**Comment:** EPA appropriately provided procedures that allow facilities to demonstrate that continued operation of individual surface impoundments with an alternate liner can still be protective of human health and the environment. EPA's proposed provisions for a site-specific alternate liner demonstration process to validate that the design of a particular impoundment is equivalent to and meets the requirements of a CCR composite liner or alternative composite liner system is appropriate. Berkshire Hathaway Energy directs EPA's attention to comments submitted by the Utility Solid Waste Activities Group (USWAG), of which Berkshire Hathaway Energy is a member. USWAG identifies several modest changes to the alternative liner demonstration provisions which, if finalized, would improve the implementation of the provisions



**Commenter Name:** Bill Matthews  
**Commenter Affiliation:** Cleco Corporate Holdings LLC  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0078  
**Excerpt ID:** 58777

**Comment:** Cleco supports EPA’s creation of a liner demonstration rule as an avenue for unlined surface impoundments (including clay-lined surface impoundments) to continue operating.

**Comment:** Cleco supports EPA providing owners/operators the opportunity to demonstrate that their claylined surface impoundments are at least as protective—and in Cleco’s case even more protective—than the liners the CCR rule requires

**Commenter Name:** Kent Mayo, Baker Botts L.L.P.  
**Commenter Affiliation:** Cross-Cutting Issues Group (CCIG)  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0098  
**Excerpt ID:** 58968

**Comment:** CCIG supports EPA’s proposal to allow the continued operation of an individual unlined surface impoundment if the facility demonstrates that the impoundment poses no reasonable probability of adverse effects on human health or the environment.

**Commenter Affiliation:** Luminant Generation Company LLC et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0097  
**Excerpt ID:** 58952

**Comment:** The Companies support EPA’s proposed alternate liner demonstration process, which allows facilities to seek approval from EPA or a Participating State Director to continue to operate “unlined” CCR surface impoundments upon making a demonstration that such units “pose no reasonable probability of adverse effects on human health or the environment

**Commenter Name:** Tawny Bridgeford  
**Commenter Affiliation:** National Mining Association (NMA)  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0095  
**Excerpt ID:** 58927

**Comment:** Consequently, NMA supports the proposed mechanism for allowing facilities to continue operating certain unlined CCR surface impoundments that do not pose a risk to human health or the environment.

**Commenter Affiliation:** Salt River Project Agricultural Improvement and Power District (SRP)  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0087  
**Excerpt ID:** 58880

**Comment:** SRP supports a mechanism for allowing continued operation of unlined impoundments with natural geologic liners when it can be demonstrated the natural liners are as protective of the environment as liner systems required for new CCR surface impoundments

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Excerpt ID:** 58833

**Comment:** This Proposal is both appropriate and necessary in light of the USWAG decision. Without the ability to make an alternative liner demonstration, qualifying facilities will be forced to needlessly spend money and resources to close impoundments that pose “no reasonable probability of adverse effects on health or the environment.”

**Comment:** These units, even though considered “unlined” under the CCR rule, should not be forced to close if they can demonstrate that the underlying soils and/or alternative liner system operates as or more effectively than the CCR rule’s composite liner system. But that is just what will happen under the current rule, as it does not allow for this type of site-specific evaluation and instead requires all unlined units to close without regard to site-specific conditions.

**Comment:** EPA is proposing a two-step process to allow facilities to demonstrate that their unlined impoundments can operate safely. First, EPA requires facilities to submit an initial package of information that will enable the Agency to identify units that are not currently impacting groundwater. Only those units meeting this standard may proceed to the second step, where additional detailed information and data is developed and submitted to support a final determination that the unit is performing as well (or better than) a composite liner system.

USWAG generally supports this two-step process (with certain modifications discussed in Section IV.D below) and believes it is an appropriate mechanism for addressing the continued operation of unlined impoundments that are not adversely impacting groundwater. As noted above, timing of a final Part B rule is critical because without an alternative liner demonstration, these units needlessly will be required to close. The proposed two-step process both addresses these timing concerns and meets RCRA’s Subtitle D protectiveness standard by allowing EPA to quickly identify those impoundments that do not pose an unreasonable risk of adverse impacts to human health and the environment in the near term and allows only those units to remain open during the pendency of the alternative liner demonstration review.

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Excerpt ID:** 58703

**Comment:**

The case-by-case approach to allow certain impoundments to continue operating based on the unique characteristics of an impoundment and site setting is particularly applicable to the bottom ash pond at Xcel Energy’s Comanche Station located in Pueblo, Colorado. Comanche Station sits on the western edge of the Great Plains in high desert terrain in southern Colorado. The geology of the area consists of a relatively thin colluvial layer underlain by a massive low-permeability shale bedrock formation (the Pierre Shale). The colluvium at the site contains discontinuous perched lenses of poor-quality water that do not meet the definition of an aquifer as found in the CCR rule. Groundwater travel times in the Pierre Shale are extremely slow, and

the uppermost aquifer (the Dakota Sandstone) is located beneath the shale at a depth of 1,500 feet. The details of the site and this impoundment are presented in ATTACHMENT 1 and demonstrate that there is no reasonable probability of adverse effects on the health or the environment from continued operation of this impoundment.

As referenced above and discussed in ATTACHMENT 1, we believe that we have made this demonstration for the Comanche bottom ash pond through documentation already in our operating record and on our CCR website. Additionally, the Colorado Department of Public Health and Environment (CDPHE), has concurred with this demonstration, and has classified this impoundment as having ‘...no reasonable potential to exceed Basic Standards for Groundwater at the point of compliance...’. We agree with the rule as proposed which allows for demonstration of alternate liner equivalency based on unique hydrogeologic conditions.

**Response to the above comments:** EPA agrees with these comments in support of this action.

## 1.2 General Opposition

**Commenter Affiliation:** Attorney General of Maryland et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0101

**Excerpt ID:** 58987

**Comment:** In multiple respects, the Part B Proposal is “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 5 U.S.C. § 706(2)(A). EPA’s proposal to allow certain inadequately lined impoundments to avoid closure is inconsistent with RCRA and flouts the risks of allowing their continued operation

**Response:** EPA disagrees that the Part B rule is “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” The Agency provided a rationale of why EPA is finalizing these amendments to the regulations in Unit III.A of the final rule.

**Commenter Affiliation:** Attorney General of Maryland et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0101

**Excerpt ID:** 58995

**Comment:** The proposed exception does not even respond to any real need. EPA states that it “believes that it is likely only a small fraction of non-composite lined surface impoundments currently in operation will be able to apply successfully” under the proposed exception. 85 Fed. Reg. at 12,459. That few impoundments are expected to qualify undermines any claim that the exception is necessary, and highlights that the potential for abuse outweighs any theoretical benefit.

And the potential for abuse is significant. If finalized, the proposal would give EPA and state agencies considerable discretion to authorize the continued operation of clay-lined impoundments.

**Response:** The Agency provided a rationale of why EPA is finalizing these amendments to the regulations in Unit III of the final rule.

Several facilities submitted reports since finalization of the 2015 CCR rule that provided valuable information about the characteristics of impoundments anticipated to perform equivalent to the liner system required by the 2015 CCR Rule, these reports generally did not include the type or specificity of data needed to support conclusions about individual impoundments. Several facilities commented on the proposed rule with site-specific characteristics for EPA to consider when developing the final rule, and showing their interest in applying for an alternate liner demonstration to allow them to continue operating the CCR surface impoundment after they demonstrate they meet all the requirements of § 257.71(d).

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0112

**Excerpt ID:** 59010

**Comment:** In 2015 the Coal Ash Rule prohibited dumping additional toxic waste in ponds that are required to close because they are either leaking hazardous chemicals, are structurally unstable, or are located in groundwater, wetlands, seismic zones, fault areas, and unstable areas.

In 2018 a federal court order REQUIRED closure of ALL unlined coal ash ponds. Is your agency no longer required to follow federal court rulings?

**Response:** EPA disagrees that allowing CCR surface impoundments that have obtained an alternate liner demonstration to continue operation is in violation of the *USWAG* decision for the reasons discussed in Unit III.A of the final rule preamble. The Agency also provided an extensive factual rationale for finalizing these amendments to the regulations in Unit III of the final rule.

**Commenter Affiliation:** Citizen

**Comment Number:** EPA-HQ-OLEM-2019-0173-0166

**Excerpt ID:** 59147

**Comment:** I oppose this proposal because: Many coal ash pits have given way and the debris has run into towns and waterways uncontrolled. You must keep the 2015 Rule in effect to protect our waterways and people's lives!! Please do this. It is the right thing. It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Response:** The requirements from the 2015 CCR rule the commenter referenced remain in place and implementation continues on schedule as intended. This includes the main protections provided in the rule, such as structural stability, groundwater monitoring, and cleanup requirements. The majority of surface impoundments and large number of landfills are on the path to ceasing receipt of waste and closure. Nothing is changing that.

The Agency provided a rationale of why EPA is finalizing these amendments to the regulations in Unit III of the final rule.

**Commenter Name:** Jonathan Levenshus, Sierra Club, Beyond Coal Campaign

**Commenter Affiliation:** Sierra Club

**Comment Number:** EPA-HQ-OLEM-2019-0173-0048

**Excerpt ID:** 58739

**Comment:** The Part B Proposal contains two very dangerous provisions.

First, the proposal allows some unlined coal ash ponds to operate indefinitely

**Response:** The Agency provided a rationale of why EPA is finalizing these amendments to the regulations in Unit III of the final rule. There are procedures for approval and denial of the alternate liner demonstration in Unit III.D of the final rule.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173

**Excerpt ID:** 58745

**Comment:** I oppose this proposal because: It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Response:** This is a mass mailer comment about the alternate liner demonstration, submitted by many commenters as part of a campaign. EPA is responding to all of those comments here.

EPA disagrees with the commenter that the final rule will allow utilities to continue to dispose of coal ash at sites that are inadequately lined. The Agency provided an extensive factual rationale that explains the reasons why EPA is finalizing these amendments to the regulations in Unit III of the final rule.

**Commenter Affiliation:** Black Warrior Riverkeeper

**Comment Number:** EPA-HQ-OLEM-2019-0173-0045

**Excerpt ID:** 58718

**Comment:** The revisions proposed by EPA attempt an illegal end-run around the critical closure requirements outlined by the 2015 Rule. They could allow operators like Alabama Power to continue to dump millions of tons of toxic waste in unlined, leaking ponds near our waterways, including the pits in our watershed which should be closed under the 2015 Rule (because they are in violation of groundwater protection standards).

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Excerpt ID:** 59171

**Comment:** EPA's Part B Proposal would create a new loophole that would allow an undefined number of dangerous, unlined impoundments to attempt to make an "alternate liner demonstration" to qualify as lined impoundments under the CCR Rule. This would allow these unlined impoundments to continue to operate indefinitely, instead of closing, and would be contrary to the D.C. Circuit's decision in USWAG and the RCRA protectiveness standard.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0193  
**Page(s):** 44  
**Excerpt ID:** 59370

**Comment:** Based on the above, there is no reason for EPA to provide this “flexibility” when it is clear that there is no chance that any operator can, in good faith, provide the kinds of technical assurances that EPA expects before such flexibility can be granted. If this is allowed, it will simply encourage technical short-cuts in required demonstrations by operators and their consultants, hoping to obtain approvals from under-resourced federal and state agencies. The real-world outcome of such approvals, as well as from the inevitable delay in closing clay-lined impoundments during the approval process, will be additional adverse impacts on groundwater

**Commenter Name:**  
**Commenter Affiliation:** Unknown  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0081  
**Page(s):**  
**Excerpt ID:** 58832

**Comment:** Protecting our water supplies from harmful pollution is essential. That is why I urge the EPA to stop its proposed rollbacks the 2015 Coal Ash Rule. Protecting the health of Latinos and all Americans is one of the responsibilities of the EPA, and therefore environmental regulation should be strengthened not diminished. If this rule were to pass, it would more dumping of toxic coal ash into our waters. It also continues the struggle so many Americans face every day harmful pollution. Administrator Wheeler and EPA officials mustn't overlook the wellness of the people they are charged to serve.

**Commenter Affiliation:** Hoosier Environmental Council (HEC)  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0119  
**Excerpt ID:** 59031

**Comment:** HEC opposes the proposed revisions to the 2015 coal ash rule that allow an alternate demonstration for unlined coal ash impoundments and that allow use of CCR in units subject to closure for cause.

**Commenter Name:** Self  
**Commenter Affiliation:** Humanity  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0073  
**Excerpt ID:** 58765

**Comment:** Do not eliminate the rule that leaking unlined ponds install linings or close.

**Commenter Affiliation:** Missouri Chapter of the Sierra Club and Labadie Environmental Organization  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0086  
**Excerpt ID:** 58870

**Comment:** Sierra Club and LEO are shocked with EPA’s current proposal and object to the proposed amendments. Despite tremendous evidence that CCR units are leaking contaminants into the environment and endangering public health, EPA is now rushing to weaken the CCR Rule yet again. EPA acknowledges that over 70 percent of surface impoundments are leaking contaminants into groundwater. All surface impoundments in Missouri are considered unlined and are leaking into groundwater. Given the crystal clear evidence of significant impacts to groundwater in Missouri and across the country, EPA should rescind its proposal to both weaken liner requirements and allow large quantities of CCR to be placed in surface impoundments that would otherwise be closed. Further, EPA’s rapid-fire, piecemeal proposed rollbacks to existing CCR regulations—proposals that continue apace in the midst of a global pandemic—force the public to speculate on the potential outcomes of (and interplay among) varying proposed rollbacks that have not been finalized. This rush to rollback CCR regulations deprives the public, including the Sierra Club and LEO, of the opportunity to provide meaningful comments on matters that significantly impact human health and the environment since no one knows the outcome of previous proposals.

**Commenter Affiliation:** Missouri Chapter of the Sierra Club and Labadie Environmental Organization

**Comment Number:** EPA-HQ-OLEM-2019-0173-0086

**Excerpt ID:** 58871

**Comment:** EPA’s proposal to allow “alternative liner demonstrations” for existing CCR surface impoundments that are unlined, as defined by 40 C.F.R. § 257.71(a), puts public health and the environment at risk.

The CCR Rule requires that surface impoundments have a composite liner with a minimum of a 30-mil geomembrane liner and at least a two foot layer of compacted soil with a hydraulic conductivity of no more than  $1 \times 10^{-7}$  centimeters per second (cm/s). EPA seeks to allow “alternative liners,” primarily clay soil liners, that do not meet with this standard but have underlying soils that meet the  $1 \times 10^{-7}$  cm/s standard. This misguided approach extends the lifecycle of poorly constructed, leaking surface impoundments and, if enacted, will negatively impact human health and the environment.

~~**Commenter Name:**~~

**Commenter Affiliation:** Missouri Chapter of the Sierra Club and Labadie Environmental Organization

**Comment Number:** EPA-HQ-OLEM-2019-0173-0086

**Page(s):** 6

**Excerpt ID:** 58877

**Comment:** EPA’s proposed alternative liner provision is not sufficiently protective. As such, EPA should withdraw its proposal to permit “alternative liners” that rely on the specific conductivity of underlying soils rather than constructed composite liners that meet the requirements of the 2015 CCR Rule.

~~**Commenter Name:**~~

**Commenter Affiliation:** Missouri Chapter of the Sierra Club and Labadie Environmental

Organization

**Comment Number:** EPA-HQ-OLEM-2019-0173-0086

**Page(s):** 7

**Excerpt ID:** 58879

**Comment:** The proposed rule, if implemented, threatens harm to Missouri's residents and environment. Missouri's unique geology and hydrology, coupled with the fact that all surface impoundments in the State are unlined under the 2015 CCR Rule, puts Missouri's residents particularly at risk. EPA's "alternative liner" proposal is a misguided proposition to unduly delay closure of leaking, hazardous impoundments. EPA should withdraw its proposal for "alternative liners." Doing otherwise would put public health and the environment at further risk.

**Commenter Name:** Kathryn Lee

**Commenter Affiliation:** Sierra Club

**Comment Number:** EPA-HQ-OLEM-2019-0173-0103

**Excerpt ID:** 59004

**Comment:** The "Part B" proposal weakens critical protections established by the 2015 rules, allowing operators to continue to dump millions of tons of toxic waste in unlined, leaking pits -- including those currently required to close because they are leaking, unstable or located in unsafe locations.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0049

**Excerpt ID:** 58744

**Comment:** I urge you to drop the proposed rollbacks to the 2015 Coal Ash Rule. Instead of weakening these commonsense safeguards, EPA should strengthen them.

I oppose this proposal because: It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

-- It does nothing to address coal ash dumps at retired power plants, even though a federal court agreed with environmental groups that these sites pose the same risks to our health and water as active coal ash dumps, and should be regulated.

-- Communities around the country have been burdened with this toxic waste for too long.

Please abandon this reckless proposal and work swiftly to strengthen coal ash safeguards to protect our water and health.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0051

**Excerpt ID:** 58746

**Comment:** Please do not rollback the 2015 Coal Ash Rule. Regardless of political affiliations, regardless of industry influences, regardless of pressure to reduce regulations, our EPA has an inherent responsibility to do the best job possible protecting all Americans from environmental pollution that impacts health, welfare, quality of life, and local property values. Coal ash is a pollutant that has a variety of impacts upon our too many of our fellow citizens. Consequently, EPA should strengthen regulations through creative and science-based efforts to craft effective



regulations.

Regulations should not be gutted. We know from years of experience that doing so would result in:

1. continued dumping of toxic coal ash at sites that are inadequately lined or have even been scheduled for closure,

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0052

**Excerpt ID:** 58747

**Comment:** I urge you to drop the proposed rollbacks to the 2015 Coal Ash Rule. Instead of weakening these commonsense safeguards, EPA should strengthen them. Do you think that dumping coal ash in water that flows into all of our rivers and lakes is a good idea? That leaving coal ash in dumps that will leach into our water is a good idea? Making more money now is not a good idea. And it is absolutely wrong when the result is dirty water now and in the future. Water that you hopefully wouldn't give to anyone you know.

I oppose this proposal because: It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0055

**Excerpt ID:** 58750

**Comment:** I urge you to drop the proposed rollbacks to the 2015 Coal Ash Rule. Instead of weakening these commonsense safeguards, EPA should strengthen them. I remind you that the EPA is an agency which is funded by taxpayer dollars, and that your salary is part of that, along with your fellow employees of the American citizenry who work at the EPA. Your allegiance is and should be to the health and well-being of American citizens as well as the rest of the world who may be affected by our environmental decisions, for good or ill. Your allegiance is not and should not be to the interests of big businesses who seek their profits above the welfare of the living human beings who are the citizens of our country!

I oppose this proposal because: It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0058

**Excerpt ID:** 58753

**Comment:** Now that "Corporations are people too" it is clear that the government is working for big business rather than for average citizens. It appears to me that the government regards those of us who are working people who are concerned about public health and safety as being pesky irritants to the government's efforts to work for the financial interests big business. I am

extremely concerned regarding your proposed rollbacks to the 2015 Coal Ash Rule. Instead of weakening these commonsense safeguards, the EPA should be working to strengthen them.

I oppose this proposal for numerous reasons, some of which are as follows: It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0059

**Excerpt ID:** 58754

**Comment:** Dear Administrator Wheeler,

Coal ash has high concentrations of dangerous substances including heavy metals. We need to ensure that these pollutants never find their way back into the environment. I remember all too well ash spills in Appalachia and the impacts this has on drinking water and wildlife. With climate change increasing storm and hurricane intensity we need to be conservative in our approach.

For these reasons I urge you to drop the proposed rollbacks to the 2015 Coal Ash Rule. Instead of weakening these commonsense safeguards, EPA should strengthen them. We should never allow toxic coal ash at sites with weak or no lining and we need to do more to address coal ash at closed power plants.

I urge you to abandon this reckless proposal and instead strengthen coal ash safeguards to protect our water and health.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0060

**Excerpt ID:** 58755

**Comment:** The EPA has failed to protect communities from the dangers of coal ash dumps and ponds. Coal utilities -- sadly -- are not going to protect waterways and communities simply out of the goodness of their hearts. This requires government intervention. Your proposal to weaken coal ash protections, which are not robust enough to begin with, will enable further industrial pollution.

I oppose this proposal because: It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0071

**Excerpt ID:** 58763

**Comment:** Drop the proposed rollbacks to the 2015 Coal Ash Rule, please. You know the list of reasons that we and our children are protected by the existing rule. Don't screw it up, please.

I oppose this proposal because: It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0072

**Excerpt ID:** 58764

**Comment:** I urge you to drop the proposed rollbacks to the 2015 Coal Ash Rule. Instead of weakening these commonsense safeguards, EPA should strengthen them.

I oppose this proposal because: I have children, grandchildren and great-grandchildren and I would like them to have clean water and air, I would think that would be a basic right. We spent years cleaning the rivers and adding emission regulations to cars as in the 70s all the cities had heavy smog. You couldn't see the skyscrapers, that was when the emission regulations were put on cars and it cleared out, Trump has demanded that the car makers do not put emission controls on cars. California tried to have the emission control left on new cars but Trump killed that. Seems every thing Trump does is for fossil fuel companies but hurt humans and animals. What kind of president does stupid things that hurt the American people? Trump doesn't do anything unless there is something in it for him, so I assume he is getting a lot of money to bring back smog.

-- It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0075

**Excerpt ID:** 58767

**Comment:** Coal combustion residuals landfills and surface impoundments create a very serious danger of contaminating land and waterways in the event containment fails or liners leak. Therefore the very best systems and materials should be required before coal powered plants are authorized to operate in the United States. I don't support allowing such plants to use alternate materials that are less reliable. The highest possible standards must be mandated for inherently dangerous residuals such as coal ash.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0076

**Excerpt ID:** 58769

**Comment:** As a concerned citizen, I speak in opposition to the proposed alternative closure options, the proposal to permit use of alternate liners, and the proposal to permit the use of ash to cap ash pits.

**Commenter Affiliation:** Unknown  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0076  
**Excerpt ID:** 58775

**Comment:** No unlined pits should be allowed to continue to operate under any circumstances, and alternate liners should not be permitted for existing CCR surface impoundments.

**Commenter Affiliation:** Unknown  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0105  
**Excerpt ID:** 59007

**Comment:** We cannot rely on the utilities and coal ash pond operators to set their own standards or decide if they want to clean up their pollution. This proposal to allow dangerous, leaky unlined ponds to continue operating and even allowing reopening of pits that were scheduled to close is reckless, prioritizes industry profits over our public health, and should be abandoned.

**Commenter Affiliation:** Unknown  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0106  
**Excerpt ID:** 59008

**Comment:** I oppose this proposal because: Coal ash ponds pollute water and soil for miles and miles. They must be lined to minimize pollution. Some coal ash ponds have been selected to be eliminated due to pollution yet the EPA changes are allowing them to continue to function. Again that will severely ruin water and soil and make the entire area unsafe for animals and people.

**Commenter Affiliation:** Unknown  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0114  
**Excerpt ID:** 59012

**Comment:** "Part B," published March 3, 2020, allows power plants to dump millions of tons of toxic waste in unlined, leaking pits. Some pits are currently required to close due to leaking, instability or dangerous siting. This proposal violates the 2018 order of the U.S. Court of Appeals requiring EPA to strengthen the 2015 rule and close unlined ash ponds.

Some unlined pits could continue to operate indefinitely.

**Commenter Affiliation:** Unknown  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0114  
**Excerpt ID:** 59014

**Comment:** Instead of allowing toxic ponds to keep operating, we should close them as quickly as possible to protect people and the environment.

**Commenter Affiliation:** Unknown  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0135  
**Excerpt ID:** 59116

**Comment:** I oppose this proposal because: The world I wish to leave to my children and grandchildren (and beyond) will be MUCH WORSE if you do not protect water (on which all life depends) NOW! What are you thinking?? It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0141  
**Excerpt ID:** 59122

**Comment:** I oppose this proposal because:  
This is a reversal purely for corporate profits; negating all previous advances made which will only add to the destruction of the biosphere and be a detriment to human health..  
-- It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0144  
**Excerpt ID:** 59125

**Comment:** I oppose this proposal because inactive and active sites both pose serious dangers to the environment. Right now, we are threatened by Coronavirus, and are especially concerned about our health. Please don't create NEW threats -- there are already enough!

-- It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0146  
**Excerpt ID:** 59127

**Comment:** I oppose this proposal because: there is no replacement for water, as well as air that will be contaminated by the utility companies. Please think with a larger perspective, away from the money angle towards human life.

-- It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0148  
**Excerpt ID:** 59129

**Comment:** I STRONGLY oppose this OUTRAGEOUSLY DANGEROUS, POLITICALLY-MOTIVATED, STUPID proposal because:

-- It will allow coal utilities to RECKLESSLY continue to dump LIFE-THREATENING toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0153

**Excerpt ID:** 59134

**Comment:** I oppose this proposal because the coal ash threatens our clear water supply and poses long and short term risks to humans and animals. The program will not go away by promulgation the proposed regulations as a final rule. Now is the time to fix it. Moreover, now is even more important because the remedial work will provide jobs at a time they are most needed.

-- It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0154

**Excerpt ID:** 59135

**Comment:** I urge you to drop the proposed rollbacks to the 2015 Coal Ash Rule. Instead of weakening these commonsense safeguards, EPA should strengthen them.

-- It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0158

**Excerpt ID:** 59139

**Comment:** I oppose this proposal because: It is not the right thing to do. Isn't EPA designed to Protect the American People. How can an agency designed to Protect our water and air allow polluters to continue their hazardous ways, putting many people at risk of losing their potable water source. Please, do the job the EPA was founded to do. Protect us.

-- It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0159

**Excerpt ID:** 59140

**Comment:** I oppose this proposal because: these rollbacks would endanger our water, as well the lives of plants and animals... including humans!

-- It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0162

**Excerpt ID:** 59143

**Comment:** I oppose this proposal because: The EPA should be strengthening these protections to help protect our water and our health. I really get upset when I hear that the people who are supposed to be looking out for us, end up looking out for the big corporations (fossil fuels, coal) etc. Our planet is already hurting and if you don't care about anything except big money then you shouldn't be working for me! It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0163

**Excerpt ID:** 59144

**Comment:** I oppose this proposal because: I DO NOT not want to see our land and water polluted by more toxic heavy metal and carcinogenic laden coal ash. Coal ash piles are notorious for polluting the land and water as well as increasing cases of asthma and lung cancer in poor communities near storage piles. Coal is a dying fuel and should be outlawed NOT given tax breaks. It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0164

**Excerpt ID:** 59145

**Comment:** I oppose this proposal because: It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure. Utility companies have the financial resources available to find responsible means to process coal ash into stable environmentally sound useful materials.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0165

**Excerpt ID:** 59146

**Comment:** I oppose this proposal because: It is destructive to the country, we don't need coal when there are cleaner ways to generate energy, and if you are informed you are well aware of them, just in case, solar and wind. Coal ash ponds have ruined towns and people who live near or down the hill from them, especially when they breach and flow down the mountain. Disgusting

stuff. It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0168

**Excerpt ID:** 59149

**Comment:** I oppose this proposal because: It makes absolutely NO SENSE to allow MORE pollution to enter our waterways where we get our drinking water. All of life on this planet NEEDS CLEAN WATER. Please, please, please stop the assault on common sense environmental laws that keep our World clean for everyone!!! It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0172

**Excerpt ID:** 59153

**Comment:** I oppose this proposal because polluting coal utilities have no more right or need to manage their waste irresponsibly than any other entity in the United States. Nor does EPA have a right to abrogate its responsibility to maintain the quality of our waterways. How disgraceful EPA has become !!!!! Please do your job on behalf of the people of this country! It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0173

**Excerpt ID:** 59154

**Comment:** I oppose this proposal because our water and air and THE MOST VITAL elements of survival for life on this planet. The EPA should be actively pursuing all methods of PREVENTING such activities that these rollbacks would allow. Please, let's continue to move forward in supporting and replenishing healthy environments for our families, friends, wildlife and all parts of our ecosystem, and NOT backward. Specifically: It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0176

**Excerpt ID:** 59156

**Comment:** I oppose this proposal because coal ash pollution is putting selenium, arsenic, and other heavy metals into our waterways. It is toxic to wildlife and people now and will be for generations. These metals don't break down - they don't go away. We owe our children, grandchildren, and their descendants a clean environment. We know what to do, let's do it. Clean up coal ash and keep it out of our water (including groundwater) and off our land. It will allow



coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0181

**Excerpt ID:** 59161

**Comment:** I oppose this proposal because: Its inhuman and inhumane to go against any and all people living in America to be subjected to action to cause death and great harm to any and all living animals and humans alike. It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0184

**Excerpt ID:** 59162

**Comment:** As a stakeholder, I vehemently oppose this proposed rule. It will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0186

**Excerpt ID:** 59164

**Comment:** As a concerned American citizen, I strongly urge the EPA to drop the proposed rollbacks to the 2015 Coal Ash Rule. Rather than weakening these commonsense safeguards, the rules should be strengthen. I oppose these rollback because they will allow coal utilities to continue to dump toxic coal ash at sites that are inadequately lined or have been scheduled for closure

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0190

**Excerpt ID:** 59169

**Comment:** We cannot rely on the utilities and coal ash pond operators to set their own standards or decide if they want to clean up their pollution. This proposal to allow dangerous, leaky unlined ponds to continue operating and even allowing reopening of pits that were scheduled to close is reckless, prioritizes industry profits over our public health, and should be abandoned.

**Commenter Name:** Angie Rosser

**Commenter Affiliation:** West Virginia Rivers Coalition (WV Rivers) et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0091

**Excerpt ID:** 58909

**Comment:** EPA 's proposal puts the public's health and well-being in jeopardy. EPA is proposing to allow facilities to submit an alternate liner demonstration that would allow for the

continued operation of individual unlined surface impoundments that can be demonstrated to pose no reasonable probability of adverse effects on human health or the environment. However; the demonstration of an effective alternative liner can be provided by the owner or operator of facility. This leads to the proverbial issue of “the fox guarding the hen house”.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0191

**Excerpt ID:** 59170

**Comment:** We cannot rely on the utilities and coal ash pond operators to set their own standards or decide if they want to clean up their pollution. This proposal to allow dangerous, leaky unlined ponds to continue operating and even allowing reopening of pits that were scheduled to close is reckless, prioritizes industry profits over our public health, and should be abandoned.

**Commenter Name:** Public Hearing Transcript from April 7, 2020

**Commenter Affiliation:** Citizen

**Comment Number:** EPA-HQ-OLEM-2019-0173-0031 (16)

**Comment:** According to the annual groundwater monitoring and corrective action reports, all seven facilities have found statistically significant increases in groundwater contaminants or previous impacts to surface water. Five of the facilities have unlined coal ash disposal ponds, and three of the facilities have detected groundwater pollutants that are above the State or Federal standards, including contaminants such as arsenic, barium, chloride, molybdenum, lithium, and radium 226 and 228. That puts the public's health at risk. This proposed rule would allow these facilities to continue to operate indefinitely.

**Commenter Name:** Public Hearing Transcript from April 7, 2020

**Commenter Affiliation:** Citizen

**Comment Number:** EPA-HQ-OLEM-2019-0173-0031 (20)

**Comment:** Environmental justice community members are clearly at greater risk of this rollback because the proposed Part B will allow many, many more years, unending, for coal ash sites to continue with millions more tons of coal ash placed at unlined locations

This Part B proposal will allow polluting coal ash pits to continue operating with tons and tons more toxic coal ash compounding the problems and pollution for generations to come.

**Commenter Name:** Public Hearing Transcript from April 7, 2020

**Commenter Affiliation:** Citizen

**Comment Number:** EPA-HQ-OLEM-2019-0173-0031 (39-40)

Your Part B proposal will expose more Americans to hazardous toxins and carcinogens that the EPA knows are toxic and lethal to humans, fish, and other wildlife. It would allow unlined coal ash ponds to operate and avoid closure, despite a 2018 Federal court order,

**Commenter Name:** Public Hearing Transcript from April 7, 2020

**Commenter Affiliation:** Citizen

**Comment Number:** EPA-HQ-OLEM-2019-0173-0031 (50)

Also, all coal ash dumps should be lined. Unlined should never be allowed. There must be strict regulations to make sure they're all placed above 100-year flood level so that we don't have any blowouts like we had on the Dan River.

**Commenter Name:** Public Hearing Transcript from April 7, 2020

**Commenter Affiliation:** Sierra Club

**Comment Number:** EPA-HQ-OLEM-2019-0173-0031 (101)

The Part B proposal contains two very dangerous provisions. First, the proposal allows some unlined coal ash ponds to operate indefinitely. Despite its 2018 Federal court order requiring closure of all unlined coal ash ponds due to the high risk of groundwater contamination posed by such toxic compounds, the Part B proposal will allow operators of unlined ponds to develop a, quote, "alternate liner demonstration," unquote, that will allow them to avoid closure.

Even though such pits have no actual liner, an operator could make a demonstration that the pit should be considered lined and, therefore, not be required to close.

**Commenter Name:** Public Hearing Transcript from April 7, 2020

**Commenter Affiliation:** Citizen

**Comment Number:** EPA-HQ-OLEM-2019-0173-0031 (115)

I would like to speak in opposition to the Part B alternative demonstration for unlined surface impoundments and continue with our 2015 regulations and not be lessening the impact of those at all.

**Commenter Name:** Public Hearing Transcript from April 7, 2020

**Commenter Affiliation:** Citizen

**Comment Number:** EPA-HQ-OLEM-2019-0173-0031 (173)

I understand based on reading your proposal that the companies to close coal ash ponds that are dangerous to the public, that these ponds will continue, that you will allow some unlined pits to continue to operate.

**Commenter Name:** Public Hearing Transcript from April 9, 2020

**Commenter Affiliation:** Hoosier Environmental Council

**Comment Number:** EPA-HQ-OLEM-2019-0173-0037 (52-57)

Next, I'd like to register opposition to the proposals for alternate liner and for the use of CCR in units subject to close for cause. The EPA is proposing to allow facilities to request approval to operate with an alternate liner based on the hydraulic conductivity to underlying soil. EPA is proposing that this alternate liner designation would be open to coal ash impoundments that are in compliance with all of the location restrictions and where there is no indication of groundwater impact.

In summary, the proposals to allow alternate liners in ash ponds and to allow the addition of ash to ponds that are closing for cause will lead to additional threats to human health and the environment in Indiana neighborhood elsewhere. I urge EPA to abandon this proposal.

**Commenter Name:** Public Hearing Transcript from April 9, 2020

**Commenter Affiliation:** Save Our Illinois Land

**Comment Number:** EPA-HQ-OLEM-2019-0173-0037 (86-87)

Rules for fake demonstration projects that allow unlined ponds to remain open for an unlimited period of time are just unacceptable gifts to the polluters at the expense of public health.

The EPA should be requiring companies to dig up coal ash dumped in unlined pits, clean up waters already polluted by coal ash, and strengthen standards against continued contamination from other coal ash dumps. If the EPA does not take strong action, harm to water resources will continue and get worse, and coal ash contamination will endanger aquatic ecosystems and the health of Americans for generations to come. Please do your job for which your organization was created.

**Commenter Name:** Public Hearing Transcript from April 9, 2020

**Commenter Affiliation:** Citizen

**Comment Number:** EPA-HQ-OLEM-2019-0173-0037 (92)

Despite a 2018 Federal court order requiring closure of unlined coal ash ponds, this proposal allows their indefinite operation. This does not protect people or the environment.

**Commenter Name:** Public Hearing Transcript from April 9, 2020

**Commenter Affiliation:** Citizen

**Comment Number:** EPA-HQ-OLEM-2019-0173-0037 (131-134)

I speak in opposition to the proposed alternative closure options, the proposal to permit use of alternate liners, and the proposal to permit the use of ash to cap ash pits.

No unlined pits should be allowed to continue to operate under any circumstances, and alternate liners should not be permitted for existing CCR surface impoundments.

**Commenter Name:** Public Hearing Transcript from April 7, 2020

**Commenter Affiliation:** Citizen

**Comment Number:** EPA-HQ-OLEM-2019-0173-0031 (75-76)

In 2018, a Federal court order required closure of all unlined coal ash ponds. Does the EPA no longer follow Federal court rulings? How can the citizens of these United States trust the EPA to protect us when they defy court rulings and propose to no longer allow public input? I really do not understand this proposal that has been placed by the Environmental Protection Agency.

**Commenter Name:** Public Hearing Transcript from April 7, 2020

**Commenter Affiliation:** Sierra Club

**Comment Number:** EPA-HQ-OLEM-2019-0173-0031 (101-103)

The Part B proposal contains two very dangerous provisions. First, the proposal allows some unlined coal ash ponds to operate indefinitely. Despite its 2018 Federal court order requiring

closure of all unlined coal ash ponds due to the high risk of groundwater contamination posed by such toxic compounds, the Part B proposal will allow operators of unlined ponds to develop a, quote, "alternate liner demonstration," unquote, that will allow them to avoid closure.

Finally, it's worth noting that the Part B proposal is inconsistent with the 2018 order of the U.S. Court of Appeals, which requires EPA to strengthen, not weaken its 2015 rule, and to close unlined coal ash ponds in unstable, high-risk areas, which jeopardize daily our nation's waters and catastrophic spills in unchecked toxic pollution.

**Commenter Name:** Public Hearing Transcript from April 9, 2020

**Commenter Affiliation:** SouthWings

**Comment Number:** EPA-HQ-OLEM-2019-0173-0037 (60)

Using restrictions on the lining of impoundments will lead to leaks, which will lead to groundwater and contamination, which will deteriorate health, and we know that because it has been clearly documented for several years. No one wants to drink poisoned water, and it's sad that the U.S. Government is still willing to put American lives at risk just to appease the coal industry. If you do accept these changes, you'll not be adhering to the standards in the Resource Conservation and Recovery Act, which requires you to ensure that there is no reasonable probability of that on health or the environment.

**Commenter Name:** Public Hearing Transcript from April 7, 2020

**Commenter Affiliation:** Citizen

**Comment Number:** EPA-HQ-OLEM-2019-0173-0031 (36)

Lining ponds with insufficient barrier between the land and the water allows the water to seep into the land. If our land is polluted, we will not be able to grow food to survive. This is simply a survival issue.

**Commenter Affiliation:** Faith in Place/ Clean Power Lake County

**Comment Number:** EPA-HQ-OLEM-2019-0173-0032

**Excerpt ID:** 58680

**Comment:** This is not the first time this agency has failed to allow direct community engagement. In January, the EPA violated the law by not holding even one in-person public hearing on this same proposal. The only means available to the public, myself included, to address concerns about the proposed coal ash rollbacks was a virtual public hearing. This limits participation to those with internet access.

NRG subsidiary Midwest Generation owns and operates the Waukegan Generating Station, on the shore of Lake Michigan. Originally built in 1923, the plant is one of the oldest in the country and remains the largest source of air and water pollution in Lake County.

In addition to two unlined ash ponds, the property has a large, unlined coal ash landfill immediately west of the ash ponds to which the coal ash rule does not apply. One of the wells that Midwest Generation has designated as upgradient, MW-09, is located within the footprint of the onsite ash landfill, and almost certainly shows contamination from the landfill.

Through contamination from the coal ash landfill and possibly the ash ponds, groundwater at the Waukegan site is unsafe, with dramatically elevated concentrations of multiple coal ash pollutants including arsenic, boron, chromium, lithium, molybdenum, and sulfate. Monitoring at the site has revealed extremely high concentrations of arsenic and chromium in one upgradient well, MW-14, which may be affected by coal ash and other sources of contamination. Arsenic levels in this well are hundreds of times greater than the groundwater standard, and chromium is up to 48 times above the standard. Other pollutants are directly related to coal ash contamination: boron, lithium, molybdenum, and sulfate, which all exceed safe levels by large margins.

Arsenic exceeds safe levels in groundwater monitoring wells by over two thousand times, boron is more than eleven times EPA's health threshold and more than sixteen times Illinois drinking water standard, and chromium exceeds safe levels by more than four hundred and eighty times. Lithium, molybdenum, and sulfate also exceed safe levels many times over.

Our community has been advocating for a just transition plan for the coal plant including proper removal of the ash from those two ponds as well as from the old, unregulated coal ash landfill at the site. This ash will continue to pollute Waukegan's groundwater and leech into Lake Michigan, the drinking water source for Chicago and many other cities and towns for centuries to come.

It is critical that the 2015 coal ash rules not be rolled back at all. This agency should be working towards making all rules stronger. This proposed rule would gut critical protections that were put in place to safeguard community members from exposure to carcinogens that do irreparable damage not only to our health but also our source of drinking water.

Communities across the nation rely on the protection of the EPA. Stand with the community and our wellbeing not with polluting industry. Our health must be considered when this agency is considering any proposal that weakens guidelines and standards.

Thank you for your time and I invite you to come to visit us in Waukegan to see firsthand not only coal ash but every toxic chemical that we live with on a daily basis. Would you swim in a body of water that has nuclear waste, coal ash, and several carcinogens?

**Commenter Name:** Elena Arrigo

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0033

**Excerpt ID:** 58681

**Comment:** Good morning, my name is Elena Arrigo. I'm a concerned citizen living in Evanston, IL, which is about 30 miles south of coal ash ponds located in Waukegan IL. I am here to speak in opposition to the EPA's proposal to weaken the 2015 coal ash rule safeguards. I appreciate the opportunity to comment, however I must share that I oppose the EPA's decision to continue with the hearing schedule during a national health emergency when so many people affected by the pandemic are unable to attend. I'd like to begin by noting that prior to the 2015 EPA Coal Ash Rule, there was no federal groundwater monitoring requirement. It was the 2015 rule that created the requirement for plants to do consistent, standardized groundwater monitoring. A report by the Environmental Integrity Project and Earthjustice found that among the coal plants with coal ash ponds that have been monitoring groundwater in compliance with the 2015 Coal Ash Rule, 92% found they had contaminated groundwater with toxic pollutants exceeding federal health

standards. That's 92% of the monitored ponds. 92% means that in almost all cases where coal ponds are monitored, they are found to be polluting groundwater. This means that if the 2015 rule is not upheld, we will be allowing our water to continue to be polluted and doing it knowingly. And not just our water today, but the water that our grandchildren will rely on to raise their families. I'm focusing on groundwater contamination, but this is just one of the multiple negative environmental consequences of coal ash pond pollution. To those who are considering weakening the coal ash rule, I sincerely ask, what might you tell your grandchildren ten years from now when they ask why, in 2020 during national health crisis, you voted against protecting our health and vital resources? Because we won't be able to tell them that we didn't know better. We may take clean air and clean water for granted today, because we have had mostly clean air and water during our lifetimes. But we have them largely because of the strength and diligent, courageous work of forward-thinking legislators and members of the EPA in past decades. EPA members, I encourage you to continue your strong legacy and to work to make sure Americans have safe air and water. In the current political climate, please choose to take a stand. Americans like myself will be standing with you in support. Don't underestimate your role at this time. Current and future generations will be affected by what you choose now. The 2015 coal ash rule is currently protecting thousands of communities. Despite some weaknesses in the rule, coal plant owners have completed hundreds of inspections, published critical groundwater quality data, identified over a hundred sites where cleanup is needed, and disclosed leaking coal ash pond sites that must close. The 2015 rule received more than a halfmillion supporting comments from the public and its smart standards are helping to protect clean water and safeguard our health. The attempts by the white house to weaken this rule reflect the administration's shortsightedness, economic greed, and political opportunism--and its willingness to wittingly turn its back to the common good. May you have the strength and resolve to do the commonsense right thing. I ask the EPA to fulfill its role to protect the public health. Instead of weakening the 2015 Coal Ash Rule, I ask you to strengthen it as ordered by the federal Court of Appeals. And I thank you for the opportunity to speak today.

**Commenter Name:**

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0040

**Excerpt ID:** 58687

**Comment:** Thank you for the opportunity that you are given for the comments. I disagree with the EPA's proposal to weaken the 2015 Coal Ash Rule safeguards. To remind everyone ash rule has several benefits including the prevention of future catastrophic failures of coal ash impoundments, the protection of groundwater from pollution, the reduction of dust in neighborhoods near coal ash impoundments and increases in the beneficial reuse of coal ash. Prior to the 2015 EPA Coal Ash Rule, there was no rule monitoring coal ash from leaking into waterways. The waterways we use today differ greatly from the ones used before this act. Before 2015 coal ashes which contain Cadmium, Mercury, and Arsenic were all in our water. These are all highly toxic materials that can cause serious and irreversible damage to our health. And now we are basically putting them back in which threatens public health. By weakening this rule we let our water and air get polluted knowingly. The 2015 EPA Coal Ash Rule is currently protecting a lot of people to have clean water and air and it helps for the public health. Political opportunism and economy greed will ruin our future generations. To help to have clean water

and air the 2015 EPA Coal Ash Rule must be stronger. Protecting communities and generating public health is the federal government requirement.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0053

**Excerpt ID:** 58748

**Comment:** I urge you to drop the proposed rollbacks to the 2015 Coal Ash Rule. Instead of weakening these commonsense safeguards, EPA should strengthen them.

I oppose this proposal because I have a personal story connected to such substances. My father worked as a chemist producing soaps (think coal tar) his entire adult life. Obviously, coal ash and coal tar come from the same origin, coal, which is both neurotoxic and carcinogenic.

As a result, he died of multiple cancers and ending in brain cancer. All of his 4 children and grandchildren also have neurological diseases and cancers. Clearly, such substances are gene altering for generations.

You are clearly responsible for ruining the future of humanity if you allow such steps to continue. Consider clearly the immorality of such acts and step back from what can be only simple greed for yourselves.

Please abandon this reckless proposal and work swiftly to strengthen coal ash safeguards to protect our water and health.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0056

**Excerpt ID:** 58751

**Comment:** Coal ash is poisonous, and it does pollute our water. I urge you to drop the proposed rollbacks to the 2015 Coal Ash Rule. Instead of weakening these commonsense safeguards, EPA should strengthen them.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0061

**Excerpt ID:** 58756

**Comment:** Please drop the proposed rollbacks to the 2015 Coal Ash Rule. The EPA needs to protect our environment, our water and our health. This doesn't do it.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0067

**Excerpt ID:** 58758



**Comment:** Please drop the proposed rollbacks to the 2015 Coal Ash Rule.

The current Coronavirus situation, largely brought about by climate change and environmental degradation, shows us how humanity's assault on the natural world can turn around and bite us. Instead of rolling back these regulations, the EPA should strengthen them.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0068

**Excerpt ID:** 58759

**Comment:** I vigorously oppose the proposal weakening the 2015 Coal Ash Rule. Such an action flies in the face of the mission of the EPA to protect the environment and health of the citizenry. Toxic waste has already defiled and poisoned the West Virginia community my family springs from, and this proposal would allow further dangerous dumping of coal ash to continue. I strongly urge you to reject the proposal and instead to strengthen regulations that help protect the health and water in communities near retired power plants, as well as prevent current or future unsafe dumping of toxic coal ash by coal utilities.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0193

**Comment:** Based on the above, there is no reason for EPA to provide this “flexibility” when it is clear that there is no chance that any operator can, in good faith, provide the kinds of technical assurances that EPA expects before such flexibility can be granted. If this is allowed, it will simply encourage technical short-cuts in required demonstrations by operators and their consultants, hoping to obtain approvals from under-resourced federal and state agencies. The real-world outcome of such approvals, as well as from the inevitable delay in closing clay-lined impoundments during the approval process, will be additional adverse impacts on groundwater.

**Response to the above comments:** The Agency provided a rationale of why EPA is finalizing these amendments to the regulations and the procedures that must be followed will ensure no probability of adverse effects to human health or the environment in Unit III of the final rule.

## Chapter 2 Other Comments/Out of Scope

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Excerpt ID:** 59089

**Comment:** The requirement at Section 257.71(d) where the standard for the demonstration is meeting the composite liner criteria established in 257.70(b) is incorrect. Facilities that were already equipped with a composite liner, such as the CWDF at AEPCO's Apache Station, were already provided an opportunity to compare to this standard within the 2015 rule at 257.71(a)(iii). AEPCO chose not to pursue this comparison at the time because we were confident that our liner is protective of the aquifer and that our facility would not be required to close. With that said, this is not the Standard that should be required, but meeting RCRA's

Subtitle D protectiveness standard is the bar that EPA should set. AEPCO has already cleared this bar, and will provide that evidence within the initial application.

The standard for the demonstration from a composite-lined unit should be that there is no indication from groundwater monitoring data that the unit has or affected groundwater. In the Proposed Rule, this is actually required in the Application phase and not in the Demonstration Package itself. EPA should either: (1) Allow for the Application to be adequate for composite-lined facilities that have not impacted groundwater, consistent with AEPCO's comments; or (2) Modify the Liner Demonstration process to create an inherent bias of success to account for the facilities that have a desirable composite liner system, while also providing more flexibility in the site-specific technical data to be submitted.

**Response:** The final regulation now incorporates the protectiveness standard from RCRA section 4004 (a).

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Excerpt ID:** 59220

**Comment:** XI. BY FAILING TO CONSULT WITH TRIBAL GOVERNMENTS, EPA HAS VIOLATED EXECUTIVE ORDER 13175 AND EPA'S POLICY FOR IMPLEMENTING THE ORDER.

Pursuant to Executive Order (E.O.) 13175, it is federal policy "to establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications." A 2009 presidential memorandum reaffirmed the principles in E.O. 13175, namely, that "[c]onsultation is a critical ingredient of a sound and productive Federal-tribal relationship." To implement E.O. 13175, EPA's policy is to "ensure[] the close involvement of tribal governments and give[] special consideration to their interests whenever EPA's actions may affect . . . tribal interests." Notification of the initial consultation process "should occur *sufficiently early* in the process to allow for meaningful input" and the process can require "subsequent rounds of consultation."

EPA's failure to meaningfully consult with tribal governments regarding the Part B Proposal is contrary to both the plain language of E.O. 13175 and EPA's own policy for implementing the order. The order directs federal agencies such as EPA to consult with tribal officials regarding "the development of Federal policies that have tribal implications." During the rulemaking for the 2015 CCR Rule, EPA concluded that "this action may have tribal implications." That was the right conclusion, given that three large coal plants subject to the CCR Rule are located on tribal lands. Given that the CCR Rule had tribal implications, "EPA consulted with tribal officials *early in the process* of developing this regulation to permit them to have meaningful and timely input into its development."

Here, the Part B Proposal readily admits that "[t]his action has tribal implications because it would impose requirements on facilities located in Indian country." The Proposal confirms that three large coal plants subject to the CCR Rule are located on tribal lands:

The Navajo Generating Station and the Four Corners Power Plant are on tribal trust lands belonging to the Navajo Nation, while the Bonanza Power Plant is located on tribal trust lands within the Uintah and Ouray Reservation of the Ute Indian Tribe. Because CCR units are land-based units, the fact that these CCR facilities are located on tribal trust land means that the facility owners within the meaning of the CCR Rule are the tribal trust beneficial landowner tribes.

However, instead of consulting tribal governments “early enough to allow tribes the opportunity to provide meaningful input that can be considered prior to EPA deciding whether, how, or when to act on the matter under consideration,” as it should have, the Agency claims it “will engage with tribal officials under the EPA Policy on Consultation and Coordination with Indian Tribes concurrent with the public comment process for this regulation.” This concurrent consultation process does not allow for meaningful and timely input into the Proposal’s development, as EPA alleges, especially given the speed and time at which EPA is moving with the regulatory process and the other concerns facing tribal officials today. EPA’s interpretation of applicable law is inconsistent with the plain language of E.O. 13175, and EPA’s policy for implementing it is arbitrary and capricious and reflects a blatant disregard of the tribal interests that are implicated by the Part B Proposal.

E.O. 13175 defines “[p]olicies that have tribal implications” to include “regulations . . . that have substantial direct effects on one or more Indian tribes.” The Part B Proposal would clearly have such effects. As discussed in detail throughout these comments, the Part B Proposal would change the requirements regarding disposal of coal ash on tribal lands in ways that are likely to adversely impact tribal interests in the health of tribal members and the quality of their environment, in particular their groundwater and surface water.

In addition, there is no question that policies regulating the disposal of CCR have real-life implications for the tribes that reside in the vicinity of CCR units. For example, it has been well-documented for over a decade that leaking, unlined surface impoundments at the Four Corners Power Plant have caused significant groundwater contamination and degradation of water quality downstream from the plant.

EPA claims that the Part B Proposal “will neither impose substantial direct compliance costs on federally recognized tribal governments, nor preempt tribal law.” Even if this were the case, EPA does not clearly state any rationale for why approaching its E.O. 13175 consultation obligations in concurrence with the short and inadequate commenting period is rational, so the Proposal is therefore arbitrary and capricious.

To remedy its noncompliance with the Executive Order, EPA must ensure that it takes all necessary steps for proper consultation with tribes whose lands are the site of, or near, coal ash disposal units that are affected by the Part B Proposal – i.e., the Navajo Nation, at a minimum – and then re-propose for public review and comment a rule based on the input of the tribes.

**Response:** The Agency disagrees with the suggestion that consultation was required as part of developing this rule. This action does not have tribal implications as specified in Executive Order 13175. This action does not impose substantial direct compliance costs or otherwise have a substantial direct effect on one or more Indian tribes, to the best of EPA’s knowledge. Neither will it have substantial direct effects on the relationship between the federal government and

Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes. Thus, Executive Order 13175 does not apply to this action.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Excerpt ID:** 59221

**Comment: XII. THE ENDANGERED SPECIES ACT REQUIRES EPA TO CONSULT WITH THE FISH AND WILDLIFE SERVICE AND THE NATIONAL MARINE FISHERIES SERVICE BEFORE FINALIZING ANY RULE**

Several of the undersigned commenters provided comments on EPA’s failure to consult with the Fish and Wildlife Service and the National Marine Fisheries Service under the Endangered Species Act Section 7 prior to finalizing any rule in response to the Part A Proposal. EPA’s Proposal would remove or weaken several safeguards in the 2015 CCR Rule that protect listed species, and thus the proposed action may affect listed species within the meaning of 50 C.F.R. § 402.14. Those comments (and related attachments) are attached hereto and incorporated by reference.

**Response:** EPA disagrees that consultation was required as part of developing this rule. Under the existing regulations, all CCR units must comply with 40 CFR 257.3–2, 40 CFR 257.52(b). That regulation, which was developed after consultation with FWS, requires facilities not to cause or contribute to the taking of any endangered or threatened species of plant or wildlife, and not to result in the destruction or adverse modification of critical habitat. This obligation is not modified or affected in any way by this final rule. The commenter has presented no facts that convince EPA that re-initiation is warranted by this rule.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Excerpt ID:** 59222

**Comment: XIII. THE PROPOSED RULE VIOLATES EXECUTIVE ORDER 12898 ON ENVIRONMENTAL JUSTICE.**

Executive Order 12898 requires that: each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands.

This obligation was recently affirmed in *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers*, and has been applied by the U.S. Environmental Appeals Board. Specifically, “[t]he purpose of an environmental justice analysis is to determine whether a project will have a disproportionately adverse effect on minority and low income populations.” The Part B Proposal violates E.O. 12898 and its implementing guidance documents by failing to take all lawful and

practicable steps to identify and address the disproportionate and adverse impacts of the continued use and disposal of coal ash on communities of color and low-income communities.

**Response:** EPA disagrees that the Part B final rule violates Executive Order 12898.

Contra the commenter’s claims, EPA considers that the approach taken in this rule effectively addresses the risk from CCR surface impoundments. EPA is finalizing a two-step process for submittal of necessary documentation for the alternate liner demonstration. The first step consists of an initial application intended to show whether a unit meets certain minimum requirements before embarking on a comprehensive alternate liner demonstration. These minimum requirements are designed to ensure that it is likely that the facility will ultimately be able to make the more extensive demonstration to support continued operation, and that the CCR surface impoundment can operate safely over the short term while the facility collects the data and conducts the analyses necessary to support the demonstration. The first step requires the facility to demonstrate that it is in full compliance with the applicable requirements in 40 CFR part 257 subpart D; that it possesses site characteristics that make it likely that it could qualify for a demonstration; and that there are no constituents listed in part 257 Appendix III that have been detected at a statistically significant increase (SSI). The second step consists of a final demonstration intended to show whether there is a reasonable probability that releases from the impoundment throughout its active life may result in groundwater concentrations of constituents listed in part 257 Appendix IV at a statistically significant level (SSL) in the future. The purpose of this two-step approach is to ensure that units allowed to embark on a comprehensive and time-consuming demonstration meet the minimum requirements to ensure protectiveness throughout the process.

The RIA accompanying the final rule evaluates the impacts to each category of benefits monetized in the 2015 CCR rule. It concludes that the provisions of the Part B final rule will not substantially affect benefits, which affirms EPA’s consideration that the Part B final rule effectively addresses risks and validates the conclusion of the 12898 analysis.

**Commenter Affiliation:** Electric Power Research Institute, Inc. (EPRI)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0046

**Excerpt ID:** 58734

**Comment:** Concerning pH of CCRs

In footnote 8, the March 3 Proposal states: “The pH of CCR wastes can range from around 3 to 13. Although the total pH range is wide, the majority of wastes are more basic, with a median value somewhere between 10 and 11.” EPRI would like to point out that the median pH varies by material and management method, and for coal ash it varies by coal source, with bituminous coal ash typically having a pH in the neutral range, while the pH of subbituminous coal ash tends to be more basic. EPRI (2006) reports on field leachate samples collected at 15 impoundments and 17 landfills. Median pH values from that sampling are listed in Table 3.

EPRI also looked at data collected by USEPA from its 2010 questionnaire for the steam electric power generating effluent guidelines, as reported in USEPA’s 2013 Steam Electric Technical



Questionnaire database. The median pH for this dataset was 7.4 SU. EPRI did not attempt to subdivide this dataset by coal source, management method, or material.

These field data suggest that the median pH value of 10-11 specified in footnote 8 is not representative of all CCRs

**Response:** EPA acknowledges the information provided by the commenter. However, the full pH range cited in the preamble was drawn from data considered in the 2014 Risk Assessment and was provided solely as an example of a leachate property that could affect soil chemistry. The information provided does not alter the conclusion that pH of CCR leachate can deviate considerably from neutral. Therefore, no changes were made to the rule in response to this comment.

**Commenter Name:** Paul Pike

**Commenter Affiliation:** Ameren

**Comment Number:** EPA-HQ-OLEM-2019-0173-0117

**Excerpt ID:** 59027

**Comment:** AMO is also requesting that the new regulations include the ability for an owner/operator to provide a demonstration to the EPA that their existing lined facilities will not have adverse effects on human health or the environment. This liner demonstration could be created for units that have site-specific data to support the continuing use of the units even if they were constructed with a base that is located less than 1.52 meters (five feet) above the upper limit of the uppermost aquifer. Impoundments that were built prior to the final CCR rule may have had State requirements that either allowed less separation to the uppermost aquifer or met site-specific conditions which allowed for their authorization by their State.

AMO requests that the EPA include an option for the owner or operator to submit information to EPA documenting that the facility is in compliance with applicable requirements in 40 CFR part 257 subpart D, except for the placement above the uppermost aquifer. It is noted that the amount of sitespecific data and the complexity of the analyses necessary for a demonstration will vary based on the size of the unit, the type of engineered liner present (or lack thereof), heterogeneity of site geology, and other site-specific factors. For these reasons, it is imperative that EPA take into account each of these situations on a site specific basis.

The proposed demonstration shall contain information showing that the low effective hydraulic conductivity of the liner will preclude release and transport of contaminants. The proposed demonstration will further include Information detailing that the existing network of monitoring wells is sufficient to capture any releases based on direction of flow, well location, screening depth and other relevant factors, the potentiometric surface, and the anticipated direction(s) of groundwater flow across the site and that there is no indication from groundwater monitoring data that the unit has or will adversely affect groundwater (i.e., no statistically significant increases (SSI) of Appendix IV constituents above relevant GWPS), including documentation of the most recent statistical tests conducted.

**Comment:** AMO has a specific example of the situation postulated above. AMO's Sioux Energy Center was constructed prior to the establishment of the CCR Rule and was constructed with a

liner exceeding the CCR rule requirements, but occasionally is below the water table, due to transient flooding near the Missouri and Mississippi rivers. Missouri regulations require new landfills to evaluate local groundwater elevations prior to construction. Prior to construction of the Sioux landfill, sufficient historical groundwater elevations were presented to the Missouri Department of Natural Resources (MDNR) for review. Out of an abundance of caution, AMO presented an engineering demonstration to MDNR that concluded there would be no adverse effects to human health or the environment as a result of occasional contact with high groundwater. This demonstration was accepted by MDNR (see attachments). The liner that was installed at Sioux exceeds the current CCR liner design standard and significantly exceeded the State's standard.

This unit meets all of the location standards with the occasional exception of the separation to the uppermost aquifer (if the most conservative definition of the uppermost aquifer is taken to be ground surface, during flooding conditions). The local aquifer changes due to its location between the Mississippi and Missouri Rivers, and seasonal rainfall patterns. The existing State groundwater monitoring system has been operated for over 10 years and even with the close proximity of the uppermost aquifer it has not shown an exceedance of groundwater standards. The unit has a certified CCR groundwater monitoring system and there is no indication from groundwater monitoring data that the unit has or will adversely affect groundwater (i.e., no statistically significant increases (SSI) of Appendix IV constituents above relevant groundwater protection standards). This unit is being forced to close solely due to an overly conservative view of groundwater separation and does not pose a risk to human health or the environment.

**Response:** It appears the commenter described a landfill that does not meet the location restrictions performance standard for distance to the uppermost aquifer. Given that the alternate source demonstrations will only be allowed for surface impoundments, this comment is out of scope with these regulations. For CCR surface impoundments that are applying for the alternate liner demonstration, EPA is maintaining that these must meet all the location restrictions at §§ 257.60-257.64 in order to be eligible for an alternate liner demonstration. EPA did not propose what the commenter is requesting and therefore EPA cannot include it in the final rule. Other comment issues are described in Unit III of the preamble.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0194

**Page(s):** 7

**Excerpt ID:** 59378

**Comment:** The Alternate Liner Demonstration includes two required Lines of Evidence, 1) Characterization of Site Hydrogeology and, 2) Potential for Infiltration that must be incorporated into the final demonstration. Only those unlined surface impoundments for which the owner/operator can demonstrate that there would be no reasonable probability of adverse effect to human health or the environment would be approved.

The characterization of site-specific hydrogeology required as the first line of evidence in support of the Alternate Liner Demonstration correctly identifies the extreme heterogeneity of alluvial sediments that are so commonly found underlying CCR surface impoundments located

on or near a floodplain. EPA even recognizes that the flow path of rivers and streams which are often located immediately adjacent to CCR storage facilities are likely to have shifted over geologic time, resulting in the highly variable sediments with interconnected lenses of sand that are commonly encountered in the subsurface. The realization that is missing from this description is acknowledgement that the hydrologic and geomorphic processes that have shaped the floodplain and deposited these highly variable sediments in the past will continue to operate into the future. These processes will act in a variety of ways over time to undercut the ability of an alternate liner, or indeed a traditional liner, to contain CCR wastes and migrating contaminants. The critical problem that is not acknowledged by EPA is that determining the heterogeneity of alluvial sediments with a requisite degree of certainty is very difficult and not commonly undertaken, and that determining that the current site conditions will remain the same over long periods of time is a scientific impossibility.

**Response:** EPA does not assume site conditions will remain the same over a long period time, neither in this rulemaking nor in the original CCR rule. The detection and assessment monitoring requirements in §§257.94 and 257.95, which are ongoing and apply to all units, are intended to detect changes in site conditions over time. This may include changes in contaminant concentrations as well as groundwater flow direction. If the groundwater flow direction is determined to change, for example, new wells may need to be added to the monitoring network to ensure that groundwater monitoring continues to characterize groundwater upgradient and downgradient of the unit.

Reserved

## Chapter 3 Factual Basis for the Rule

### ~~3.0 Factual Basis for the Rule~~

#### 3.1 Existing Record

##### 3.1.1 Existing Risk Record and Industry Reports are Insufficient

**Commenter Name:**

**Commenter Affiliation:** Missouri Chapter of the Sierra Club and Labadie Environmental Organization

**Comment Number:** EPA-HQ-OLEM-2019-0173-0086

**Page(s):** 3

**Excerpt ID:** 58873

**Comment:**

b. EPA's proposal relies heavily on utility-provided information, while ignoring site specific conditions demonstrating that contaminants are leaching from CCR units into the environment.



In the preamble to the proposed amendment, EPA notes its alternative liner proposal was initiated by industry:

In response to this ruling, EPA received reports from industry groups and individual companies claiming that some surface impoundments that would now be required to retrofit or close have an engineered liner or underlying soils that are equivalent or even superior to the performance of the liners required by the 2015 CCR rule.

Presumably, the individual companies that provided this information and sought the rule change intend to apply to EPA or their state administrator for approval of their alternative liners. In making their push, these companies provided information demonstrating the type of alternative liner applications that regulators will be required to review and make determinations. A review of the information provided by these individual companies shows that many of these CCR surface impoundments have high-risk site specific conditions that, when combined with a permeable liner system, could cause increased risk to human health.

**Commenter Name:**

**Commenter Affiliation:** Missouri Chapter of the Sierra Club and Labadie Environmental Organization

**Comment Number:** EPA-HQ-OLEM-2019-0173-0086

**Page(s):** 3-5

**Excerpt ID:** 58875

**Comment:**

Belle River Power Plant Bottom Ash Basins (DTE Electric Company): Belle River Power Plant is located in St. Clair County, Michigan. The site contains two unlined bottom ash ponds. TRC Environmental Corporation, acting on behalf of DTE Electric Company, provided information to the EPA claiming that the soils beneath the bottom ash pond include clay soils with hydraulic conductivity that is lower than the hydraulic conductivity required for liners under the CCR Rule. Groundwater monitoring at the bottom ash basins shows high levels of boron and total dissolved solids. DTE Electric has claimed that the high levels are due to “natural variability.” However, DTE Electric uses intra-well monitoring, which compares a well’s monitoring results with historical data from the same well rather than an upgradient or background monitoring well. Unlike upgradient / background monitoring, this method cannot identify contamination caused by the facility or statistically significant increases because the comparator (historic groundwater monitoring reports) themselves reflect the historic contamination from the facility. While the soils may have low conductivity, the data shows that the ponds are leaking. Thus, DTE is seeking an alternative to closure in order to keep using its leaking ponds.

St. Clair Power Plant Bottom Ash Basin (DTE Electric Company): The St. Clair Power Plant bottom ash basin is located in St. Clair County, Michigan on the banks of the St. Clair River. TRC Environmental Corporation, acting on behalf of DTE Electric Company, provided information to the EPA claiming that the soils beneath the bottom ash pond include clay soils with hydraulic conductivity that is equivalent or lower than the hydraulic conductivity required for liners under the CCR Rule. However, a saturated zone was located within the groundwater monitoring network. The recent groundwater monitoring report shows high levels of boron,

indicating that the bottom ash basins likely are leaking. Like the Belle River groundwater analysis, DTE Electric uses intra-well analysis for its groundwater monitoring analysis. The existence of a saturated zone, shallow depth to groundwater, location on the banks of the St. Clair River, groundwater flow toward the river, and high levels of boron each are site specific indicators that this facility is leaking, at risk of causing significant damage, and should not qualify for an “alternative liner.” Nevertheless, DTE provided this as a prime example of when an alternative liner would suffice.

**Monroe Power Plant Fly Ash Basin (DTE Electric Company):** The Monroe Power Plant includes a huge 410 acre fly ash impoundment located directly between two water bodies: Plum Creek and Lake Erie. The impoundment is underlain by clay, which DTE claims has a lower hydraulic conductivity than that required for liners by the CCR Rule. Groundwater monitoring data for total dissolved solids for the fly ash basin indicates contamination, and also shows high levels of sulfate. Again, DTE used intra-well statistical analysis to analyze this data. As described above, intrawell analysis is a flawed method that hides contamination. The placement of the fly ash pond along two major waterbodies, coupled with the groundwater monitoring data, shows that the fly ash pond likely is contaminating the groundwater and should not be considered lined under the EPA’s proposed “alternative liner” scheme. Yet again, DTE believes an alternative liner should suffice.

**Dolet Hills Power Station Ash Basin #1 (Cleco Power):** Cleco Power operates ash basins at their Dolet Hills Power Station in Mansfield, Louisiana, one of which (ash basin #1) is approximately 33 acres. Cleco submitted information stating that the clay soils beneath that ash basin have low hydraulic conductivity and thus are protective of groundwater at the site. However, groundwater monitoring at Dolet Hills Power Station indicates that contamination is already occurring. As with the examples above, the groundwater monitoring report uses intra-well analysis, which does not properly account for existing contamination. Further, Cleco’s demonstration report failed to address the possibility of heterogeneous soil deposits surrounding the ash basin. Thus, contrary to the utility’s claims, the compacted soils under the basin are not sufficient, and their proposed “alternative liner” is not protective of human health and the environment.

**Commenter Name:**

**Commenter Affiliation:** Missouri Chapter of the Sierra Club and Labadie Environmental Organization

**Comment Number:** EPA-HQ-OLEM-2019-0173-0086

**Page(s):** 5

**Excerpt ID:** 58876

**Comment:** These four examples are emblematic of the type of poor and misleading applications for “alternative liners” that regulators ultimately would receive from utilities. Utilities are desperately seeking lifelines, searching for ways to continue operating leaking impoundments so as to avert the cost of constructing safe and effective CCR disposal units—seemingly unconcerned with the concomitant risks to health and safety. Intra-well analysis, which is done at many sites, will obscure contamination and misconstrue site specific conditions, setting the stage for EPA to approve “alternative liners” that do not prevent contamination from reaching groundwater.

**Commenter Name:**

**Commenter Affiliation:** Missouri Chapter of the Sierra Club and Labadie Environmental Organization

**Comment Number:** EPA-HQ-OLEM-2019-0173-0086

**Page(s):** 6-7

**Excerpt ID:** 58878

**Comment:**

c. CCR surface impoundments in Missouri do not meet the proposed criteria for “alternative liners.”

The majority of CCR surface impoundments in Missouri would not meet the proposed standards for “alternative liners.” Many of Missouri’s CCR surface impoundments are located in floodplains along major rivers such as the Missouri and Mississippi Rivers. These surface impoundments are unlined and situated in alluvial soils typically devoid of significant clay deposits.

Ameren Missouri CCR surface impoundments: Ameren Missouri has multiple unlined CCR surface impoundments located at its Labadie, Sioux, Meramec and Rush Island Energy Centers. All of these ponds are incised into alluvial floodplain soils. All have detected statistically significant increases in contaminants, have moved to assessment monitoring, and are closing as part of their mitigation plans.

While the Ameren CCR surface impoundments would unquestionably not qualify as having “alternative liners,” other utilities with unlined CCR surface impoundments in Missouri might be tempted to apply for “alternative liners.” Such actions could threaten the environment and the public health of nearby residents.

Sikeston Power Station: The Sikeston Board of Municipal Utilities operates the Sikeston Power Station. The facility operates two CCR units—a fly ash pond and bottom ash pond—which were constructed in the late 1970’s. The fly ash pond is approximately 31 acres and has 2 foot clay liner that does not meet the requirements of the 2015 CCR Rule.<sup>26</sup> The bottom ash pond is approximately 61 acres and has a clay liner that does not meet the requirements of the 2015 CCR Rule. The hydraulic conductivity of the compacted clay liner for the fly ash pond and the bottom ash pond is near enough to the requirements in the 2015 CCR Rule that the utility may conduct further analysis and attempt to qualify for an “alternative liner” as defined in EPA’s proposal. This would be a misguided venture

First, groundwater monitoring data at the Sikeston Power Station indicates that the ponds are leaking. The Sikeston Power Station has already identified high concentrations of contaminants in the underlying groundwater. Boron and sulfate levels are particularly high at several wells. Second, the bottom ash pond has a HIGH hazard potential rating and the fly ash pond has a SIGNIFICANT hazard potential rating. These ratings indicate that the ponds should be closed sooner rather than later. Third, two residential areas are located 150 and 350 feet from the fly ash pond. The residential areas are environmental justice communities since census data indicate that greater than 50% of the population in this area is African-American. An analysis that focused on

the hydraulic conductivity of soil and historic intra-well contamination easily could obscure these critical facts, and put the populace further at risk.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 24

**Excerpt ID:** 59174

**Comment:** What little evidence is in the Part B Proposal record fails to demonstrate that any unlined impoundments would meet the protectiveness standard. As discussed in detail below and in the attached expert report of Dr. Ranajit Sahu, the evidence in the Part B record fails to show that any unlined impoundments – even those with thick natural clay liners – are as protective as composite-lined impoundments.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 24

**Excerpt ID:** 59176

**Comment:** Nor would EPA’s proposed demonstration process address this fatal lack of evidence, as it would not generate the type of information that would make it possible for EPA or state agencies to conclude with any degree of certainty that any so-called “alternate liner” would be adequately protective

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 25

**Excerpt ID:** 59182

**Comment:** In addition, as discussed in detail below and in the attached Expert Report of Dr. Ranajit Sahu, none of the evidence in the Part B record adequately justifies deviation from EPA’s findings in the 2014 Risk Assessment

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 30-32

**Excerpt ID:** 59202

**Comment:**

B. The Evidence in the Part B Proposal Record Does Not Demonstrate that SoCalled “Alternate Liners” Are as Protective of Health and the Environment as Composite Liners.

None of the evidence that EPA has included in the Part B record demonstrates that any unlined impoundments with so-called “alternate liners” would meet the RCRA protectiveness standard. One of EPA’s primary sources in the Part B record for the proposed alternate liner provision is a 2019 report by the Electric Power Research Institute (“EPRI”) entitled “Relative Liner Performance for Coal Combustion Product Management Sites.” The main conclusion of the EPRI Report is that “certain alternative liners – such as . . . thick natural clay liners with low hydraulic conductivity – can achieve performance approaching that of the base case composite liner.” In other words, EPRI’s conclusion is that, under ideal, hypothetical circumstances (without reference to whether those circumstances actually exist in the real world), a continuous thick natural clay liner would be almost as protective – but still not as protective – as a composite liner. The EPRI Report evaluated hypothetical impoundments with continuous natural clay liners ranging in thickness from 25 to 150 feet, with conductivity ranging from  $5.5 \times 10^{-9}$  to  $1 \times 10^{-7}$  cm/s. Based on this analysis, EPRI found that impoundments with continuous natural clay liners with a hydraulic conductivity of  $10^{-8}$  cm/s or less “performed more similarly to the base case composite liner scenario than to the unlined scenario.” Nevertheless, the EPRI Report conceded that “[e]ven . . . thick natural clay liners with very low hydraulic conductivity have higher leakage rates than a composite liner.” Further, the EPRI Report conceded that any standards that might be based on its findings would be less stringent than those in place for composite-lined new units, noting that “[t]hese findings are not intended to support the use of alternative liners for new units.”

The following table helps explain why EPRI was unable to conclude that impoundments with underlying natural clay layers are as protective as composite-lined impoundments. The numbers in this table are approximations of data points plotted by EPRI in Figures 3-5 through 3- 8 of its report. At the ninetieth percentile, all natural clay liners would “leak” more than composite liners (release more coal ash constituents to the environment), as noted above, and they would all lead to higher groundwater concentrations of arsenic and lithium (the two constituents evaluated by EPRI).

At most, the EPRI Report can be read to support the proposition that natural clay liners that are at least twenty-five feet thick, with a conductivity of  $1 \times 10^{-8}$  or less, as well as continuous and homogeneous across the entire waste disposal site, might approach the protectiveness of composite liners.

It is unlikely that this idealized, hypothetical impoundment considered by EPRI actually exists in the real world. Indeed, the EPRI Report notes that “[t]he most significant challenge is demonstrating that the natural clay layer has adequately low hydraulic conductivity over the entire footprint of the disposal facility.”

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 32-33

**Excerpt ID:** 59203

**Comment:**

As discussed in detail in the expert report of Dr. Ranajit Sahu, although a number of utilities have submitted information that EPA has included in the Part B record in which they claimed eligibility for alternate liner status for their impoundments, those submissions do not actually demonstrate that there is continuously low hydraulic conductivity over the entire footprint of those sites. On the contrary, these utility submissions are deficient in numerous respects:

Most or all of the submissions show that the clay underlying the disposal units has conductivity of  $1 \times 10^{-7}$  cm/s or greater. According to EPRI, these soils are not protective: “[T]hick natural clay liners with a hydraulic conductivity of  $10^{-7}$  cm/s yielded results that were closer to the unlined scenario than to the base case composite scenario.”

the submissions do not include construction quality data, including information on initial saturation, compactive effort, plasticity index, and clay content;

the submissions do not adequately demonstrate that the groundwater monitoring wells are adequate in number, fully and accurately representative of upgradient and downgradient conditions at the site, and that the wells are screened at the correct depths;

many of the utilities that have submitted information to EPA claiming eligibility for alternate liner status for their sites have improperly relied on intra-well analyses as a substitute for the assessment monitoring process required by the CCR Rule, and are therefore out of compliance with the Rule;

the submissions do not include a sufficient number of groundwater samples, taken over a long enough period of time, to allow for any definitive conclusions about whether the unit is leaking (even if the issues about well placement, screening depth, etc. were fully and adequately addressed);

even at a relatively small unlined impoundment site, such as J.R. Whiting (approximately fifteen acres), the siting and depths of the wells do not fully characterize the complex hydrogeology of the site, particularly when compared with boring logs that show that the underlying clay soils are not continuous, and that multiple conductive layers are present at varying depths wherever crosssections are taken throughout the site, making it impossible to conclude that leakage is not occurring anywhere on the site; and

many unlined impoundment sites are much larger than the J.R. Whiting site, such as Plant Barry (approximately 330 acres), making it all the more impossible to demonstrate based on the limited data points available that a thick natural clay layer with very low hydraulic conductivity is present on a continuous basis and preventing leakage across the entire footprint of the site.

Accordingly, EPA’s record evidence does not support the proposed alternate liner provision, because it does not demonstrate that any so-called “alternate liners” that exist in the real world are even as protective as the hypothetical alternate liner analyzed by EPRI, which EPRI itself conceded was not as protective as the composite liners that EPA has determined are necessary for new units. As indicated by the numerous deficiencies in the utility submissions discussed above and in the attached expert report of Dr. Ranajit Sahu, the evidence in the Part B record

fails to demonstrate that so-called “alternate liners” can be as protective as composite liners under any circumstances. Therefore, the proposed alternate liner provision is arbitrary, capricious, and contrary to law

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0193

**Page(s):** 5-10

**Excerpt ID:** 59354

#### **Comment:**

### III. Comments on 2019 EPRI Technical Report

EPA’s proposal appears to be heavily influenced by the 2019 EPRI Technical Report (hereafter “EPRI 2019”) as noted earlier. Therefore, this section of my comments provides commentary on this report, including its limitations and the lack of support for its broad conclusions.

I have highlighted and emphasized the following from EPRI 2019

“...Thick natural clay liners with a hydraulic conductivity of about 10-8 cm/s performed more similarly to the base case composite liner scenario than to an unlined scenario. Conversely, engineered liners and thick natural clay liners with a hydraulic conductivity of 10-7 cm/s yielded results that were closer to the unlined scenario than to the base case composite scenario.”

The quote above appears to be based on modeling using EPACMPT and from the analysis of just one specific surface impoundment (actually two adjacent ponds) at the J.R. Whiting power plant in Michigan. I will discuss later in these comments why conclusions based on EPACMPT are not robust because the model simplifies subsurface conditions to such an extent that it is not and cannot substitute for actual conditions at specific sites. And, to the extent EPRI 2019’s conclusions rely on the J.R. Whiting case study, as a conceptual matter it is improper to provide such broad conclusions, applicable to all surface impoundments nationwide, based on just one single case study even assuming that the case study was properly and perfectly conducted. In this case, such a broad conclusion is even more compromised and less warranted because, as discussed below, the J.R. Whiting case study was technically deficient, omitting significant details on subsurface characteristics.

But, let us first examine EPRI 2019’s analysis. EPRI 2019 evaluated homogeneous natural clay liners ranging in thickness from 25 to 150 feet, with conductivity ranging from  $5.5 \times 10^{-9}$  to  $1 \times 10^{-7}$  cm/s. Of these, the only liners that EPRI 2019 can vouch for – the only ones that might under certain circumstances be protective of human health and the environment – are the liners with a hydraulic conductivity of 10-8 cm/s or less.

The following table helps to explain why. The numbers in this table are rough approximations of data points plotted by EPRI 2019 in Figures 3-5 through 3-8. At the 90th percentile, all natural clay liners would “leak” more than composite liners (release more coal ash constituents to the environment), as noted above,<sup>14</sup> and they would all lead to higher groundwater concentrations of

arsenic and lithium (the two constituents evaluated by EPRI 2019). The only natural clay liners that could arguably be protective of human health are those with conductivities of  $10^{-8}$  cm/s or less – again assuming that they are homogeneous, per EPACMTP)

Table 1: Selected, approximate values from EPRI Report Figures 3-5 through 3-8. Highlighted cells show values that exceed human health risk criteria. Peak lithium concentration at 10 m, 90th percentile Peak lithium concentration at 100 m, 90th percentile Peak arsenic concentration at 10 m, 90th percentile Peak arsenic concentration at 100 m, 90th percentile Composite liner Close to zero Close to zero Close to zero Close to zero Natural clay,  $K = 10^{-8}$  cm/s ~0.03 mg/L ~0.02 mg/L ~0.01 mg/L 15 Just under 0.01 mg/L Natural clay, variable  $K$  16 ~0.05 mg/L ~0.03 mg/L ~0.02 mg/L ~0.01 mg/L Natural clay,  $K = 10^{-7}$  cm/s ~0.1 mg/L ~0.08 mg/L ~0.07 mg/L ~0.07 mg/L 3 ft engineered clay ~0.12 mg/L ~0.1 mg/L ~0.15 mg/L ~0.1 mg/L No liner ~0.14 mg/L ~0.12 mg/L ~0.2 mg/L ~0.15 mg/L

A generous reading of EPRI 2019 (i.e., glossing over the simplification of homogeneity) might conclude that natural clay liners have to be at least 25 feet thick, with a conductivity of  $1 \times 10^{-8}$  cm/s or less, in order to be anywhere near as protective as composite liners. However, the EPA’s proposal does not require 25 feet of natural clay, nor does it require conductivity of  $1 \times 10^{-8}$  cm/s or lower. Moreover, the proposal does not require a demonstration that the natural clay layer is continuous and homogeneous across the site, which EPRI described as “the most significant challenge” in this context. Instead, the EPA proposal simply states that owners “...must present evidence to demonstrate, with a reasonable degree of certainty, that based on the construction of the unit and surrounding site conditions, operation of the surface impoundment will not result in groundwater concentrations above the relevant groundwater protection standard at the unit boundary. This opens the door to wildly optimistic, deeply flawed demonstrations for sites that do not in any way resemble the liners modeled by EPRI 2019.

Let us consider a real-world example, namely the ash pond at Plant Barry in Alabama. In 2019 Alabama Power announced that it plans to “take advantage of a geologic feature that is specific to Plant Barry. Below the entire [330-acre] area of consolidation is a natural clay layer ranging in depth from 4 to 28 feet that creates separation from the aquifer confined beneath it. The clay layer is shown to have a measured permeability of as low as  $10^{-7}$  cm/s.” Figures attached to the assessment of corrective measures for the Barry ash pond show that the clay layer in question is thin, discontinuous, interbedded with sand, and with permeability as high as  $8 \times 10^{-5}$  cm/s. The following figure shows the “clay layer” at the Plant Barry ash pond and Table 2 provides comparisons to EPRI 2019’s idealized natural clay layer and also to EPRI 2019’s J.R. Whiting power plant example.

Figure 1: Geologic Cross-section for Plant Barry Ash Pond in Alabama.

Table 2: Characteristics of the ash ponds and clay layers in the EPRI report and at Plant Barry in Alabama. EPRI 2019 low-permeability natural clay layer (hypothetical) J.R. Whiting Plant Barry Ash pond size 100 acres 15 acres 330 acres Thickness of clay layer 25 to 150 feet >35 feet 4 to 28 feet Conductivity of clay layer, cm/s  $10^{-8}$   $5.5 \times 10^{-9}$  to  $2.2 \times 10^{-8}$   $> 1 \times 10^{-7}$



Setting aside the sparse number of wells and borings at Plant Barry given the size of the CCR unit, which are inadequate to spatially resolve the presence of thin, permeable layers (i.e., confirming that as a practical matter, characterization of any given site will be impossible or woefully inadequate, regardless of EPA's expectations as discussed in the proposal), Figure 1 confirms that the "clay layer" is anything but. The clay layer beneath the ash pond at Plant Barry is much thinner than the clay layers modeled by EPRI 2019 including the clay layer at J.R. Whiting. It is not demonstrated that the clay layer is continuous at Plant Barry. One cross section shows a minimum thickness of 4 feet, but other areas of the ash pond may have nothing but sand beneath them. Not only is the clay layer thinner, it is also much more permeable.

Table 2 confirms how poorly Plant Barry compares with EPRI 2019 and its example, the J.R. Whiting CCR impoundments. As I discuss later, the J.R. Whiting example is itself not a great example given its technical deficiencies.

Clearly the conclusions of EPRI 2019 would not support an alternate liner demonstration for Plant Barry. If anything, the EPRI 2019 report would be evidence against such a demonstration, as EPRI 2019 concludes, optimistically, that "thick natural clay liners with a hydraulic conductivity of 10<sup>-7</sup> cm/s yielded results that were closer to the unlined scenario than to the base case composite scenario."

I also note that EPRI 2019's conclusion above as to the efficacy of compacted clay liners (CCL) or "thick natural clay layers" as compared to the base case composite liners required for CCR surface impoundments should be read with limitations noted in the report itself. For example, EPRI 2019 states:

"These findings are not intended to support use of alternative liners for new units. As noted in the conceptual evaluation, the base case composite liner is protective regardless of hydrogeologic environment. Rather, these results suggest that certain existing units with non-federally compliant composite liners, or with thick natural clay liners that have low hydraulic conductivity, can be similarly protective of HHE as the base case composite liner at sites with favorable hydrogeologic conditions."

The caveats noted above are important. EPRI 2019 correctly notes that the base case composite liner is protective "regardless of hydrogeologic environment" while the non-federally compliant liners such as thick natural clay layers "can be . . . protective . . . at sites with favorable hydrogeologic conditions." This puts the onus squarely on whether or not such "favorable" conditions exist at a particular site or not – i.e., the thoroughness of the characterization discussed prior. As a practical matter, this means that operators, EPA, and State Directors will be quick to conclude that "favorable" conditions exist based on less-than-thorough characterization. In other words, this proposal seeks to undermine a clearly protective requirement that works "regardless of hydrogeologic environment" for one in which a very difficult predicate (i.e., "favorable" hydrogeologic conditions) first needs to be established. By definition this undermines the protectiveness of the "alternate" liner which only works under "favorable" conditions. Since such "favorable" conditions either don't exist or are impossible to verify, this shows the futility of EPA's proposal.

EPRI 2019 also clearly confirms the superiority of the base case composite liner when it states that:

“Comparison of the leakage rates in Figure 2-12 illustrates the substantial reduction in leakage rate achieved using a composite liner relative to a CCL or a thick natural clay liner. Even very impermeable CCLs (e.g., hydraulic conductivity  $\sim 10^{-9}$  cm/s) or thick natural clay liners with very low hydraulic conductivity have higher leakage rates than a composite liner. The leakage rate from the composite liner is much lower because the GM [geomembrane] reduces the area available for flow to only those locations where a defect exists in the GM....”

Finally, EPRI 2019 also states, accurately, that “the most significant challenge is demonstrating that the natural clay layer has adequately low hydraulic conductivity over the entire footprint of the disposal facility” and that “the provisions in RCRA Subtitles C and D for composite liners simplify design and permitting, providing a direct way to demonstrate compliance without the complexity and inherent uncertainty in an assessment of groundwater impact from a variety of different design strategies.”

Thus, taken in its entirety, EPRI 2019 simply does not provide a basis to conclude that CCL or clay layers are equally protective of human health and the environment as the base case composite liner. It has a narrow focus, analyzing idealized scenarios (i.e., using EPACMTP) that do not occur in the real world. This stands in sharp contrast to EPA’s incredibly broad and vague alternate liner demonstration proposal. Very few of the sites that apply for EPA’s alternate liner demonstration (if any) will resemble the hypothetical sites modeled by EPRI. And, as noted above, EPRI 2019 overstates its conclusions and does not show that natural clay liners of any thickness are comparable to composite liners. For these reasons, EPRI 2019 is clearly not, as the authors claim, “conservative.”

Finally, I note that EPA itself found significant issues with EPRI 2019 as noted in its evaluation of EPRI’s report as shown in the document titled: “Review of Analysis in EPRI White Paper: Model Evaluation of Relative Performance of Alternative Liners. I will not repeat the deficiencies noted in EPA’s review of EPRI 2019 other than to note that they include: how EPRI 2019 used EPACMTP to predict representative groundwater concentrations; selection of sampling depths close to the plume where it is thinnest, leading to possibly missing the plume altogether and therefore underestimating the extent of contamination; possible underestimation of the discharge from the CCR unit through the clay liner; and, generally, the misuse of EPACMTP in situations for which it was not intended (i.e., assuming that the 25-foot clay layer under the CCR unit is fully saturated; possibility of more than one saturated hydrogeologic unit in which the potential for horizontal flow exists).

As EPA states:

“[O]verall, the White Paper [EPRI 2019] relied on generalized data and assumptions about the design of the surface impoundment and the local hydrogeology based in part on the 2014 Risk Assessment. Although these data were suitable for identifying the potential risks on a national scale, it is unlikely the same data will be sufficient to support a demonstration that there is no reasonable probability of adverse effects for an individual unit. As discussed in the 2019

Proposed Rule, the assumptions used about the homogeneity of the subsurface environment and the hydraulic conductivity of a clay liner in the presence of CCR leachate may not be accurate at a particular site. Therefore, any demonstration that includes contaminant fate and transport modeling must incorporate these types of site-specific data, and provide documentation for all the data incorporated into the model.”

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0193

**Page(s):** 13-26

**Excerpt ID:** 59356

**Comment:** Second, operators often point to groundwater data collected at wells located near CCR surface impoundments to support the proposition that there is no observable leakage of contaminants from the impoundments. This is only valid if the following important predicates are met.

(i) that there are an adequate number of properly constructed wells (both upgradient and downgradient) that are screened in the correct depths. This is often not the case. Wells are generally installed with little to no supporting characterization of the regional or local hydrogeology – i.e., based on other investigations such as the non-intrusive techniques discussed earlier in these comments or from preliminary borings or other investigations. Thus, in most cases, it is simply assumed that well data adequately characterizes groundwater at the site when that is simply not supported by any evidence. This is a fatal assumption. One should therefore be wary of claims that there is no contamination present at the site and therefore no leakage from a CCR impoundment unless it is preceded by a thorough justification of the adequacy of the number, locations, and screening intervals of the wells in question. As to the last, the screening interval is extremely important since wells that are not screened across conductive layers (such as near surface layers that might lead to lateral migration of contaminants into adjacent surface water bodies) but are, instead, simply screened in bedrock well below any conductive layers, will simply miss important migration pathways. Of course, where such near-surface lateral migration pathways to surface water bodies can dominate, contaminants will be less likely to reach deeper aquifers, but the overall risk to environmental harm may be quite large.

(ii) that the upgradient and downgradient comparisons are made correctly from a statistical standpoint. One glaring shortcoming seems to be the preference to use the so-called “intra-well” comparison of contaminant concentrations at a particular well over time instead of a proper upgradient/downgradient well analysis. Examples of CCR surface impoundments that have argued that they do not leak based on intra-well comparisons are as follows:

(i) JR Whiting Ponds 1 and 2 (ii) Dolet Hills Ash Basins (iii) Brame Energy Center, Bottom Ash and Fly Ash Ponds (iv) Monroe Power Plant Fly Ash Basin (v) St. Clair Power Plant Bottom Ash Basins (vi) Flint Creek Bottom Ash Pond (vii) Coal Creek Station, Drains Pond System and “Upstream Raise” ponds (viii) Stanton Station bottom ash pond (ix) Big Stone Plant Slag Pond Area

Notably, several of the above have also argued that they should qualify for alternate liner demonstrations.

At best, intra-well comparisons, even if done correctly, can only speak to the stability or trends at a given well. Stability at a downgradient well does not mean that contaminants are not above background, when compared to a properly located background well. Similarly, even a downward trend at a downgradient well means little without a proper comparison to a background well insofar as leaks from a CCR impoundment are concerned. Of course, a rising trend at a well is problematic at all levels

Thus, an alternate liner demonstration that relies on intra-well statistical comparisons should be a red flag and summarily denied at the first application stage.

(iii) that there are sufficient number of groundwater samples collected over time for the analysis. Often, operators have only begun collecting data since 2016 or even 2017. That means the temporal extent of groundwater data, even if all of the other factors above are met, will not be sufficient to conclude that the CCR surface impoundment in question may not be leaking. Therefore, initial applications without at least 5 years of groundwater data from properly-installed and designed systems should be rejected.

I now discuss specific case studies where operators and others have argued that the local clay layer is protective and that it therefore functions as an alternate liner. I begin with J.R. Whiting since EPRI 2019 focuses on just that one example. I also provide a few additional examples taken from the record of EPA's proposal.

#### V.1 J.R. Whiting

As background, general details of the two CCR surface impoundments (SI) – Ponds 1 and 2, at this plant are follows:

“Two CCP SIs (Ponds 1 and 2) located at the JR Whiting Power Plant (JRWPP) in southeastern Michigan were constructed in a natural clay hydrogeologic environment reportedly having low hydraulic conductivity. The total area of Ponds 1 and 2 combined is about 15 acres. The ponds were operational for 64 years, from 1952 to April 2016.”

“The stratigraphy of the geologic formation adjacent to the JRWPP CCP ponds is described in the boring logs collected during the installation of six monitoring wells along the perimeter of ponds 1 and 2 (Arcadis of Michigan, 2016, Appendix A). The boring logs describe medium- to high plasticity clay beginning between 13 and 30 feet below ground surface (ft bgs) and extending to 70 or 80 ft bgs, with some isolated observations of silts, coarse sand, and pebbles.”

“The boring logs include descriptions of thin layers with sand, cobbles, and pebbles in several of the locations, but they are not interpreted as a continuous feature at the site (Arcadis of Michigan, 2016). Furthermore, no fractures in the glacial till are noted in the boring logs.”  
“...The geology between boreholes is consistent, and no fractures or continuous sand strings that could serve as continuous flow paths in the clay were identified.”

“Water level monitoring in the six wells has demonstrated little to no sustained hydraulic gradient between the wells and no dominant flow direction; thus, a hydraulically upgradient location could not be conclusively identified.”

“Groundwater monitoring of the six perimeter wells at the JRWPP site was used to establish background conditions, considering data from nine sampling rounds over an 11-month period (from December 2016 to October 2017; TRC, 2018b).”

A few observations are in order based on the statements in EPRI 2019 above. First, I note that these two adjacent ponds, constituting a single CCR unit, are adjacent to a large water body – Lake Erie. Second, there is no documentation supporting the placement of the 6 wells from a hydrogeological standpoint – i.e., the wells were located to provide coverage along the perimeter of the CCR unit – and, while that is a fine idea, it does not mean that they are located where preferential pathways may be present. Third, as I will show below, the six wells are screened in bedrock and none are screened in permeable layers noted in the boring logs and cross-sections. Fourth, as noted earlier, only intra-well comparisons are used to conclude that there is no statistically significant increase in contaminants – using the argument that there is no preferential groundwater flow direction (i.e., upgradient/downgradient orientations) based on a relatively short time history of well water level measurements even though documents in EPRI 2019 Appendix C speak to prior upgradient wells in the area that were abandoned. I will provide supporting documents on these points next

I note that measurements of hydraulic conductivities, relied upon in EPRI 2019 were derived as follows:

“Permeameter tests were conducted on eight samples of clay collected from seven boreholes located elsewhere on the JRWPP site (TRC, 2018a). Each sample represented a vertical interval of approximately 1 ft and was collected at depths between 31.5 and 53 ft bgs, with most samples falling between 33 and 39 ft bgs. The measured hydraulic conductivity values ranged from  $5.5 \times 10^{-9}$  to  $2.2 \times 10^{-8}$  cm/s (citing to TRC, citation omitted).”

It does not appear that the selected 1-foot intervals included any of the highly permeable layers that are present at the site.

Even though a reasonable evaluation of the data shows otherwise, EPRI 2019 glosses over the problematic site-related details at J.R. Whiting as follows:

“Given the lack of observed discontinuities in the till and bedrock, small (15-acre) area of the site...the use of six monitoring wells along the perimeter of the ponds is adequate for characterizing groundwater composition and for compliance monitoring. A minimum of three monitoring wells are required under the CCP Rule. The additional wells at the JRWPP site address both uncertainties about aquifer heterogeneity and groundwater flow direction. The groundwater monitoring system, with the six wells taken together, provides a thorough representation of the geologic formation on which the ponds are constructed and is positioned to detect changes in groundwater quality within the uppermost aquifer.”

I disagree with each of the emphasized statements above. There is no hydrogeological justification provided for siting the six wells. The wells therefore cannot simply be assumed to “address” heterogeneity and groundwater flow direction. And, they can also not be assumed to “provide a thorough representation” of anything, much less the complex hydrogeology of this relatively small (15 acre) site right next to Lake Erie.

As a result, the conclusions of EPRI 2019 below cannot be supported, much less generalized to other sites.

“Highlighting the modeling results, a case study (Section 4) was presented that shows an effective natural clay liner at a surface impoundment site in southeastern Michigan. The geology was well characterized both by regional USGS studies and by site-specific investigations showing that a competent 35-ft-thick natural clay layer with a hydraulic conductivity between  $5.5 \times 10^{-9}$  and  $2.2 \times 10^{-8}$  cm/s is present. Groundwater monitoring data showed low, stable concentrations of boron, the key indicator constituent for CCP leachate, and no statistically significant increases for other monitored constituents.”

I discuss the details of the site characterization next. A figure showing the two ponds in question and the six wells (JRW-MW-15001 through -15006) is shown below. The figure also shows three background wells (JRW-MW-16007, -16008, and -16009) to the left. Lake Erie is to the far right of the figure. As noted earlier, the ponds 1 and 2 are adjacent to Lake Erie. Finally, the figure below shows the cross-sections A-A and C-C which I will show later.

I highlight the following geologist notations from each of the six well boring logs below. Boring Log for JRW-MW-15001 NOTE: Trace medium pebbles to large cobbles, subrounded to subangular starting at 43.0' bgs. Boring Log for JRW-MW-15002 NOTE: Little very large pebbles to small cobbles starting at 57.0' bgs. Boring Log for JRW-MW-15003 (26.0 - 71.0') CLAY, medium to high plasticity; trace silt; little granule to large pebbles, subrounded to subangular; dry; medium stiff to stiff; very dark gray (10YR 3/1). NOTE: Trace small to large cobbles, subrounded to subangular in sample from 51.0 to 61.0' bgs. Boring Log for JRW-MW-15004 (17.0 - 19.0') SILT and PEAT; little organics; trace medium to very coarse sand; medium stiff to soft; very dark brown (10YR 2/2). (23.0 - 80.5') CLAY, medium plasticity; trace coarse sand to large pebbles, subrounded to subangular; dry; stiff; dark brown (10YR 3/3). NOTE: Clay is very stiff to hard; little granule to large pebbles; trace very large pebbles to small cobbles, subrounded to subangular at 41.0' bgs. Boring Log for JRW-MW-15005 (33.0 - 49.0') CLAY, medium plasticity; little granule to medium pebbles; trace large pebbles, subrounded to subangular; trace silt; dry; stiff; very dark gray (10YR 3/1). NOTE: Trace very large pebbles to large cobbles, subrounded to subangular; clay becomes hard from 41.0 to 49.0' bgs. (54.0 - 80.5') CLAY, medium plasticity; little granule to medium pebbles; trace large pebbles, subrounded to subangular; trace silt; dry; stiff; very dark gray (10YR 3/1). Boring Log for JRW-MW-15006 (25.0 - 47.0') CLAY, medium to high plasticity; little granules to large pebbles, subrounded to subangular; trace silt; dry; medium stiff; brown (10YR 4/3). NOTE: trace very large pebbles to small cobbles, subrounded to subangular at 41.0' bgs. (49.0 - 71.0') CLAY, medium to high plasticity; little granules to large pebbles, subrounded to subangular; trace silt; dry; stiff to hard; brown (10YR 4/3). NOTE: Some granule to medium pebbles; little large pebbles to very large pebbles; trace small to large cobbles, subrounded to subangular at 68.0' bgs. As noted earlier, the

presence of high conductivity layers is noted in each of the wells. Photographs of some of the soil borings taken from Arcadis 2016 and shown below confirm this without any doubt.

Note the presence of large and small pebbles, and cobbles. The presence of these conductive layers is not limited to just these wells. They are also present in additional wells in the vicinity including the three background wells – for which logs are provided in Appendix C, EPRI 2019.

Additional photographs of soil boring strata from wells in the area, confirming the presence of conductive layers are shown below.

Even though the photographs and boring logs clearly show the presence of conductive materials, the cross-sections provided in EPRI 2019 Appendix C do not faithfully represent them, as seen in the excerpts from the cross-sections shown below.

Note the presence of the “silt and sand” layer in the first cross-section above; this is troubling enough as shown, but the cross-section fails to accurately depict the information from the boring logs. The boring log for JRW-MW-15001 notes that presence of silt and sand, yet none is shown in the cross-section at this location. Note also, the complete absence of any such layers in the second cross-section above (C-C) even though the presence of conductive materials was noted in the two boring logs for these wells as well.

Finally, as confirmed by the boring logs and the cross-sections above, all of the wells are screened in the limestone bedrock. None are screened in the clay layer nor in the conductive layers present in the “clay” layer. Therefore, the groundwater comparisons (setting aside the intra-well statistical comparison flaw noted earlier) are meaningless for this site.

In summary, the J.R. Whiting case study discussed in EPRI 2019 chosen no doubt because it provided the best example of a site that might argue for a successful alternate liner demonstration – given its small size (15 acres), etc. – contains significant data gaps (i.e., no justification for why wells are located where they were; lack of additional well/borings to delineate observed conductive layers, etc.), interpretive flaws (details noted in boring logs and photographs not reflected in crosssections, arbitrary delineations of conductive layers with no support, etc., and unsupported conclusions (i.e., the quotes from EPRI 2019 noted at the beginning of this discussion) along with lack of documentation of construction details and the like. The record, considered carefully, simply does not support an alternate liner demonstration at this site – much less the broad conclusions drawn using this site by EPRI 2019.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0193

**Page(s):** 26-29

**Excerpt ID:** 59357

**Comment:**

V.2 Cleco – Dolet Hills

I next discuss the Cleco Dolet Hills site and its CCR unit, Ash Basin No. 1. Just at the outset, I note that the “demonstration” of an alternate liner at this site is laughably inadequate. Cleco claims to have 2 feet of clay that meets or exceeds a  $10^{-7}$  cm/s permeability. Even EPRI 2019, discussed above, would support the proposition that this is not protective at all and is in fact close to unlined conditions. But, even this “2 feet of clay” claim is not supported when reviewing boring logs which show materials other than clay at the top of the boring (so zero feet of clay), and very few conductivity or permeability results. In fact, the locations of the boring logs are suspect. In addition, groundwater monitoring data for Dolet Hills show plenty of evidence of leakage and contamination, masked by Cleco’s “intra-well” comparisons as critiqued previously.

Cleco provides the following description of the ash basin.

“Attached is a technical report prepared by Cleco describing the physical and hydraulic characteristics of the geologic material underlying the CCR surface impoundment, Ash Basin No. I, at Cleco's Dolet Hills Power Station in Mansfield, Louisiana. As discussed in the report, the clay liner of the impoundment exceeds two feet in thickness with a permeability meeting and exceeding the criteria of 40 CFR 257.71.”

Referencing a consultant report, Cleco provides the following support for its two feet of clay thickness:

“The application states that the entire Ash Basin No. 1 is located over impermeable cohesive soil deposits except a few isolated locations such as at boring locations B-44 and B-50. The log of Boring B-44 shows 2 feet of clay material at the surface and the log of Boring B-50 shows no clay at the surface. Boring B-44 is along the dike alignment. The logs of the nearest borings, E-8 and B-46 indicate a 12 foot thick clay (CL) deposit at the surface. The application states that “therefore, the surface soil condition at Boring B-44 was considered an isolated condition.” In addition, it is stated that this area will be covered with cohesive material when the dike is constructed. Boring B-50 is along the dike alignment also. The application states that “even though there is no CL material at the surface in this area, the nearest Boring B-49 indicates 7 feet of CL at the surface. Therefore, the surface soil condition at Boring B-50 is an isolated condition. In addition, this area will be covered with cohesive material when the dike is constructed.” Based on the geotechnical borings and the placement of the cohesive/clay soil along the western embankment, a minimum of two feet of clay liner is in-place for Ash Basin No. 1.”

In other words, even though there was no clay at all at several locations, they were simply determined to be “isolated” conditions which would be covered later by “cohesive material” with no specifications. Of course, no actual construction details are available confirming that any of this was done and/or done properly.

Based on this scant support, Cleco states that:

“...The soil borings completed in the footprint of Ash Basin No. 1 show thicknesses of the clays exceeding two feet, Atterberg limits values indicating predominantly CL (low plasticity) clays, and permeability testing of the shallow near surface clays meeting and exceeding the  $1 \times 10^{-7}$  centimeters per second (cm/sec) criteria per 40 CFR §257.71.”



As support, the consultant states the following:

Laboratory permeability tests on ten cohesive soil samples from Ash Basin No. 1 were performed prior to construction. The results are summarized in Attachment 1, Appendix C-2. It appears that all of the bottom liner permeability analyses for Ash Basin No. 1 met the regulatory requirements at the time of construction and meet the current bottom liner permeability requirements contained in the CCR rule. The liquid limit and the plasticity indices of in situ cohesive soils in the Ash Basin No. 1 area vary from 29 to 74, and the results are included.

A review of Attachment 1, Appendix C-2 shows the 10 permeability values. However, it is not clear why those specific borings (and depth intervals) were chosen for the permeability tests and not the others shown in the same Attachment.

In addition to the “support” noted above, Cleco’s justification for the alternate liner demonstration at this site appears to be that the local agency seems to have permitted the facility:

This facility has been permitted by LDEQ multiple times and has been in operation for over 30 years. Groundwater monitoring for this facility is conducted under the detection monitoring programs for both the LDEQ and the CCR Rule. Detection monitoring is the most stringent groundwater monitoring regime, and DHPS remains in these programs because no evidence of adverse impacts to groundwater quality have been observed at Ash Basin No. 1. These conclusions have been supported by approvals for solid waste permits and groundwater correspondence by the staff of LDEQ.... Based on these key lines of evidence, it is Cleco’s opinion that the EPA should allow the continued operation of earthen lined surface impoundments if the quality of the liners equals or exceeds that of synthetic liners as these do.

In summary, the consultant report states:

Based on the information above, it appears that Cleco intended to have a three-foot compacted clay liner in place for Ash Basin No. 1 that met the regulatory permeability requirements at the time of construction. Geotechnical borings were completed to determine the in situ soil conditions for Ash Basin No. 1. Based on the laboratory data for the in situ soils in the Ash Basin No. 1, a minimum of two feet of clay liner is in-place and laboratory permeability results meet the bottom liner permeability requirements as specified in the 40 CFR 257.71 CCR Rule.

Taken together, this is a good example of the type of “justification” that operators will provide to EPA or State Directors in order to obtain alternate liner determinations. Not only is there literally no support for most statements made in this Cleco “justification,” any support relying on the few older documents is so lacking as to be meaningless. In this case, Cleco and its consultant Providence attached a few excerpts from a 1994 report. There was not even a map showing the referenced boring locations. None of the boring logs were legible. Of course, the site does not come close to meeting any of the EPRI 2019 requirements, setting aside all of its flaws as discussed previously.

This Cleco submittal is far from the types of demonstration that EPA itself states would be required to get a successful alternate liner demonstration. But, as Cleco notes, this facility has

been permitted for decades, showing just how cursory the State Director’s review has been – and which, supposedly undergirds EPA’s proposed rule’s approval mechanism. I also note that given the lack of scrutiny of the initial application in the proposed regulations, this site would pass the first hurdle when it clearly should not.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0193

**Page(s):** 29-34

**Excerpt ID:** 59358

**Comment:**

V.3 Cleco - Brame Energy Center

I have reviewed justifications for alternate liner demonstrations by Cleco for two CCR units located at the Brame Energy Center (BEC), a Bottom Ash Pond and a Fly Ash Pond. The justifications are of the same quality as that discussed above for Cleco’s Dolet Hills plant. And, they rely on the same (Providence Engineering and Environmental Group) consultant reports as in the case of Dolet Hills. Providence simply attached excerpts or portions of earlier reports with a little bit of additional data collection, to arrive at the same conclusions – namely that the clay under these CCRs is of sufficient thickness to warrant an alternate liner determination.

Cleco states that the clay layer under these CCR units “exceeds five feet in thickness” and that the permeability meets or exceeds the criteria of 40 CFR 257.71 – namely  $1 \times 10^{-7}$  cm/s. Of course, even at face value, and setting aside support that is lacking for these statements, these criteria do not meet even the EPRI 2019 findings (i.e., 25 feet of clay and permeability of  $10^{-8}$  cm/s). That alone is disqualifying. Further, there is no analysis whatsoever of permeable layers or heterogeneities at the site.

As noted above, Cleco conducted some supplemental analysis to determine the thickness of clays at the site. It states in its report that:

[T]he supplemental soil cores obtained in the base of the Bottom Ash and Fly Ash Ponds demonstrate a thickness greater than two feet of clay for each unit. The results of the Atterberg limits testing indicate clays are predominantly CH (high plasticity) clays. The results of the permeability testing ranged from  $3.3 \times 10^{-9}$  to  $8.9 \times 10^{-8}$  centimeters per second (cm/sec) for the Fly Ash Pond and ranged from  $1.3 \times 10^{-8}$  to  $8.9 \times 10^{-8}$  cm/sec for the Bottom Ash Pond.

In other words, recent testing does not even support the “exceeds five feet in thickness” statements by Cleco given that the new data show only “greater than” two feet of clay at the soil cores. Further, the permeability testing summarized above indicate that the high end of permeability – i.e.,  $8.9 \times 10^{-8}$  is effectively a  $1 \times 10^{-7}$  cm/s value, making it close to an unlined scenario, as noted by EPRI 2019.

Cleco’s overall conclusions mirror that in Dolet Hills, namely that since these “facilities have been permitted by LDEQ multiple times and have been in operation for over 35 years” and

because groundwater monitoring is being conducted and that no adverse impacts to groundwater have been observed, that therefore an alternate liner determination is justified. Cleco does not support its request with anything close to the types of characterization noted in the proposal. Nor does it support the groundwater findings with any rationale for the adequacy of the number of wells, their location, and their screening intervals.

I have also reviewed the two consultant reports, one for each of the CCR units. They are each similar to the one prepared for Dolet Hills in that they excerpt portions of earlier applications and the only difference is the supplemental cores collected at the Brame site. I discuss them briefly below.

#### Bottom Ash Pond

Although not stated by Cleco, the Providence report notes that depth to groundwater varies from 6 to 10 feet below grade.

Providence relies on the 1981 solid waste permit application and notes that the application stated that “the in situ clay in the upland terrace area that extended to about midway east/west of the Bottom Ash Pond met the permeability requirements.” Providence states that “a three-foot thick clay liner was placed over the exposed granular soils beyond the upland terrace area.... Laboratory permeability results on the recompacted samples ranged from  $1.1 \times 10^{-7}$  to  $2.1 \times 10^{-8}$  cm/sec. The liner permeability requirements as contained in the CCR rule were not met in all cases as shown with the  $1.1 \times 10^{-7}$  cm/sec data.”

Therefore, Providence collected some additional cores and conducted permeability testing. The summary of the permeability testing confirms that the highest permeability was  $8.9 \times 10^{-8}$  cm/s, which is close to  $1 \times 10^{-7}$  cm/s.

#### Fly Ash Pond

Initially, when applying for the permit for this pond in 1981, Providence notes that “it was discovered by Cleco personnel that there appeared to be insufficient clay in certain areas of the Fly Ash Pond to meet the liner requirements of the Solid Waste Rules and Regulations. This was subsequently verified in the field....” The solution was to “use a small area . . . of the Fly Ash Pond... which did have sufficient liner until a permanent solution could be formulated[,]” to which the agency agreed. Predictably, Cleco then found, as part of the “permanent solution” that “alternative liner substances for the area not having sufficient liner were determined to be economically or administratively unacceptable[,]” and therefore “Cleco proposed an alternative to enclose 30 acres of the original 104 acres with the construction of a new dike within the original perimeter dikes. Most of the 30 acres already contained an acceptable liner....” and that “three feet of clay liner was added to the interior slope of the levee as well as areas of the bottom liner that needed repair.”

Like the Bottom Ash Pond above, at best there is three feet of clay, setting aside all of the questions raised by the statements above starting with the adequacy of characterization of even the limited 30-acre portion of the original 104-acre pond site and the extent and efficacy of the

“repair” noted. Simply, even using the additional supplemental cores collected, which show the highest permeability to be  $8.9 \times 10^{-8}$  cm/s, which is close to  $1 \times 10^{-7}$  cm/s, none of this meets even the EPRI 2019 criteria, setting aside its many deficiencies and flaws I have discussed earlier.

Boring logs (somewhat more legible than the ones in Dolet Hills) excerpted below show clear instances of more conductive sandy materials throughout

My conclusions as to these two CCR units at the Brame Energy Center are the same as previously noted for Cleco’s Dolet Hills site – namely that these are examples of sites that have no justification for even requesting alternate liner determinations because of the scant documentation and the clear inadequacy of the technical record.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0193

**Page(s):** 34-38

**Excerpt ID:** 59359

#### **Comment:**

##### V.4 DTE Monroe Power Plant

I next consider the Monroe power plant (MONPP). I start by noting that groundwater monitoring data for the CCR unit (Fly Ash Basin, FAB) at this site show evidence of leakage, with elevated levels of boron, fluoride and lithium in downgradient wells. So, there is prima facie evidence as to the inadequacy of the liner for the CCR unit. This should be a disqualifying factor in the initial application phase since it is proof that the clay “liner” leaks.

Regardless, I have reviewed available information for this site based on publicly available records.

The site is located proximate to water bodies including Lake Erie as confirmed by TRC MONPP 2018:

The MONPP FAB is located about one mile southwest of the MONPP...The MONPP FAB is bounded by Dunbar Road and Plum Creek to the north and northeast, Interstate 75 to the northwest, a 200-acre peninsula into Lake Erie to the east and southeast, Lake Erie to the south, and a large open field to the southwest...The FAB base is keyed into the existing natural clay rich soil ground surface at an elevation of 563.4 feet. This natural low permeability clay rich soil base serves as an underlying hydraulic barrier, forming a natural liner of at least 23 feet of natural clay rich soil below the base of the FAB. (emphasis added)

A figure for the FAB is shown below.

Next, I show excerpts various boring logs for wells in the area, highlighting the presence of conductive layers within the clays present at the site.

Below, I excerpt cross sections depicted by TRC, which do not note the presence or extent of the conductive layers noted in the boring logs. I also note that the wells are screened in bedrock

My conclusion for this site is that the clay layer under the FAB is not properly characterized even though there is clear evidence that more conductive layers are present. Given its presence near large water bodies, the complex hydrogeology at the site would need considerably more characterization before DTE, the operator, can make a showing that the site is suitable for an alternate liner demonstration. I also note that well placement, the number of wells, and screening intervals do not appear to be based on hydrogeological characterization and that therefore groundwater investigations need more data. The facility has used the flawed “intra-well” comparison of well data to arrive at flawed groundwater impacts.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0193

**Page(s):** 38-42

**Excerpt ID:** 59360

#### **Comment:**

##### **V.4 DTE Belle River Power Plant**

I next consider the DTE’s Belle River Power Plant (BRPP). I start by noting that groundwater monitoring data for the CCR unit (Bottom Ash Basins, BABs) at this site show evidence of leakage, with elevated levels of boron, arsenic and lithium in downgradient wells. While DTE does not appear to have wells designated as upgradient, this is prima facie evidence as to the inadequacy of the liner for the CCR unit. I have reviewed available information for this site based on publicly available records.

TRC BRPP 2018 claims the following as to the geology at the site:

The BRPP BABs CCR unit is located approximately one-mile west of the St. Clair River. The BRPP BABs CCR unit is underlain by more than 130 feet of unconsolidated sediments, with the lower confining Bedford Shale generally encountered from 135 to 145 feet below ground surface (bgs). The BABs are incised into the clay to an elevation 580 ft MSL. In general, the BRPP BABs CCR unit is initially underlain by at least 90 feet to as much as 136 feet of laterally extensive low hydraulic conductivity silty clay-rich deposits. The depth to the top of the confined sand-rich uppermost aquifer encountered immediately beneath the silty clay-rich deposits varies up to 46 feet within the monitoring well network and rapidly thins to the south and east of the BABs and pinches out (e.g., no longer present) to the southeast in the vicinity of SB-16-01. Consequently, the uppermost aquifer is not laterally contiguous across the entire BRPP BABs CCR unit and is not present in the southeastern corner of the BABs....The variability in the depth to the uppermost aquifer is a consequence of the heterogeneity of the glacial deposits and is driven by the lateral discontinuity of the sand outwash within the encapsulating fine-grained, silty-clay till that confines the uppermost aquifer. There is an apparent lack of interconnection and/or significant vertical variation between the uppermost aquifer sand unit(s) encountered across the BRPP BABs CCR unit as demonstrated by the extensive amount of time

(months) it took for water levels in monitoring well MW-16-02 to reach equilibrium after well construction and development (TRC, 2017).

A review of available information indicates little support for the emphasized text above. Particularly, with regard to the last statement concerning a “lack of interconnection,” just because the water level at a well took months to reach equilibrium, it is not a definite sign of “apparent lack of interconnection” between the aquifer and sand units, which TRC admits were “encountered across the BRPP BABs CCR.”

A figure of the site is shown below.

Next, I excerpt several cross sections that show sporadic sand lenses, as noted above. But these excerpts are inconsistent with TRC’s statements that these sand layers were “encountered across the BRPP BABs.” Thus, the cross-sections are not reliable. Since site models often rely on crosssections without reviewing boring logs, poorly depicted cross sections that are not consistent with boring logs are not reliable.

My conclusion for this site is that the clay layer under the BABs is not properly characterized even though there is clear evidence that more conductive sand layers are present and noted by the consultant. The complex hydrogeology at the site would need considerably more characterization before DTE, the operator, could even attempt a showing that the site is suitable for an alternate liner demonstration. I also note that well placement, the number of wells, and screening intervals do not appear to be based on hydrogeological characterization and that therefore groundwater investigations need more data. The facility has used the flawed “intra-well” comparison of well data to arrive at flawed groundwater impacts. For all of these reasons, this site should not pass the first application hurdle.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0193

**Page(s):** 43

**Excerpt ID:** 59363

**Comment:** (iii) Using groundwater monitoring data from wells installed as part of the CCR rule in order to make alternate liner demonstrations is problematic, especially when operators seek to conclude that there are no impacts. The rationale for the number of wells, well placement, and screening intervals is not provided in most instances, other than attempting to provide “coverage” around the unit. No attempt is made to identify the presence of preferential pathways under and away from the unit before placing wells. Wells are not screened in the proper locations that may allow determinations of leachate contamination away from the CCR unit via preferential pathways. Regional and local groundwater flow directions (and changes, especially for units located near large water bodies) cannot be determined with just a few rounds of sampling, even if the wells are properly located and are screened across the proper hydrogeologic units. Finally, “statistical” comparisons being made by operators to arrive at the conclusion that there are no statistically significant increases (SSI) across such units are significantly flawed – one example being the use of intra-well statistical comparisons.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0193  
**Page(s):** 43-44  
**Excerpt ID:** 59366

**Comment:** (v) EPRI's 2019 Technical Report cannot provide support for these alternate liner determinations because each of its two main technical supporting analyses are flawed: (i) the use of the EPACMTP model is inappropriate for the reasons noted above in this report as well as critiques by EPA also provided in the record; and (ii) the conclusions drawn for the example J.R. Whiting site is not appropriate because the EPRI report does not recognize the clear technical data gaps and errors in interpretations that have been made for this site. EPRI's conclusion that the 35-foot clay layer under the J.R. Whiting Ponds 1 and 2 is protective is not credible. It is clear from the field boring logs and core photographs that the clay layer is not homogeneous and has significant interbedding of permeable sand, pebbles, gravel and the like. Yet, cross-sections depicted in the various reports do not faithfully include these features observed in the boring logs. Thus, higher-level conclusions by EPRI that these features are of no consequence are not supported by the data. As to whether these features are continuous or discontinuous, resolving that question would require far better spatial characterization – which has not been done. All of this points to the diligence that will be required – from the field geologist on up to the reviewing authorities at EPA or the State – in order to conduct technically adequate site hydrogeological characterization and reviews of such characterization. Given the timeframe that is provided for such characterizations this is simply unlikely to happen in the practical world.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0193  
**Page(s):** 44  
**Excerpt ID:** 59367

**Comment:** (vi) EPRI concludes that CCR units with composite liners are always more protective regardless of hydrogeologic conditions at a particular CCR site. This alone should make EPA wary of proceeding with the proposed rule, given its narrow need (i.e., only a few facilities may ever ask for alternate liner demonstrations), its dubious support, and the fact that it relies on “favorable” site conditions, which are impossible to prove.

**Response:** The Agency acknowledges the information provided by the commenters. As discussed in more detail in Unit III.A.1 of the preamble to the final rule, the Agency agrees that the existing risk record is not sufficient to support final conclusions about any individual unit. The purpose of this rule is to provide a process for facilities to submit the types of information necessary to support such a conclusion, and the purpose of the initial application step is to determine whether the types of deficiencies raised by commenters are present at a particular site, and if so, to ensure that these facilities do not progress to the longer ALD process.

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### 3.1.2 EPRI Comments on EPRI Report

**Commenter Name:****Commenter Affiliation:** Electric Power Research Institute, Inc. (EPRI)**Comment Number:** EPA-HQ-OLEM-2019-0173-0046**Page(s):** 6-10**Excerpt ID:** 58725**Comment:****2.1.1 EPRI Research on Relative Liner Performance**

In 2019, EPRI published research relevant to Part IV.A. (Alternative Liner Demonstration) of the March 3 Proposal. This research is documented in Relative Liner Performance for Coal Combustion Product Management Sites: Conceptual Review and Model Evaluation for Surface Impoundments. EPRI, Palo Alto, CA: 2019. 3002016498 (EPRI, 2019). Topics addressed in this research included:

- A conceptual review of containment strategies using composite and alternative liners
- A model evaluation of the relative performance of alternative liners—including natural clay liners, engineered (i.e., compacted) clay liners, and composite liners
- A case study detailing groundwater quality around a CCR impoundment with a thick natural clay liner having very low hydraulic conductivity

This research is directly relevant to the March 3 Proposal because it provides technical data demonstrating that some alternative liner scenarios can perform similarly to the composite liner specified in the CCR Rule. However, it is also important to be clear on some limitations of this research:

- This research is based on a mostly conservative set of assumptions in order to compare the hypothetical performance of one liner type against the other, and cannot be used to evaluate how any specific liner type will perform on a site-specific basis; nor can it be used to evaluate closure or remediation options for any specific site.
- The modeling performed for this research did not consider how different cap materials may affect performance, and caps are subject to different physical conditions than liners; therefore, the results of the model comparisons are not applicable to caps or cap materials.

The model methodology used by EPRI (2019) followed the model methodology used by USEPA for the nationwide CCR risk assessment (USEPA, 2014). Modeling was performed using EPACMTP (USEPA, 1997). This model was developed by USEPA to simulate the fate and transport of constituents leaching from land-based waste management units through the underlying unsaturated and saturated zones. EPACMTP was selected for EPRI's modeling because:

- It has the capability to efficiently perform large numbers of simulations using a probabilistic, Monte Carlo approach (USEPA, 2003);



- It was designed specifically to simulate the infiltration of constituents leaching from surface impoundments (USEPA, 2003); and
- It was the modeling package used by USEPA for the Agency’s CCR Risk Assessment (USEPA, 2014).

Four liner types were evaluated in the EPRI (2019) modeling. The base case represents the liner specified in the CCR Rule: a composite liner consisting of a 60-mil HDPE layer over a 2-ft compacted soil layer with a hydraulic conductivity of 10<sup>-7</sup> cm/s. An unlined type was also included to represent an uncontrolled scenario. Alternative liners that were simulated included an engineered clay liner, several variations of thick natural clay liners, and variants of a composite liner (Table 1).

When feasible, input parameter distributions similar to those used by USEPA (2014) were used for this analysis. Table 2 describes parameters where inputs used in the EPRI (2019) modeling differed from inputs used in USEPA (2014). Two inorganic constituents were evaluated—lithium and arsenic(III), the latter of which is referred to simply as “arsenic” for the remainder of this discussion. Both lithium and arsenic were identified by USEPA (2014) as potential risk-driving constituents from surface impoundments at the 90th percentile. With the exception of input parameters that vary depending on which liner is being evaluated (e.g., infiltration rate), all input parameters and distributions were defined in the same manner for each liner type to allow for an appropriate “apples to apples” comparison.

The overall effect of the differences (other than specified liner parameters) listed in Table 2 is that the model-calculated maximum constituent concentrations calculated by the EPRI (2019) modeling were higher than the concentrations that would be derived using the assumptions of USEPA (2014). Furthermore, it is important to recognize that this modeling was performed to compare relative liner performance, and the results are not applicable to any specific site due to the limitations and conservative assumptions documented in EPRI (2019).

The relative performance of each liner scenario was evaluated at two downgradient locations over a period of 10,000 years. For each constituent and for each liner scenario, 10,000 unique simulations in EPACMTP were evaluated.

A probabilistic presentation of relative maximum predicted lithium concentrations in groundwater, at 10 meters and 100 meters downgradient of the surface impoundment, is provided in Figures 1 and 2. A probabilistic presentation of relative maximum predicted arsenic concentrations in groundwater, at 10 meters and 100 meters downgradient of the surface impoundment, is provided in Figures 3 and 4. The figures also show the USEPA Regional Screening Level (RSL; USEPA, 2018a) for lithium or the USEPA Maximum Contaminant Level (MCL; USEPA, 2018b) for arsenic, so that relative performance can be discussed in terms of human health and the environment.

Specific observations based on the modeling results are summarized after the figures. These observations focus on the results of probability distributions between the 10th and 90th percentiles as most representative of overall scenario behavior. This is consistent with USEPA’s

guidance for conducting probabilistic risk assessments and evaluating probabilistic data distributions (USEPA, 2001). This guidance states that:

“[T]he extreme percentiles (“tails”) of an input distribution are understandably the most uncertain part of a [distribution]... since the number of data values in these ranges are less abundant than in the center of the range. This uncertainty in the tails of the input distributions leads in turn to greater uncertainty in the tails of the calculated exposure or risk distribution, and the magnitude of this uncertainty increases rapidly at the very high percentiles. In many cases, estimates at the extreme tails, such as the 99.9th percentile, may be neither accurate nor plausible. For that reason, great care should be taken when evaluating an RME [reasonable maximum exposure] risk in the upper percentiles of the risk range. (USEPA, 2001, p. 7-11)”

**Commenter Name:**

**Commenter Affiliation:** Electric Power Research Institute, Inc. (EPRI)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0046

**Page(s):** 15-16

**Excerpt ID:** 58726

**Comment:**

Specific observations from the EPRI (2019) model results:

All of the composite liners simulated in EPRI (2019) performed similarly, with low (<0.13%) percentages of Monte Carlo results having maximum model-predicted concentrations higher than the lithium RSL or arsenic MCL. The composite liner simulations only differ above the 90th percentile, where the GCL simulation returned slightly lower concentrations and the 40-mil geomembrane simulation with double the defects returned slightly higher concentrations.

The unlined surface impoundment scenario had the highest model-predicted downgradient concentrations, with more than three-quarters of the simulations having a modeled concentration higher than the reference RSL or MCL. This scenario is not considered a liner alternative; rather, it provides insight into the results that this model will predict for an uncontrolled scenario.

The engineered clay liner scenario was more similar to the unlined scenario than to the base case composite liner scenarios for both arsenic and lithium. At 10 meters downgradient of a surface impoundment with an engineered clay liner, modeled groundwater concentrations exceeded the RSL for lithium in 72% of simulations and exceeded the MCL for arsenic in 84% of simulations. These percentages are higher than the percentage of RSL/MCL exceedances calculated by USEPA (2014), which supports the conclusion above that the EPRI (2019) model assumptions that differed from USEPA (2014) yielded more conservative (i.e., higher calculated concentrations) model results

Model results for the low-hydraulic-conductivity (i.e., 10<sup>-8</sup> cm/s) natural clay liner simulations were more similar to the base case composite liner scenarios than to the unlined scenario for both lithium and arsenic. Model-predicted maximum lithium concentrations for the natural liner simulations with a hydraulic conductivity of 10<sup>-8</sup> cm/s were less than the lithium RSL in 93% to 94% of the simulations (depending on liner thickness) 10 meters downgradient, and less than the

RSL in 98% to 99% of the simulations 100 meters downgradient. Model-predicted maximum arsenic concentrations were less than the arsenic MCL in 86% to 88% of simulations 10 meters downgradient, and less than the MCL in 94% to 95% of simulations 100 meters downgradient.

The hydraulic conductivity of the natural clays is a sensitive parameter in these evaluations. As the hydraulic conductivity of a natural clay layer is decreased, the distribution becomes more similar to the base case composite scenarios. Conversely, the natural clay liners with a modeled hydraulic conductivity of 10-7 cm/s yielded concentration distributions between the 10-8 cm/s natural clay scenario and the engineered clay liner. The modeled peak concentrations of lithium for the natural clay scenario at 10-7 cm/s were higher than the lithium RSL in more than 40% of simulations, while, at 10-8 cm/s, the modeled peak concentrations were higher than the lithium RSL in fewer than 7% of simulations. For arsenic, the 10-7 cm/s natural clay liner scenario resulted in modeled peak concentrations higher than the arsenic MCL in more than 50% of simulations, while the 10-8 cm/s scenario resulted in modeled maximum concentrations higher than the MCL in less than 14% of simulations. Conversely, the model had low sensitivity to the thickness of the natural clay liner, within the range (25–150 ft) modeled.

**Commenter Name:**

**Commenter Affiliation:** Electric Power Research Institute, Inc. (EPRI)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0046

**Page(s):** 16-18

**Excerpt ID:** 58727

**Comment:**

EPRI (2019) modeling results show three key observations: 1) alternative composite liner scenarios performed similarly to the base case composite liner; 2) thick natural clay liners with a hydraulic conductivity of about 10-8 cm/s performed more similarly to the base case composite liner scenario than to the unlined scenario; and 3) engineered clay liners and thick natural clay liners with a hydraulic conductivity of 10-7 cm/s performed more closely to the unlined scenario than to the base case composite scenario, although these liner alternatives were less likely than the unlined scenario to yield a modeled constituent concentration higher than the reference health-based criteria. Sensitivity analyses included in EPRI (2019) showed that more refined modeling scenarios for natural clay liners that account for constituent migration and sorption within the thick natural clay liner in addition to potential confined groundwater conditions in the underlying aquifer reduced the maximum model-predicted downgradient concentrations; for these revised scenarios, performance of the natural clay liners was closer to that predicted for the base case composite scenarios than the results shown in Figures 1 through 4.

Even with the conservative assumptions (resulting in higher concentrations than non-conservative assumptions) used in this modeling, thousands of combinations of environmental parameters identified in the Monte Carlo analysis for each scenario yielded model results in which maximum constituent concentrations at the point of compliance did not exceed the human health benchmark within the 10,000-year time frame of the modeling. These results, by extension, suggest that there are many plausible scenarios in which alternative liners can be

protective of human health and the environment, depending on site-specific hydrogeologic conditions.

The research in EPRI (2019) was not intended to apply to new units. EPRI (2019) notes that the composite liner as specified in the CCR Rule is expected to be protective regardless of hydrogeologic environment. Furthermore, the EPRI research utilized many conservative assumptions, and does not consider site-specific conditions including geography, hydrogeology, and compliance with location criteria in the CCR Rule, and therefore cannot be used to evaluate site-specific closure or remediation options. Finally, the modeling performed for this research did not consider how different cap materials may affect performance, and caps are subject to different physical conditions<sup>3</sup> than liners; therefore, the results of the model comparisons are not applicable to caps or cap materials.

In summary, the EPRI (2019) results provide a technical evaluation indicating that certain existing units with composite liners that differ from the criteria in the CCR Rule, or with thick natural clay liners that have very low hydraulic conductivity, can be similarly protective of human health and the environment as the composite liner specified in the CCR Rule.

**Commenter Name:**

**Commenter Affiliation:** Electric Power Research Institute, Inc. (EPRI)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0046

**Page(s):** 18-20

**Excerpt ID:** 58728

#### **Comment:**

##### **2.1.2 HDPE Geomembrane Thickness**

The March 3 Proposal also provides for alternative liner demonstrations for non-soil liners (i.e., geomembrane-soil composite liners) that do not meet the criteria specified in the CCR Rule. In many cases, the criterion in question will be the geomembrane thickness, specifically for HDPE. EPRI (2019) includes information relevant to this topic, as summarized next

##### **Conceptual Review of HDPE Thickness**

As noted in EPRI (2019), the requirement for a 60-mil (1.5-mm) HDPE geomembrane in 40 CFR 257 is associated with concerns circa 1990 regarding the ability to weld thinner HDPE geomembranes effectively in the field and greater propensity for puncture of thinner HDPE geomembranes (USEPA 1988, Federal Register 1991). Due to improvements in welding technology and quality control procedures, concern regarding welding thinner HDPE geomembranes has diminished over the three decades since RCRA Subtitle D was drafted. Today, 40-mil and 60-mil HDPE geomembranes can be welded equally effectively. However, HDPE is a stiffer and less ductile polymer than some other polymers used for geomembranes (polyvinyl chloride, linear low-density or very low-density polyethylene, or polypropylene) and is therefore more susceptible to puncture than those geomembranes. The susceptibility increases as the thickness of the liner diminishes. For that reason, 40 CFR 257 and similar regulations

stipulate that HDPE geomembranes must be at least 60-mil (1.5 mm thick), and permit thinner geomembranes manufactured with other polymers.

Evaluating the equivalency of composite liners constructed with 40-mil and 60-mil HDPE geomembranes is complicated by the information available for assessment. The 40-mil HDPE is considerably more flexible than a 60-mil HDPE, and therefore conceptually has better contact with an underlying soil liner. However, the thinner HDPE geomembrane is prone to more defects. According to Giroud's equation (equation 2.1 in EPRI 2019), better contact reduces the leakage rate, whereas a greater frequency of geomembrane defects increases the leakage rate. EPRI (2019) reported that a search for literature on leak location surveys and other assessments that could be used to evaluate different defect frequencies or contact factors for thinner and thicker HDPE geomembranes did not return any literature that could be used to formulate a scientific opinion regarding the effect of HDPE geomembrane thickness on defect size, defect frequency, or contact quality. EPRI (2019) qualitatively observed that a 25% higher defect frequency is a reasonable upper bound for a 40-mil HDPE relative to a 60-mil HDPE, which would require a reduction in the contact factor by 1.25x to retain equivalency, which is also reasonable for a thinner and more flexible 40-mil HDPE geomembrane relative to the 60-mil criterion.

As noted above, sufficient information does not exist to draw a definitive technical conclusion that a composite liner with a 40-mil HDPE geomembrane is hydraulically equivalent to a composite liner with a 60-mil HDPE geomembrane. Similarly, sufficient information does not exist to draw a definitive conclusion that a composite liner with a 40-mil HDPE geomembrane is not hydraulically equivalent to a similar composite liner with a 60-mil HDPE geomembrane. From a practical perspective, leakage rates from liners with both geomembranes can be similar provided they are constructed with high-quality geomembranes and are installed by a competent and experienced geosynthetic installer.

#### Model Evaluation of HDPE Geomembrane Thickness

EPRI (2019) quantitatively followed up on the conceptual discussion by including a model test with a variant of the composite liner scenario where a 40-mil HDPE geomembrane with the same "good quality" contact factor, but twice as many defects as the base case 60-mil HDPE geomembrane, was simulated (Table 1). By doubling (2x) the defect frequency in the leakage calculation, the model simulation was more conservative than the 1.25x increase considered reasonable in the conceptual evaluation

The model results for the simulations based on a 40-mil geomembrane with twice as many defects as the base case were not distinguishable from the base case with the 60-mil geomembrane at percentiles lower than the 90th (Figures 1 through 4). The only differences occur at percentiles higher than the 90th. However, this difference is slight, and does not affect the percentile at which the curves cross the RSL line for lithium or the MCL line for arsenic (i.e., the curve for the 40-mil geomembrane with twice as many defects crosses the RSL or MCL line at the same point as the curve for the base case with the 60-mil geomembrane).

**Commenter Name:**

**Commenter Affiliation:** Electric Power Research Institute, Inc. (EPRI)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0046

**Page(s):** 20

**Excerpt ID:** 58729

**Comment:**

#### Conclusion Concerning Geomembrane Thickness

The EPRI (2019) model simulations, which used a similar modeling approach as that used by USEPA (2014) in its CCR Risk Assessment, indicated that the frequency of defects simulated had negligible effect on model results for the composite liner. These results suggest that a composite liner with an HDPE geomembrane that does not meet the 60-mil thickness criterion of the CCR Rule may be able to perform similarly to the base case composite liner specified in the CCR Rule, provided that it is placed by a qualified contractor with appropriate levels of quality control. This conclusion is conceptually supported by the observation in EPRI (2019) that a thinner geomembrane, while more prone to tears and punctures, can more conformably overlay the substrate than a thicker HDPE geomembrane, and these are offsetting factors in composite liner leakage equations such as Giroud (1997).

**Commenter Name:**

**Commenter Affiliation:** Electric Power Research Institute, Inc. (EPRI)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0046

**Page(s):** 23

**Excerpt ID:** 58733

**Comment:**

#### 2.4.1 Concerning Leakage Through Composite Liners

On Page 12459, the March 3 Proposal states: “As designed, the geosynthetic liners required by the 2015 CCR rule would prevent any release of leachate to the subsurface.”

As noted in EPRI (2019), the composite liner specified in the CCR Rule is effective in controlling leakage, regardless of hydrogeologic environment; however, nearly all composite liners transmit some leakage because defects in the geomembrane component are inevitable. A composite liner is used so that the clay component can restrict flow in areas where the geomembrane has defects. That is, the geomembrane and clay function synergistically, with the geomembrane blocking flow over the majority of the surface area of the liner and the clay restricting flow beneath defects in the geomembrane (Giroud, 1997). State-of-the-practice reviews conducted for USEPA (Bonaparte et al. 2002) and the National Academies (Mitchell et al. 2007) provide example data on leakage rates through composite liners.

**Response [to the above comments](#):** The Agency acknowledges the information provided by the commenter and agrees that this analysis shows there are plausible scenarios in which alternate liners can be protective. However, as discussed in Units III.B and C of the preamble, broader

conclusions about any individual unit will require site-specific data beyond what is documented in this report.

### 3.2 Consistency of Rule with USWAG Decision and RCRA 4004(a)

#### 3.2.1 Rule is Consistent

**Commenter Name:**

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Page(s):** 3-4

**Excerpt ID:** 58702

**Comment:**

Xcel Energy supports EPA's Part B Proposal to provide for a case-by-case approach to allow certain impoundments to continue operating based on the unique characteristics of an impoundment and site setting. The basis for this is well supported by the administrative record. EPA has itself acknowledged that it may have reached a conclusion that supported the continued operation of unlined impoundments that are not leaking if it had had more time. In the proposed Part A rule at page 65945, paragraph V(B)(1) 'EPA's Reconsideration', EPA explains:

The USWAG court faulted EPA for failing to fully estimate the risks associated with the continued operation (and leakage) of unlined impoundments and for failing to address the risks from allowing these units to continue to operate until they leak, holding that RCRA requires the Agency to determine that such risks would be acceptable under the § 4004(a) standard in order to authorize the continued operation of such units during this time. In the absence of such an assessment, the D.C. Circuit stated that, based on the record before the court, all unlined surface

impoundments must cease receiving waste, whether or not the unit is leaking.

EPA further states:

Additionally, given the expedited timeframe needed to complete the reconsideration of the deadline for a unit to cease receiving waste and initiate closure, EPA was unable to develop a nationwide risk assessment of continued operation of these units.

Again, EPA is essentially acknowledging, and Xcel Energy agrees, that certain unlined impoundments may not pose a risk but, given the need to respond to the court case, there was not sufficient time to update the administrative record. Regardless of a current court mandate or the external time pressures that may be on the agency, this cannot be the standard for rulemaking. The Comanche Bottom Ash Pond is one example of supplemental information that exists and is now incorporated into the administrative record. This supplemental information demonstrates that certain unlined impoundments can continue to operate with no reasonable probability of

adverse effects on health or the environment and supports inclusion in the rule of a provision for facilities to continue operation of these units upon making such a demonstration.

**Commenter Name:**

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Page(s):** 29-30

**Excerpt ID:** 58834

**Comment:** Importantly, however, the D.C. Circuit’s decision did not say that EPA could never determine that individual “unlined” impoundments can operate as safely as units constructed with a composite liner system meeting the current CCR rule’s requirements. The court’s decision was based on the record before it, specifically the 2014 Risk Assessment which, as EPA itself notes in the Proposal, was used to “identify the potential for risk at a national scale” and “could not be used to draw conclusions about any individual impoundment.” Thus, the Agency is not precluded from developing new record evidence demonstrating that impoundments affected by the USWAG decision—namely, “clay-lined” impoundments and “unlined” impoundments that are not affecting groundwater—are just as protective, if not more so, as those with composite liners. Rather, the USWAG decision left open the possibility that EPA, in a subsequent rulemaking, could revise the record and propose a rule that would allow for certain “unlined” CCR impoundments to continue operating. This is exactly what EPA is proposing to do here: establish a process that would enable the Agency to consider new record evidence—consistent with the USWAG decision—that qualifying impoundments currently classified as “unlined” perform “equivalent to a composite liner” and therefore meet RCRA’s protectiveness standard and can continue to operate.

**Commenter Name:**

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Page(s):** 30

**Excerpt ID:** 58835

**Comment:**

As noted above, the criteria in the 2015 rule was based on a 2014 Risk Assessment that looked at risk posed by CCR units at a national level. The Risk Assessment did not contain specific information about individual units or an evaluation of the level of risk posed site by site. Thus, EPA was not able to draw conclusions about individual units or, even, regions around the country.

In addition, the 2014 Risk Assessment placed all CCR impoundments into three liner categories: (1) those with a composite liner system; (2) those with a three-foot compacted clay liner system installed over local soils; and (3) those units where waste is placed directly on local soils. As acknowledged by EPA, this was an oversimplification of the universe of impoundments in the country, as a number of facilities reported different liner configurations during the 2009/2010 surveys.



In short, the 2015 rule did not take into account site-specific characteristics when determining the level of risk posed by CCR units or developing the criteria necessary to address those risks.

**Commenter Name:**

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Page(s):** 30-31

**Excerpt ID:** 58836

**Comment:** But evidence shows that site-specific elements—whether the specific type of liner system used or the natural environmental conditions in which the impoundment is set—can dramatically lower the risk posed by units without a composite liner system.

**Commenter Name:**

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Page(s):** 34-35

**Excerpt ID:** 58841

**Comment:**

If the facility has the appropriate groundwater monitoring system in place showing groundwater flow and groundwater characteristics, and the data from this system confirm that the unit has not resulted in adverse groundwater impacts from operation of the unit (indeed, in some cases, these units have operated for decades without any adverse groundwater impacts), it is entirely reasonable for EPA to conclude that there is “no reasonable probability” that the unit will cause adverse groundwater impacts during the pendency of the step two evaluation process, which is a limited time period of approximately 14 months.

Allowing impoundments that meet the eligibility requirements to continue operation during the step two evaluation process meets the Subtitle D protectiveness standard. Critically, Subtitle D does not require elimination of all risk. Rather, “reasonable probability”—the statutory yardstick against which Subtitle D regulations are to be measured—requires a balancing; it is a standard that “is moderate under the circumstances” and “sensible” against some possibility of risk. A facility’s groundwater monitoring history, as well as preliminary data relating to site-specific conditions at the site (such as groundwater flow, depth to groundwater, soil conditions, etc.), provides EPA ample information to determine whether there is “no reasonable probability” the unit will pose adverse effects on human health or the environment in the near term.

**Commenter Name:**

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Page(s):** 35

**Excerpt ID:** 58843

**Comment:** With regard to step two of the process, an owner/operator must submit detailed information relating to the site hydrogeology and the potential for infiltration through any liner or underlying soils. This information will enable EPA to determine “with a reasonable degree of

certainty, that based on the construction of the unit and surrounding site conditions, operation of the surface impoundment will not result in groundwater concentrations above the relevant groundwater protection standard at the unit boundary.” This is, as EPA explains, a determination that the design of the impoundment performs at an equivalent level to the rule’s composite liner system in § 257.70(b), a liner system that has been found to meet RCRA’s Subtitle D protectiveness standard.

**Commenter Name:**

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Page(s):** 41

**Excerpt ID:** 58855

**Comment:** USWAG notes that the Proposal would not preclude facilities that are in assessment monitoring from applying for an alternative liner demonstration. This is appropriate, as it is possible to be in assessment monitoring due solely to constituents on the Appendix III list and to never exceed a groundwater protection standard. Indeed, the CCR rule specifically contemplates facilities in assessment monitoring returning to detection monitoring. Thus, if a facility is in assessment monitoring, it is not a foregone conclusion that it will in fact adversely affect groundwater. The Proposal appropriately allows these facilities to demonstrate to EPA why sitespecific conditions will prevent such adverse effects in the future.

**Commenter Name:**

**Commenter Affiliation:** American Coal Council (ACC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0088

**Page(s):** 3

**Excerpt ID:** 58891

**Comment:** EPA’s Part B proposal would provide the opportunity to demonstrate that unlined impoundments can operate in accordance with the RCRA Subtitle D protectiveness standard.

**Commenter Name:**

**Commenter Affiliation:** American Coal Council (ACC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0088

**Page(s):** 4

**Excerpt ID:** 58893

**Comment:** EPA is proposing a two-step demonstration process with an initial application and then the submission of the alternative liner demonstration. The proposed two-step process is appropriate. It will allow EPA to quickly identify impoundments that are not currently impacting groundwater to target only these impoundments for eligibility to then seek an alternative liner demonstration. Since these impoundments are posing no risk in the short-term, they meet the protectiveness standard of RCRA subtitle D and can continue to operate while owners and operators develop the data for the demonstration that they can continue to operate to the standard over their lives

**Commenter Name:** Tawny Bridgeford

**Commenter Affiliation:** National Mining Association (NMA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0095

**Page(s):** 3

**Excerpt ID:** 58925

**Comment:** EPA's proposed alternate liner demonstration process is a lawful and necessary regulatory option for those facilities that can prove on a site-specific basis that an impoundment can continue to operate safely in accordance with the RCRA Subtitle D statutory standard (e.g., poses no reasonable probability of adverse impacts to human health or the environment)

**Commenter Name:** Tawny Bridgeford

**Commenter Affiliation:** National Mining Association (NMA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0095

**Page(s):** 3

**Excerpt ID:** 58926

**Comment:** EPA's proposal is a rational and reasonable response to the U.S. Court of Appeals for the District of Columbia Circuit's ("D.C. Circuit") adverse decision in *USWAG v. EPA*, which held that the agency erred in: (1) allowing "unlined" CCR surface impoundments to continue operation unless and until such units showed adverse groundwater impacts; 10 and (2) classifying certain "clay-lined" units as "lined."

**Commenter Name:** Tawny Bridgeford

**Commenter Affiliation:** National Mining Association (NMA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0095

**Page(s):** 3-4

**Excerpt ID:** 58928

**Comment:** The D.C. Circuit's decision in *USWAG v. EPA* does not preclude EPA from determining that operation of an individual unlined CCR surface impoundment meets the Subtitle D protectiveness standard. As EPA explains in the proposed rule, the agency based the 2015 CCR disposal rule on a 2014 Risk assessment geared toward identifying potential risk at a national scale, and that this data "could not be used to draw conclusions about any individual impoundment." In fact, EPA's 2015 CCR disposal rule did not account for site-specific characteristics that lower risk posed by "unlined" units. Importantly, nowhere in the D.C. Circuit opinion did the court say EPA could not implement on remand a mechanism to allow for a sitespecific determination that an individual unlined impoundment can operate safely. EPA is permitted to do so based on the administrative record for this rulemaking. NMA understands that EPA now has record evidence that certain qualifying impoundments could meet RCRA's protectiveness standard. These (and other) facilities should be allowed to continue their operations if they can demonstrate that the underlying soils and/or alternative liner system operates as or more effectively than the CCR rule's composite liner system.

**Commenter Name:**

**Commenter Affiliation:** Luminant Generation Company LLC et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0097

**Page(s):** 5

**Excerpt ID:** 58953

**Comment:** Moreover, this proposed process is consistent with the USWAG decision, which (1) vacated the provision that treated clay-lined surface impoundments as lined, and (2) vacated and remanded the provision requiring “unlined” impoundments to close only where they are impacting groundwater

**Commenter Name:**

**Commenter Affiliation:** Luminant Generation Company LLC et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0097

**Page(s):** 5

**Excerpt ID:** 58954

**Comment:** As a result of the gap in regulation left by the USWAG decision, a subset of CCR surface impoundments, including those that are considered “clay-lined,” would be forced to initiate closure or retrofit despite showing no signs of impacts to groundwater. EPA’s proposal would fill this gap and provide facilities with an opportunity to demonstrate that individual “unlined” impoundments can safely operate, based on site-specific characteristics, in accordance with RCRA’s protectiveness standard and the Court’s decision in USWAG.

**Commenter Name:**

**Commenter Affiliation:** Luminant Generation Company LLC et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0097

**Page(s):** 5

**Excerpt ID:** 58955

**Comment:** As a result of the gap in regulation left by the USWAG decision, a subset of CCR surface impoundments, including those that are considered “clay-lined,” would be forced to initiate closure or retrofit despite showing no signs of impacts to groundwater. EPA’s proposal would fill this gap and provide facilities with an opportunity to demonstrate that individual “unlined” impoundments can safely operate, based on site-specific characteristics, in accordance with RCRA’s protectiveness standard and the Court’s decision in USWAG.

**Commenter Name:**

**Commenter Affiliation:** Luminant Generation Company LLC et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0097

**Page(s):** 7

**Excerpt ID:** 58956

**Comment:** Accordingly, the current rulemaking record supports a process that will allow facilities “to make a site-specific demonstration that the design of a particular impoundment is equivalent to [a] composite liner system.” Furthermore, a site-specific liner demonstration will avoid a blanket closure requirement for unlined impoundments that do not present any reasonable risk of groundwater contamination and will potentially prevent companies from allocating unnecessary time and resources to close such impoundments.

**Commenter Name:** Carolyn Slaughter

**Commenter Affiliation:** American Public Power Association (APPA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0099

**Page(s):** 10

**Excerpt ID:** 58972

**Comment:** Considering the USWAG decision, EPA's Part B Proposal is appropriate and necessary.

**Commenter Name:** Paul Pike

**Commenter Affiliation:** Ameren

**Comment Number:** EPA-HQ-OLEM-2019-0173-0117

**Page(s):** 2

**Excerpt ID:** 59023

**Comment:** EPA's proposal would provide owners/operators an opportunity to demonstrate that their unlined impoundment can operate in accordance with the Subtitle D protectiveness standard.

**Commenter Name:** Paul Pike

**Commenter Affiliation:** Ameren

**Comment Number:** EPA-HQ-OLEM-2019-0173-0117

**Page(s):** 2

**Excerpt ID:** 59024

**Comment:** As we understand it, the proposed process should be an appropriate response to USWAG decision.

**Commenter Name:** Paul Pike

**Commenter Affiliation:** Ameren

**Comment Number:** EPA-HQ-OLEM-2019-0173-0117

**Page(s):** 2

**Excerpt ID:** 59025

**Comment:** We also believe that it is consistent with the USWAG decision, because the decision did not limit the ability of EPA to gather additional record evidence to support such site-specific allowances

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 7

**Excerpt ID:** 59077

**Comment:** As an initial matter, EPA's proposal to provide the option for unlined facilities to demonstrate that the liners do not pose a risk to human health or the environment is legally sound and consistent with the D.C. Circuit's ruling in USWAG. The D.C. Circuit stated that allowing unlined or clay-lined impoundments to operate until they leak does not meet RCRA's Subtitle D Protectiveness Standard and that impoundments should be equipped with a composite liner system. In other words, it is not sufficient to use groundwater monitoring results to determine that an unlined impoundment does not meet the Standard after there has already been a release that adversely affected groundwater. This Proposed Rule focuses instead on the liner and

underlying soils, not solely the groundwater monitoring results. The USWAG court did not find that EPA could not, on remand, create a class of unlined impoundments that EPA finds to be sufficiently protective.

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 7

**Excerpt ID:** 59078

**Comment:** Further, the D.C. Circuit did not preclude EPA from further developing the record to support the conclusion that certain unlined impoundments can safely operate. The Proposed Rule creates an avenue for facilities with unlined CCR impoundments to build the record to show that the RCRA Subtitle D Protectiveness Standard has been met.

**Response [to the above comments](#):** As discussed in more detail in Unit III.A.2 through 4 of the preamble to the final rule, the Agency agrees that the rule is consistent with both the *USWAG* decision and the RCRA 4004(a) protectiveness standard.

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### 3.2.2 Rule is Not Consistent

**Commenter Name:**

**Commenter Affiliation:** Black Warrior Riverkeeper

**Comment Number:** EPA-HQ-OLEM-2019-0173-0045

**Page(s):** 7-8

**Excerpt ID:** 58719

**Comment:** These proposed revisions also violate a court order which requires EPA to strengthen, not weaken, the 2015 rule by closing unlined coal ash ponds. See *Utility Solid Waste Activities Group v. EPA*, 901 F.3d 414, 449 (D.C. Cir. 2018) (USWAG) (Court held that EPA acted “arbitrarily and capriciously and contrary to RCRA” in failing to require the closure of unlined surface impoundments and in classifying so-called “clay-lined” impoundments as lined). EPA’s proposed revisions place communities near toxic coal ash pits at great risk and ensure the continued degradation of the nation’s water by toxic coal ash. The proposed revisions contain several very dangerous provisions.

**Commenter Name:**

**Commenter Affiliation:** Black Warrior Riverkeeper

**Comment Number:** EPA-HQ-OLEM-2019-0173-0045

**Page(s):** 8

**Excerpt ID:** 58720

**Comment:** Despite the 2018 order of the U.S. Court of Appeals in *USWAG* requiring closure of all unlined coal ash ponds due to the high risk of groundwater contamination posed by such toxic

pits, the rule now proposed by EPA allows operators of unlined ponds to develop an “alternate liner demonstration” that will allow them to avoid closure. Even though such pits have no liner, an operator could make a “demonstration” that the pit should be considered “lined,” and therefore not be required to close.

**Commenter Name:**

**Commenter Affiliation:** Black Warrior Riverkeeper

**Comment Number:** EPA-HQ-OLEM-2019-0173-0045

**Page(s):** 8

**Excerpt ID:** 58721

**Comment:** Continued operation of these unlined pits directly contradicts EPA’s 2014 risk assessment that found a high risk of arsenic contamination from unlined units and monitoring data revealing that over 91 percent of the industry’s coal ash pits are leaking toxic contaminants, such as arsenic, cobalt, lithium, molybdenum and radium, above federal health standards.

**Commenter Name:** Jonathan Levenshus, Sierra Club, Beyond Coal Campaign

**Commenter Affiliation:** Sierra Club

**Comment Number:** EPA-HQ-OLEM-2019-0173-0048

**Page(s):** 1-2

**Excerpt ID:** 58740

**Comment:** Despite a 2018 federal court order requiring closure of all unlined coal ash ponds due to the high risk of groundwater contamination posed by such toxic ponds, the Part B Proposal would allow operators of unlined ponds to develop an “alternate liner demonstration” that will allow them to avoid closure. Even though such pits have no actual liner, an operator could make a “demonstration” that the pit should be considered “lined,” and therefore not be required to close.

**Commenter Name:** Jonathan Levenshus, Sierra Club, Beyond Coal Campaign

**Commenter Affiliation:** Sierra Club

**Comment Number:** EPA-HQ-OLEM-2019-0173-0048

**Page(s):** 2

**Excerpt ID:** 58741

**Comment:** Continued operation of these unlined ponds also contradicts both EPA’s 2014 risk assessment that found a high risk of arsenic contamination from unlined ponds and monitoring data revealing that 92 percent of the industry’s coal ash pits are leaking toxic contaminants, such as arsenic, cobalt, lithium, molybdenum and radium, above federal health standards

**Commenter Name:**

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0076

**Page(s):**

**Excerpt ID:** 58773

**Comment:** The DC Circuit Court of Appeals found that, in the context of the 2015 CCR rule, "EPA failed to show how continued operation of unlined impoundments met RCRA's baseline requirement that any solid waste disposal site pose "no reasonable probability of adverse effects

on health or the environment." This continues to apply today. EarthJustice has concluded that this proposed rule violates the 2018 order of the U.S. Court of Appeals requiring EPA to strengthen the 2015 rule and close unlined ash ponds."

**Commenter Name:**

**Commenter Affiliation:** Attorney General of Maryland et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0101

**Page(s):** 1

**Excerpt ID:** 58989

**Comment:** In multiple respects, the Part B Proposal is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A). EPA's proposal to allow certain inadequately lined impoundments to avoid closure is inconsistent with RCRA and flouts the risks of allowing their continued operation

**Commenter Name:**

**Commenter Affiliation:** Attorney General of Maryland et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0101

**Page(s):** 3

**Excerpt ID:** 58990

**Comment:** In spite of the foregoing, EPA now proposes to create a process that would allow some clay-lined impoundments to continue operating, upon making particular showings through a twopart application process. EPA's proposal circumvents USWAG, violates RCRA, and is otherwise arbitrary and capricious.

**Commenter Name:**

**Commenter Affiliation:** Attorney General of Maryland et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0101

**Page(s):** 3-4

**Excerpt ID:** 58992

**Comment:**

Most glaringly, the proposed exception violates RCRA's "no reasonable probability" standard. EPA's own data from 2014, relied upon by the D.C. Circuit in USWAG, have shown that 9.1 percent of clay-lined impoundments will leak. 901 F.3d at 431. EPA has not even updated the risk assessment it conducted in 2014 as a foundation for the Coal Ash Rule. Indeed, the agency has admitted, with respect to all regulated impoundments, that "more recent data suggest that a greater number of units are leaking than EPA originally estimated during the [2015] rulemaking." 84 Fed. Reg. at 65,945

To be sure, EPA proposes to require applicants to show, as a condition of authorization, that "continued operation of the unit would pose no reasonable probability of adverse effects to human health or the environment in the future." 85 Fed. Reg. at 12,459. In these circumstances, though—where 9.1 percent of clay-lined impoundments will leak, and where EPA has pointed to no evidence that leaking clay-lined impoundments can be repaired—that is a negative that cannot be proven.



**Commenter Name:**

**Commenter Affiliation:** Attorney General of Maryland et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0101

**Page(s):** 5

**Excerpt ID:** 58997

**Comment:** Further, the proposal would improperly delay closure even for facilities that do not ultimately satisfy the alternate-lining requirements. EPA states that it anticipates that all initial applications will be approved. Regulatory Impact Statement, at 3-4. Facilities need not submit their complete alternate-liner demonstration packages until one year after the deadline for initial applications. Id. at 12,476. EPA (or an implementing state) must then spend considerable time evaluating complex arrays of data, as well as hydrogeological modeling, in order to determine whether the impoundment's operation will "result in groundwater concentrations above the relevant groundwater protection standard at the unit boundary." Id. at 12,475. Even if the agency ultimately rejects the demonstration, the impoundment will be able to continue operating throughout the period when the demonstration is under review.

**Commenter Name:**

**Commenter Affiliation:** Attorney General of Maryland et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0101

**Page(s):** 5

**Excerpt ID:** 59000

**Comment:** Not only that, but submission of a complete demonstration—even an inadequate one—will, under EPA's proposal, toll the deadline for the impoundment to cease receipt of waste. Id. at 12,476. The upshot is that the Part B Proposal extends the time for clay-lined impoundments to continue operating, perhaps indefinitely, even if they do not meet the alternate-lining criteria.

**Commenter Name:**

**Commenter Affiliation:** Attorney General of Maryland et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0101

**Page(s):** 5

**Excerpt ID:** 59001

**Comment:** Continued operation of these impoundments is dangerous. See USWAG, 901 F.3d at 431- 32. Even though EPA asserts that "there is currently no evidence that units that can clear the initial application are leaking or have adversely affected surrounding media," 85 Fed. Reg. at 12,461, that assertion is beside the point. Regardless of whether they already leak, 9.1 percent of claylined impoundments will leak. USWAG, 901 F.3d at 431. This risk underscores the illegality of EPA's proposal.

**Commenter Name:** Kathryn Lee

**Commenter Affiliation:** Sierra Club

**Comment Number:** EPA-HQ-OLEM-2019-0173-0103

**Page(s):**

**Excerpt ID:** 59005

**Comment:** This proposal also violates the U.S. Court of Appeals order in 2018 requiring EPA to strengthen the 2015 rule and close unlined ash ponds.

**Commenter Name:**

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0112

**Page(s):**

**Excerpt ID:** 59011

**Comment:** In 2015 the Coal Ash Rule prohibited dumping additional toxic waste in ponds that are required to close because they are either leaking hazardous chemicals, are structurally unstable, or are located in groundwater, wetlands, seismic zones, fault areas, and unstable areas.

In 2018 a federal court order REQUIRED closure of ALL unlined coal ash ponds. Is your agency no longer required to follow federal court rulings?

**Commenter Name:**

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0114

**Page(s):**

**Excerpt ID:** 59013

**Comment:** "Part B," published March 3, 2020, allows power plants to dump millions of tons of toxic waste

in unlined, leaking pits. Some pits are currently required to close due to leaking, instability or dangerous siting. This proposal violates the 2018 order of the U.S. Court of Appeals requiring EPA

to strengthen the 2015 rule and close unlined ash ponds.

Some unlined pits could continue to operate indefinitely.

**Commenter Name:**

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0115

**Page(s):**

**Excerpt ID:** 59016

**Comment:** This proposal also violates the U.S. Court of Appeals order in 2018 requiring EPA to strengthen the 2015 rule and close unlined ash ponds.

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**Commenter Name:**

**Commenter Affiliation:** Harvard GSAS Environmental Action Team (GrEAT)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0122

**Page(s):** 2

**Excerpt ID:** 59060

**Comment:** First: the proposed rule classifies impoundments with alternate liners as unlined (85 FR 12458). All unlined surface impoundments were found to violate the RCRA standard in

USWAG. Allowing surface impoundments with alternate liners to continue to operate is therefore in clear violation of the intent of the USWAG decision

**Commenter Name:** Isabel Carey

**Commenter Affiliation:** Institute for Policy Integrity

**Comment Number:** EPA-HQ-OLEM-2019-0173-0121

**Page(s):** 3-4

**Excerpt ID:** 59051

**Comment:** First, the timeline proposed by EPA will allow some unsuccessful applicants to delay compliance for at least 21 months. Current regulations require unlined surface impoundments to cease receipt of waste by August 2020. If EPA finalizes the Proposed Rule by June 2020, facilities that apply but are deemed ineligible to make an alternative liner demonstration should receive a decision from EPA by September 2020, providing a month-long extension. But applicant facilities deemed eligible to submit a demonstration package that is ultimately rejected by EPA will potentially delay their compliance until May 2022 – over a year and a half after the current August 2020 compliance deadline for unlined surface impoundments. This timing again assumes that EPA finalizes the Proposed Rule in June 2020, making the initial application due in July 2020 and the alternative demonstration package due in July 2021. If EPA then takes four months to evaluate demonstration packages, EPA will reject unsuccessful applicants in November 2021, automatically setting the closure initiation deadline six months later in May 2022. The agency must address the risks posed by allowing unlined surface impoundments to continue operating while moving through the application process.

Second, the rule itself permits an additional extension during the application period. The Proposed Rule allows facilities that cannot meet the one-year deadline for the alternative demonstration package to request “an alternate timeline for completion that has been certified by the laboratory” analyzing samples necessary for the demonstration. EPA proposes this extension, because “[i]t is possible that analysis of some low conductivity soils may take a considerable amount of time.” Specifically, EPA notes that “[l]aboratory analysis of the hydraulic conductivity of some clay have taken nearly 400 days to reach equilibrium.” Accordingly, EPA acknowledges that projects may need longer than a year to complete the alternative demonstration package, but fails to address the risk that unsuccessful applicants will release CCR into the environment during this extended period

**Commenter Name:**

**Commenter Affiliation:** Harvard GSAS Environmental Action Team (GrEAT)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0122

**Page(s):** 4-5

**Excerpt ID:** 59070

**Comment:** Fourth and finally: EPA allows facilities to continue operating for 12 months, with the option of applying for an extension, while demonstrating these lines of evidence. Allowing facilities to continue to operate during this period results in continued, undue risk to groundwater and nearby communities. The proposed rule argues that “There is currently no evidence that units that can clear the initial application are leaking or have adversely affected surrounding media.” However, the standard for the continued operation of these impoundments is not

whether there is evidence for an ongoing leak but whether there is a reasonable probability of adverse effects on human health or the environment. We have demonstrated here that leaks can occur suddenly, that leaks can go undetected, and that the probability of leaks changes with changing environmental conditions. Allowing facilities to operate for 12 months poses an undue risk for the environment and human health.

**Commenter Name:**

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0177

**Page(s):**

**Excerpt ID:** 59158

**Comment:** This proposal also violates the U.S. Court of Appeals order in 2018 requiring EPA to strengthen the 2015 rule and close unlined ash ponds.

**Commenter Name:**

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0189

**Page(s):**

**Excerpt ID:** 59168

**Comment:** This proposal also violates the U.S. Court of Appeals order in 2018 requiring EPA to strengthen the 2015 rule and close unlined ash ponds.

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**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 24

**Excerpt ID:** 59173

**Comment:** EPA's Part B Proposal would create a new loophole that would allow an undefined number of dangerous, unlined impoundments to attempt to make an "alternate liner demonstration" to qualify as lined impoundments under the CCR Rule. This would allow these unlined impoundments to continue to operate indefinitely, instead of closing, and would be contrary to the D.C. Circuit's decision in USWAG and the RCRA protectiveness standard.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 25

**Excerpt ID:** 59178

**Comment:** In proposing in Part B that unlined impoundments with so-called "alternate liners" should be allowed to continue to operate, even though they do not have composite liners, EPA is repeating many of the same errors that it made in 2015 and that the D.C. Circuit has already held to be unlawful and inadequately protective of health and the environment.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0192  
**Page(s):** 25  
**Excerpt ID:** 59179

**Comment:**

1. The alternate liner provision is inconsistent with EPA's findings in the 2014 Risk Assessment.

First, the proposed alternate liner provision is inconsistent with EPA's findings in the 2014 Risk Assessment that was (and still remains) a critical component of the CCR Rule record. In the 2014 Risk Assessment, EPA concluded that composite liners are the "only liner type modeled that effectively reduced risks from all pathways and constituents far below human health and ecological criteria in every sensitivity analysis conducted." Only a composite liner reduces the risk from coal ash in impoundments to a level that EPA finds acceptable. By contrast, unlined impoundments (including clay-lined impoundments) pose risks to human health that exceed the levels EPA deemed acceptable.

EPA continues to rely on the 2014 Risk Assessment in this rulemaking. As EPA noted in its recent Part A Proposal, the Agency does not currently intend to update the 2014 Risk Assessment, despite now being aware based on more recent information that more unlined impoundments are leaking and/or constructed within the underlying aquifer than it had understood at that time. Whereas the D.C. Circuit found compelling evidence in EPA's record leading up to the 2015 CCR Rule that unlined impoundments pose serious risks to human health and the environment, EPA now has considerably more and overwhelming data, compiled by utilities pursuant to the Rule, documenting that at least ninety-one percent of coal-fired power plants are causing groundwater contamination. As discussed in detail in comments on the Part A Proposal, EPA's failure to consider the extensive new groundwater monitoring data, location documentation, and liner data, among other information collected and reported by most owners and operators of CCR surface impoundments pursuant to the 2015 CCR Rule – and failure to perform a new risk assessment accounting for that data – is fatal to its rulemaking efforts.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0192  
**Page(s):** 27  
**Excerpt ID:** 59186

**Comment:** The proposed alternate liner provision is thus arbitrary and capricious, and contrary to the RCRA protectiveness standard, because the Part B Proposal departs from the findings of the 2014 Risk Assessment in proposing less stringent standards for existing impoundments than for new impoundments, just as EPA unlawfully did in 2015.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Comment:**

2. The alternate liner provision disregards EPA's prior findings and record evidence that leaks from unlined impoundments are likely to be much more severe than leaks from composite-lined impoundments.

Second, the proposed alternate liner provision disregards EPA's own findings in the CCR Rule record that it will likely be much more difficult to clean up leakage from an unlined impoundment compared to a composite-lined impoundment, and therefore that the adverse impacts are likely to be more severe. Contaminants leak out of unlined impoundments at much faster rates, and result in greater volumes of contamination, than from lined impoundments. EPA found in 2015 that composite liners must be required for new impoundments because "[b]oth the CCR damage case history and the risk assessment clearly show the need for and the effectiveness of appropriate liners in reducing the potential for groundwater contamination at CCR landfills and CCR surface impoundments." The D.C. Circuit relied on these EPA findings in USWAG, noting that

[u]nlike lined impoundments, in which leaks are "usually caused by some localized or specific defect in the liner system that can more readily be identified and corrected," leakage from unlined impoundments is more pervasive and less amenable to any quick, localized fix. When an unlined impoundment begins to leak, Coal Residual sludge "will flow through the unit and into the environment unrestrained. . . ."

Based on these findings, the D.C. Circuit held that EPA acted arbitrarily and capriciously, and contrary to the RCRA protectiveness standard, in allowing existing unlined (including claylined) impoundments to continue to operate. The proposed alternate liner provision in Part B is arbitrary, capricious, and contrary to law for the same reasons.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0192  
**Page(s):** 28  
**Excerpt ID:** 59189

**Comment:**

3. The alternate liner provision would cause further harmful delays in closure of dangerous, leaking impoundments

Third, the alternate liner provision is arbitrary and capricious, and contrary to law, because the provision would result in substantial delay in closure of at least some dangerous, leaking impoundments that, under the RCRA protectiveness standard and USWAG, must be required to begin closing without any further delay. Commenters have previously discussed the harms from

delay in closure of dangerous, leaking unlined impoundments extensively in their comments on the Part A Proposal, and hereby incorporate those comments by reference.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 28

**Excerpt ID:** 59192

**Comment:** Under the proposed Part B provision, the deadline for an unlined impoundment seeking alternate liner status to cease receiving waste (and thus begin closing) would be tolled, first upon submission of its initial application, then if that application is accepted, for at least an additional sixteen months while a demonstration package is prepared, submitted, and reviewed by EPA or a state agency. Moreover, this tolling period could be extended further, even indefinitely, if EPA or the state agency fails to take timely action on the alternate liner application or demonstration.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 28

**Excerpt ID:** 59193

**Comment:** For any unlined impoundment whose so-called “alternate liner” is ultimately found not to be adequately protective of health and the environment – which, as discussed below and in the attached expert report of Dr. Ranajit Sahu, is likely to be virtually all unlined impoundments – the proposed extension of their operating lives, even if temporary, will result in additional adverse effects to health and the environment.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 28

**Excerpt ID:** 59195

**Comment:** As noted above, the D.C. Circuit in USWAG recognized that even relatively short delays of several months in the closure of a leaking, unlined impoundment can cause substantial harm, and that harms from leaking impoundments continue during the closure process. Thus, just as the D.C. Circuit held in USWAG that allowing delays in requiring closure to begin until after groundwater monitoring confirmed leakage were unlawful and inadequately protective, so too are allowing delays in requiring closure to begin while alternate liner demonstrations are pending also unlawful and inadequately protective.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 29

**Excerpt ID:** 59199

**Comment:** Moreover, the D.C. Circuit rejected a very similar EPA rationale in USWAG, finding that, in the 2015 CCR Rule, EPA had failed to offer “any explanation or account of how the risks of harm during the lengthy response periods the Rule allows comport with the ‘no reasonable probability’ standard” in RCRA.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 34

**Excerpt ID:** 59208

**Comment:** A further concern, also discussed above, is that even owners or operators that are unable to ultimately demonstrate that they would meet EPA’s proposed alternate liner criteria may be able to take advantage of the application process to obtain unwarranted extensions of the operating lives of dangerous, leaking impoundments that must be required to close without any further delay. For example, two of the utility submissions in the Part B record, for the Cleco Dolet Hills and Brame plants, are patently deficient even under EPA’s proposed criteria, as discussed in the expert report of Dr. Ranajit Sahu. Nevertheless, by applying for alternate liner status and potentially being allowed to move forward to the demonstration phase by EPA or a state agency, the owner or operator of a site such as this would be able to obtain a lengthy, and possibly indefinite, extension of its operating life, increasing the harm that these units would cause to human health and the environment.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0194

**Page(s):** 4-6

**Excerpt ID:** 59372

**Comment:**

#### PROVISION I: ALTERNATE LINER DEMONSTRATION

Alternate Liner Demonstration cannot meet protectiveness standard.

EPA record of widespread groundwater contamination does not support proposed regulatory change

The final CCR Rule confirmed a total of 158 damage cases (40 proven, 114 potential and four state-reported but unclassified), the largest number of damage cases in the history of the RCRA program. The preamble to the rule predicted that these numbers likely underestimate the true number of cases where CCR waste units are contaminating groundwater, because the damage case record represents only a subset of those CCR waste units that have had effective groundwater monitoring (P. 21456). This situation reflected the fact that a significant portion of older CCR surface impoundments still lacked groundwater monitoring, while only approximately 80% of the impoundments commissioned since the mid-1990s (a small number of the total universe of impoundments) had groundwater monitoring (under many state programs existing impoundments were exempt from groundwater monitoring). Indeed, once groundwater



monitoring was put in place, new damage cases quickly emerged, as illustrated by the results of new regulatory requirements introduced by Illinois and North Carolina in the wake of the 2008 TVA Kingston CCR spill: newly installed groundwater monitoring wells down gradient from surface impoundments in Illinois revealed shortly thereafter seven new instances of primary MCL exceedances, while in North Carolina, elevated levels of metals in groundwater near surface impoundments were recorded at all of the State's 14 coal-fired power plants.

In Summary, the Final Rule recognized that (i) damage cases are more numerous than previously contemplated and are likely to increase as more monitoring well systems are installed; (ii) the CCR damage case record corroborates the findings of the risk analysis by demonstrating the greater vulnerability of groundwater (and surface water) to wet disposal (i.e., surface impoundments); and (iii) the damage cases show a direct correlation between the absence of liners and groundwater impacts, and considering that even a notable portion of CCR impoundments constructed in the recent decades still lack a protective liner, they pose an imminent threat to groundwater.

The foreboding predictions about the actual prevalence of CCR-caused damage cases were recently corroborated. Among other things, the CCR Rule established groundwater monitoring requirements for coal ash waste units, requiring power companies to make the data publicly accessible as of March 2018. A coalition of environmental non-profits obtained and analyzed all of the groundwater monitoring data that power companies posted on their websites in 2018. The data cover 265 coal plants or offsite coal ash disposal areas, including over 550 individual coal ash ponds and landfills monitored by over 4,600 groundwater monitoring wells.

In the proposed rule (FR 85 12466, March 3, 2020), EPA concedes that “new information learned since the promulgation of the 2015 CCR rule (i.e., information posted to CCR websites by electric utilities with impoundments) shows that approximately 70 percent of all surface impoundments are known not to be lined with a composite liner or alternative composite liner ... In addition, over 70 percent of surface impoundments have detected impacts to the groundwater whereby the unit is operating pursuant to the assessment monitoring program requirements and nearly 50 percent of all surface impoundments are now operating under the corrective action program provisions of the CCR regulations (emphasis added.)”... “In addition, approximately 20 percent of surface impoundments did not post a liner demonstration to their CCR website indicating the type of liner system used, if any. Thus, how these impoundments are lined is unknown. (Footnote 24, FR 85 12466, March 3, 2020)”

An analysis comparing the monitoring data to health-based EPA standards and advisories confirmed that groundwater beneath the great majority of coal-fired power plants is contaminated: 91 percent of coal-fired power plants have unsafe levels of one or more coal ash constituents in groundwater, even after excluding contamination that may be naturally occurring or coming from other sources. The groundwater at 52 percent of coal-fired power plants has unsafe levels of arsenic; arsenic is both a carcinogen and a neurotoxin, and, much like lead, can impair the brain of developing children. Sixty percent of coal-fired power plants also have unsafe levels of lithium, a neurotoxin. The contamination at a given site typically involves multiple chemicals. The majority of coal-fired power plants has unsafe levels of at least four toxic constituents of coal ash. The threat to groundwater comes from both coal ash ponds and dry coal

ash landfills; however, consistently with the findings of the 2015 CCR Rule, monitoring data examined for the cited report revealed unsafe levels of contamination at 92 percent of CCR impoundments vs. 76 percent of CCR landfills

Some illustrative examples of groundwater impacts by waste units of coal-fired power plants are summarized in the following (unless otherwise noted, all data are from EIP, March 4, 2019):

After having examined the 16 coal-fueled power plants in Texas that are required to monitor groundwater under the CCR Rule, EIP found that all of them are leaking contaminants, including arsenic, boron, cobalt, and lithium, into groundwater at levels that would be unsafe for human consumption. Virtually, all CCR impoundments in Texas are either unlined or clay-lined, which according to the 2018 DC circuit court decision are considered unlined. Thirteen of the sixteen coal-fired plants have unsafe levels of arsenic in groundwater, with concentrations sometimes exceeding ten times the EPA Maximum Contaminant Level for arsenic. Fourteen power plants appear to be leaking unsafe levels of cobalt, which can harm the heart, blood, and other organs. At three of the power plants cobalt in groundwater is more than 100 times higher than safe levels. Finally, in eleven power plants lithium, a neurotoxin, has groundwater levels that are frequently 25 times the health-based groundwater protection standard. The Allen Steam Station, Belmont, North Carolina (Duke Energy) is located on the banks of the Catawba River (Lake Wylie). Based on detection monitoring of groundwater around three coal ash units at the site, Duke has initiated assessment monitoring for all three units, and in December 2018, acknowledged that the groundwater exceeds groundwater protection standards for arsenic, beryllium, cadmium, cobalt, lithium, and thallium. The Jim Bridger Power Plant, Point of Rocks, Wyoming (PacifiCorp). PacifiCorp monitors the groundwater around three coal ash units at the site, including a 234-acre landfill and two unlined flue gas desulfurization (FGD) ponds with a combined surface area of roughly 350 acres. In 2018, PacifiCorp acknowledged that onsite groundwater near FGD Pond 1 exceeds groundwater protection standards for arsenic, cadmium, cobalt, fluoride, lead, lithium, molybdenum, radium, and selenium. The Allen Fossil Plant, outside of Memphis, Tennessee (TVA), stopped burning coal in 2018. There is still one regulated coal ash pond at the site, and an inactive ash pond that was dewatered in 1992. Groundwater data show extremely high levels of arsenic in the shallow aquifer beneath the active impoundment, with average arsenic levels up to 350 times the MCL. According to the U.S. Geological Survey, this contaminated shallow groundwater is connected to the Memphis Sand aquifer, the City's drinking water source.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 29-30

**Excerpt ID:** 59392

#### **Comment:**

4. The alternate liner provision relies only on Appendix IV groundwater assessment monitoring, which does not fully protect against harms from unlined impoundments

Fourth, the proposed alternate liner provision is arbitrary and capricious, and contrary to law, because it relies on groundwater monitoring to fully protect against the risks to health and the environment from unlined impoundments. Specifically, EPA’s primary criterion for determining whether a so-called “alternate liner” is adequately protective of health and the environment is whether the owner or operator is able to “demonstrate, with a reasonable degree of certainty, that . . . operation of the surface impoundment will not result in groundwater concentrations above the relevant groundwater protection standard at the unit boundary.” Both EPA’s proposed initial application for an owner or operator to make an alternate liner demonstration and the demonstration package itself are focused on the owner or operator demonstrating compliance with the CCR Rule’s Appendix IV groundwater assessment monitoring requirements.

In relying in Part B on Appendix IV groundwater assessment monitoring to fully protect against risks to health and the environment from unlined impoundments with so-called “alternate liners,” EPA is proposing to make the same dangerous and unlawful mistake that it made in the 2015 CCR Rule when it allowed unlined impoundments to continue to operate until they were documented to leak through that same assessment monitoring process. As the D.C. Circuit noted in USWAG, Appendix IV monitoring is keyed to protecting against human health risks from groundwater exposure, and thus it fails to protect against other risks to ecological receptors, including risks due to contamination of surface waters in proximity to impoundments that are not adequately protected by groundwater monitoring. Further, as noted in the attached expert report of Mark Hutson, unlined impoundments are frequently located so close to adjacent surface waters that “meaningful identification of water quality impacts” to those surface waters through groundwater monitoring is “difficult or impossible.”

**Response [to the above comments](#):** EPA has made a number of revisions in the final rule that address many of the issues raised by the commenters. In particular, EPA is finalizing a requirement that facilities must remain in detection monitoring throughout both the application and demonstration steps. Impoundments would be rendered ineligible for an ALD at the first evidence of a release to groundwater. This ensures that, even if a release does occur during either the application or demonstration steps, Appendix IV constituents will not migrate beyond the waste boundary and pose risk to nearby receptors before the unit is forced to close. But for the remainder of issues raised by the commenters, the Agency disagrees for the reasons explained in Unit III.A.2 through 4 of the final rule preamble.

#### Chapter 4 State Implementation Comments/Issues

**Commenter Affiliation:** Attorney General of Maryland et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0101

**Excerpt ID:** 58986

**Comment:** Although federal law generally allows states to regulate the activities at issue more stringently than federal law, EPA’s proposed rollbacks will harm our interests in multiple respects. Each of our states is threatened by pollution from coal ash impoundments, either within our borders or in neighboring states. Groundwater and surface waters within our respective borders are interconnected to upstream out-of-state waters, and thus vulnerable to pollution discharged outside our boundaries. Leaking and overflowing coal ash impoundments have

contaminated groundwater and surface waters alike. Our states thus rely on federal regulation to ensure a stable nationwide regulatory floor protecting against pollution crossing our borders. Further, state law may pose impediments to regulating more stringently than EPA, so that the agency's actions, in practical terms, serve not just as a regulatory floor but also as a regulatory ceiling.

**Response:** Most of the 2015 CCR rule remains in place and implementation continues on schedule as intended. This includes the main protections provided in the rule, including groundwater monitoring and cleanup requirements under RCRA Corrective Action. The majority of surface impoundments and large number of landfills are on the path to ceasing receipt of waste and closure. Nothing is changing that.

The Agency provided a rationale of why EPA is finalizing these amendments to the regulations in Unit III of the final rule.

**Commenter Affiliation:** Association of State and Territorial Solid Waste Management Officials (ASTSWMO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0116

**Excerpt ID:** 59019

**Comment:** Also, the proposed language in this section indicates the demonstration must be submitted to EPA and omits the option for submittal to the Participating State Director.

**Response:** The Agency agrees that Participating State Directors should have the authority to review and grant approval of alternate liner demonstrations if they have been approved for § 257.71(d). This is discussed in Unit III.D of the final rule preamble and has been corrected in the regulatory text.

**Commenter Affiliation:** Arizona Department of Environmental Quality (ADEQ)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0042

**Excerpt ID:** 58688

**Comment:** On April 26, 2019, the Arizona Department of Environmental Quality (ADEQ) submitted a letter to Director Barnes Johnson of the U.S. Environmental Protection Agency's (EPA) Office of Resource Conservation and Recovery. Within the letter, ADEQ requested EPA consider incorporating an ability for coal combustion residuals (CCR) facility owners to make liner equivalency demonstrations for alternative systems or solutions that differ from, but perform as effectively as, liner criteria in the CCR rule. The letter pointed out that ADEQ, through its groundwater protection programs, have reviewed and approved liner equivalency demonstrations in the past

**Commenter Affiliation:** American Coal Council (ACC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0088

**Excerpt ID:** 58903

**Comment:** EPA's proposal would allow Participating State Directors to review and approve a facility's alternative liner demonstration in states with an approved CCR permit program. This is

consistent with the provisions of the WIIN (Water Infrastructure Improvements for the Nation) Act which requires Participating State Directors to be provided this authority.

**Commenter Affiliation:** Berkshire Hathaway Energy Company

**Comment Number:** EPA-HQ-OLEM-2019-0173-0085

**Excerpt ID:** 58869

**Comment:** Berkshire Hathaway Energy also agrees with the comments submitted by the State of Wyoming Department of Environmental Quality regarding the ability for the Director of an EPA-approved state CCR permit program to provide the appropriate resources for site-specific reviews of alternative liner demonstrations made for surface impoundments being protective of human health and the environment

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Excerpt ID:** 59097

**Comment:** To defray this burden on EPA, AEPCO supports the ability for a State Director to make those determinations when there is a state-approved plan.

**Commenter Name:** Tawny Bridgeford

**Commenter Affiliation:** National Mining Association (NMA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0095

**Excerpt ID:** 58942

**Comment:** Authorizations: NMA supports allowing state directors with an approved CCR permit program to review and approve alternate liner demonstrations. State directors have the appropriate resources and expertise to evaluate applications and the associated technical documents and approve demonstrations. This delegation of authority is what Congress explicitly directed in the WIIN Act.

**Commenter Name:** Dorothy Kellogg

**Commenter Affiliation:** National Rural Electric Cooperative Association (NRECA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0096

**Excerpt ID:** 58943

**Comment:** We also believe that Participating State Directors should be allowed to review and approve alternative liner demonstrations in states with approved programs, and that a one-time successful alternative liner demonstration is appropriate so long as conditions at the unit do not change.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0069

**Excerpt ID:** 58761

**Comment:** It is imperative that states not be allowed to set their own regulations for managing hazardous wastes. The federal government has set regulations that exist to protect both humans

and the environment, including our water supplies, from such contaminants as coal ash, and attempts to undermine these regulations are both misguided and dangerous. State governments are too vulnerable to pressure and persuasion from corporate interests to allow each state to set its own rules, particularly when water knows no state boundaries.

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Excerpt ID:** 58863

**Comment:** G. It is Appropriate to Allow Participating State Directors to Review and Approve an Alternative Liner Demonstration.

The Part B Proposal would allow Participating State Directors to review and approve a facility's alternative liner demonstration in states with an approved CCR permit program under the WIIN Act.<sup>128</sup> It is appropriate to allow such demonstrations to be made under approved state CCR permit programs, as Participating State Directors have the appropriate resources and expertise to review these technical materials and determine whether the appropriate standard has been met. There is no compelling reason to limit such determinations to the discretion of EPA.

In fact, the WIIN Act requires Participating State Directors to be provided this authority. The statute could not be clearer: “upon approval by the Administrator, [a state CCR permit program] will operate in lieu of the” federal CCR permit regulations at 40 C.F.R. Part 257 or the federal CCR permit program.<sup>129</sup> Thus, if a state CCR permit program application meets the criteria for EPA approval under the WIIN Act—e.g., the state adopts the final rule (or different state regulations that are “at least as protective” as the final rule) and has the resources and laws in place to administer and enforce the rule—EPA “shall” approve the application. When this occurs, the state CCR permit program operates in lieu of the federal rule in all respects, including the ability of the Participating State Director to review and approve alternative liner demonstrations.

**Commenter Name:** Suzanne Engels

**Commenter Affiliation:** WY DEQ

**Comment Number:** EPA-HQ-OLEM-2019-0173-0027

**Excerpt ID:** 58673

**Comment:** The alternative liner demonstration for existing coal combustion residual surface impoundments described in the proposed rule, would provide appropriate regulatory flexibility to the Director of an EPA approved State CCR Permit Program. It would allow facilities to make a demonstration to a State Director' using site specific information, that an individual surface impoundment that is not lined with either a composite liner or alternative composite liner is protective of human health and the environment.

**Commenter Affiliation:** Association of State and Territorial Solid Waste Management Officials (ASTSWMO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0116

**Excerpt ID:** 59018

**Comment:** Also, the proposed language in this section indicates the demonstration must be submitted to EPA, and omits the option for submittal to the Participating State Director.

**Response to the above comments:** The Agency agrees that Participating State Directors should have the authority to review and grant approval of alternate liner demonstrations if they have been approved for § 257.71(d). This is discussed in Unit III.D of the final rule preamble.

## Chapter 5 Site-Specific Evidence/Examples

### 5.1 Discussion of Specific Units

#### 5.1.1 Industry Comments on Specific Impoundments

**Commenter Name:**

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Page(s):** 1-2

**Excerpt ID:** 58700

**Comment:** Xcel Energy operates a small 3-acre impoundment at its Comanche Station in Pueblo Colorado that if not for the USWAG Decision<sup>1</sup> would not be required to cease operations and initiate closure. To support our Clean Energy Initiative described above, the use of this pond is scheduled to cease in 2025 with the retirement of the associated coal-fired Units 1 and 2. This impoundment is used to temporarily store bottom ash prior to removal for either beneficial use or disposal. While the liner system for this impoundment does not meet the current requirements of the CCR rule, as described in detail below, the natural lithology and depth to groundwater reflect conditions that are equally protective of the environment. Consistent with the intent of the Proposal, the continued operation of this impoundment does not pose a reasonable probability of adverse impacts to human health or the environment. The Proposal should contain provisions to allow impoundments such as this to continue to operate. This is particularly important in the case of units such as the Comanche impoundment where the associated generating units will cease operations in 2025.

**Commenter Name:**

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Page(s):** 4

**Excerpt ID:** 58704

**Comment:**

The case-by-case approach to allow certain impoundments to continue operating based on the unique characteristics of an impoundment and site setting is particularly applicable to the bottom ash pond at Xcel Energy's Comanche Station located in Pueblo, Colorado. Comanche Station sits on the western edge of the Great Plains in high desert terrain in southern Colorado. The geology of the area consists of a relatively thin colluvial layer underlain by a massive low-

permeability shale bedrock formation (the Pierre Shale). The colluvium at the site contains discontinuous perched lenses of poor-quality water that do not meet the definition of an aquifer as found in the CCR rule. Groundwater travel times in the Pierre Shale are extremely slow, and the uppermost aquifer (the Dakota Sandstone) is located beneath the shale at a depth of 1,500 feet. The details of the site and this impoundment are presented in ATTACHMENT 1 and demonstrate that there is no reasonable probability of adverse effects on the health or the environment from continued operation of this impoundment.

As referenced above and discussed in ATTACHMENT 1, we believe that we have made this demonstration for the Comanche bottom ash pond through documentation already in our operating record and on our CCR website. Additionally, the Colorado Department of Public Health and Environment (CDPHE), has concurred with this demonstration, and has classified this impoundment as having ‘...no reasonable potential to exceed Basic Standards for Groundwater at the point of compliance...’. We agree with the rule as proposed which allows for demonstration of alternate liner equivalency based on unique hydrogeologic conditions.

**Commenter Name:**

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Page(s):** 5

**Excerpt ID:** 58706

**Comment:** The Comanche Station site hydrogeology consists of a relatively shallow layer of colluvial soils in which perched water is intermittently present. Beneath this colluvial layer is 1,500 feet of Pierre Shale bedrock, which acts as an aquiclude above the uppermost aquifer which is beneath the shale in the underlying Dakota sandstone formation. The Comanche bottom ash pond does not have a constructed liner; and neither does the original Cell 1 of the CCR landfill at the site. However, this bedrock formation acts to ‘...control the release and transport’ of leachate (page 12476, (B)), and ‘...contain the impounded liquid and prevent it from migrating through the subsurface and into the groundwater at a rate that would adversely affect groundwater quality.’ (pg. 12459, third column). Xcel Energy has made this demonstration through multiple site-specific studies and believes that the alternate liner equivalency demonstration that we will submit under Part B will continue to support the demonstration made by these previous studies.

**Commenter Name:**

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Page(s):** 6

**Excerpt ID:** 58709

**Comment:**

While we understand this reference to be to the uppermost aquifer, because that is the target of groundwater monitoring systems, at Comanche, the site conditions do not lend themselves to this simplified interpretation. As previously stated, the uppermost aquifer is approximately 1,500 feet below ground surface, where borings would yield no useful information. Further, the



discontinuous perched water at the site is not consistent with the term ‘natural water table’, although in order to meet the requirements of the rule, Xcel Energy implemented the groundwater monitoring system within that perched water. Although this perched water is not an aquifer or a natural water table, it is the only sub-surface water that can reasonably be monitored. Site sampling will continue in this perched water and any further site characterization will continue to focus on this zone as well as the upper portions of the bedrock, to a depth that is appropriate to evaluate the hydraulic conductivity of and potential fractures in the bedrock.

Thus, while the Comanche impoundment is a legitimate candidate for an alternate liner demonstration, and the Proposal would allow for that demonstration, we suggest the rule could be further clarified. We urge EPA to clarify the rule to more expressly provide adequate flexibility to make case-by-case demonstrations that would reflect unique site conditions such as Comanche, where aquifer monitoring is neither feasible nor appropriate.

**Commenter Name:**

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Page(s):** 13-16

**Excerpt ID:** 58717

**Comment:**

ATTACHMENT 1 – COMANCHE BOTTOM ASH POND CASE STUDY I. Background  
Comanche Station has three coal fired electric generating units. Unit 3 is equipped with a submerged flight conveyor that removes bottom ash from the boiler in a dry condition. Bottom ash from Unit 1 and Unit 2 is conveyed as a slurry to a small (3 acre) unlined CCR Impoundment, the Bottom Ash Pond (BAP). During operations, bottom ash is regularly removed from the BAP and the majority is sold for beneficial use in cement production. Both units are scheduled to be retired within the next five years, Unit 1 at the end of 2022 and Unit 2 at the end of 2025, after which the BAP will be closed by removal of all CCR within five years.

On December 2, 2019, EPA published a draft rule, A Holistic Approach to Closure Part A, Deadline to Initiate Closure. The proposed rule contains a closure deadline of August 31, 2020, for unlined surface impoundments, with availability of an automatic short-term extension (103(e)) and two possible site-specific closure deadline extensions, §257.103(f)(1) and (2). The two site-specific extensions would require submittal of a demonstration subject to approval by EPA, and for impoundments <40 acres in size, the maximum extension is to cease receipt and have completed closure no later than October 17, 2023. On March 3, 2020, EPA published a draft rule, A Holistic Approach to Closure Part B, Alternate Demonstration for Unlined Surface Impoundments; Implementation of Closure, which provides procedures by which an eligible facility may submit an alternate liner demonstration to support continued operation of individual unlined surface impoundments that can be demonstrated to pose no reasonable probability of adverse effects on human health or the environment.

Xcel Energy supports the proposed Part B rule with certain specific comments, which is directly applicable to the Comanche BAP. In fact, Xcel Energy has previously made a ‘no reasonable probability of adverse effects’ demonstration through multiple site-specific studies. As discussed

further in this case study, closure of the Comanche BAP by 2023 is not technically justified based upon these site-specific conditions, particularly since it already is scheduled to cease operations in 2025. This case study describes the site conceptual model that forms the basis of this previous demonstration and which will be supplemented as needed to make the alternate liner equivalency demonstration that we will submit under the Part B rule.

## II. Discussion A. COMANCHE – SITE SPECIFIC NATURAL HYDROGEOLOGIC

**CONDITIONS** The site conceptual hydro-geologic model for Comanche has been developed and validated with data from multiple independent site investigations conducted over the past 30 years. The geology beneath Comanche Station consists of a layer of unconsolidated material (clays and silts) that is typically less than 20 feet thick. This layer is underlain by the Pierre Shale and other low permeability bedrock deposits (primarily bentonitic shale deposits) which are approximately 1,450 feet thick/deep. The shale bedrock has very low permeability which inhibits the flow of water through the bedrock, and a regional water table is not present in the shale beneath the site. The bedrock surface varies across the site with localized low areas. Isolated occurrences of shallow perched water are present in the clay and silt at the site. This water is the result of surface infiltration of precipitation and/or snow melt into the clay and silt layer which results in localized areas of subsurface water that collects in topographic lows in the bedrock surface. These areas of perched water are not laterally extensive or continuous and there does not appear to be any overall gradient or flow direction at the site.

The Dakota Sandstone formation underlies the shale bedrock and contains the uppermost aquifer in the region. However, the presence of approximately 1,450 feet of low permeability shale bedrock above the Dakota Sandstone prohibits surface infiltration and would also prohibit potential leakage from the impoundment from reaching this very deep aquifer. Based on the thickness and low permeability of the shale bedrock, it is estimated that surface infiltration would take approximately 13,000 years to migrate down and reach the Dakota Sandstone aquifer (Geotrans, 2009). Additionally, although the perched water is discontinuous, based on laboratory permeability testing of soil samples from site borings, a potential horizontal flow rate through the unconsolidated clay and silt layer, if such flow existed, has been calculated as 10 feet/year (HDR, 2018), resulting in an estimated travel time of 40 years to reach the nearest potential lateral receptor which is the St. Charles River, located approximately 4,000 feet southeast of the BAP.

Effectively, the perched water in the colluvial layer beneath the BAP does not meet the definition of an aquifer contained in the CCR Rule which is "...a geologic formation, group of formations, or portion of a formation capable of yielding usable quantities of groundwater to wells or springs". Colorado solid waste regulations (6 CCR 1007-2, Part 1) contain virtually the same definition of aquifer. The shallow perched water beneath the site at Comanche is not capable of yielding usable quantities of water, based on both quantity (wells readily pump dry and are very slow to recharge) and the very poor quality (high salinity/TDS), as discussed below. This site conceptual model has been accepted by the Colorado Department of Public Health and Environment (CDPHE), and the significant 'depth to groundwater' was the basis for CDPHE's approval of classification of the Comanche BAP as 'Type A' under Section 9 of the Solid Waste Rules. Under the state rules, Type A is appropriate based on '...no reasonable potential to exceed

Basic Standards for Groundwater at the point of compliance...'. (6 CCR 1007-2, Part 1, Section 9.1.6(A)(3)).

**B. PERCHED WATER MONITORING** The certified groundwater monitoring system for the BAP consists of four wells that intercept the shallow perched water in the vicinity of the BAP, which is the only sub-surface water that can reasonably be monitored. Monitoring wells at the BAP were installed in 2015 and are located at the boundary of the BAP, such that water samples are representative of conditions in the clay and silt layer of shallow perched water surrounding the impoundment. A Groundwater Monitoring System Certification Report was posted to the CCR website in August 2016 for both the landfill and the BAP. Eight background sampling events were conducted between 2015 and 2017, and the first detection monitoring event was in August 2017. The data collected (water levels, well recharge, water chemistry) were consistent with past evaluations at the site, reflecting discontinuous shallow perched water. Due to the lack of a discernible groundwater gradient or flow direction, it has not been possible to clearly designate any of the four wells in the BAP monitoring system as upgradient or to calculate background water quality threshold values. Another well completed in the colluvium further from the BAP boundary produces very little water, reflective of the generally dry colluvium. Additionally, the available water chemistry data from the BAP was compared to that in the wells surrounding the pond and showed that the BAP water was of significantly better quality than the shallow perched water, with concentrations of some constituents in the perched water orders of magnitude higher than in the pond. Thus, it is unclear whether the pond water is even contributing to the observed concentrations in the perched water.

Pursuant to the requirement to prepare an annual groundwater monitoring report, Comanche posted to the CCR website in January 2018 a report prepared by HDR, 'Comanche Station No Aquifer Determination'. The report includes this description of the shallow groundwater "The data collected indicates that a continuous water table does not exist under the regulated CCR units. Therefore, a potentiometric contour map of the water levels cannot be developed, wells cannot be identified as upgradient, and background water quality cannot be established. Each of the wells that were not dry and able to be sampled appear to be independently recharged by localized infiltration from surface water." The conceptual site model, perched water quality, and significant depth to the uppermost aquifer all support the conclusion of no reasonable probability of adverse effects to the environment from operation of the Comanche BAP. Based on this conclusion, and because the perched water is not an aquifer, Comanche suspended groundwater quality analysis at the site but continued collecting water level data semi-annually to reevaluate the perched conditions and post annual reports. However, in order to collect additional data to support our Part B application and demonstration, in 2020 Comanche resumed the sampling and analysis program pursuant to 40 CFR 257.93-95.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Page(s):** 2

**Excerpt ID:** 58776

**Comment:** Cleco operates five clay-lined surface impoundments that were certified by a Professional Engineer pursuant to Louisiana’s solid waste regulations in the 1980s and again pursuant to the CCR rule. None of these impoundments have ever been in corrective action under the State’s solid waste regulations or the federal CCR rule. In addition, the clay liners comply with Louisiana-specific requirements, which are more stringent than the CCR rule’s liner requirements. Cleco therefore believes its units fall within what EPA calls the “small fraction of non-composite lined surface impoundments currently in operation [that] will be able to apply successfully for [the alternate liner] demonstration.” Given its operation of these units, Cleco is uniquely positioned to comment on Part B’s alternative liner demonstration provisions.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Page(s):** 13

**Excerpt ID:** 58795

**Comment:** Some of Cleco’s surface impoundments show how hydrogeologic settings can greatly differ from site to site. For example, the Dolet Hills Power Station is located across geologic formations of Eocene and Paleocene age that include (in ascending order) the marine clays of the Porters Creek clay of the Midway Group, and then the fluvial deposits of the Naborton formation and the Dolet Hills sand of the Wilcox Group. The Brame Energy Center is located across two different geomorphologic features that consist of Pleistocene age Intermediate Terrace deposits and Holocene age Red River alluvium and natural levee deposits. The Big Cajun II facility is underlain by Holocene age sediments deposited by the Mississippi River consisting of alluvial sediments consisting of alternating clay, silt, sand, and gravel deposits. This wide range of geologic settings makes each facility complex and unique, and Cleco has demonstrated its understanding of these complexities through rigorous State permitting and the continued operation of these permitted units over the last thirty years, including groundwater monitoring to ensure the clay-liners are protective.

**Commenter Name:**

**Commenter Affiliation:** Great River Energy

**Comment Number:** EPA-HQ-OLEM-2019-0173-0080

**Page(s):** 1-2

**Excerpt ID:** 58821

**Comment:**

Both of the upstream raise surface impoundments have geocomposite liner systems consisting of 40-mil HDPE geomembrane overlying more than two feet of mechanically compacted clay with a hydraulic conductivity equal to or less than  $1 \times 10^{-7}$  cm/sec. Prior to the federal court decision in *USWAG v. EPA*, 901 F.3d 414 (D.C. Cir. 2018) (USWAG decision), Coal Creek Station’s CCR surface impoundments were considered “lined” impoundments because the liner system met the rule’s liner design criteria for clay liners at 40 C.F.R. § 257.71(a)(1)(i), and therefore Great River Energy planned to continue using these impoundments. The USWAG decision vacated this provision and, as a result, under current regulations our geocomposite lined impoundments are considered unlined.

The geocomposite liners at Coal Creek Station perform as well as, or better than, the prescriptive liners that meet the CCR rule's criteria, which the court in the USWAG decision found met the Resource Conservation and Recovery Act Subtitle D protectiveness standard. As described above, the impoundments at Coal Creek Station are lined with a 40-mil HDPE geomembrane liner overlying more than two feet of mechanically compacted clay with a hydraulic conductivity equal to or less than  $1 \times 10^{-7}$  cm/sec. An alternative liner system demonstration prepared by Golder and previously provided to EPA demonstrated that the performance of the existing liners is equal to, or exceeds the performance of, the liner design criteria currently in the CCR rule. This conclusion was supported by a study by the Electric Power Research Institute that concluded that 40-mil HDPE geomembrane over more than two feet of mechanically compacted clay with low conductivity performs similarly to liners meeting the rule's current requirements. Likewise, a similar study conducted by Gradient demonstrated that composite liners that are thinner than the required existing federal criteria have potential to exceed the performance of a liner meeting the requirements.

**Commenter Name:**

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Page(s):** 31-32

**Excerpt ID:** 58837

**Comment:**

The Salt River Project's Coronado Generating Station ("CGS") is located in St. Johns, Apache County, Arizona and lies directly above the Chinle Formation, a natural geologic formation that includes a thick sequence of naturally low permeability clays that act as a barrier to downward migration of water. SRP has submitted a report to EPA showing that the Chinle Formation is between 220–250 feet thick beneath CGS's CCR impoundment. That report also shows that the formation's hydraulic conductivity is less than the performance standard of the rule's composite liner system and that "a conservative estimate of the time for infiltrating water to reach the uppermost aquifer would be approximately 629 years."

Great River Energy ("GRE") operates two CCR surface impoundments at its Coal Creek Station in North Dakota. Those impoundments were constructed with a liner system consisting of a high-density polyethylene (HDPE) geomembrane having a thickness of 40 mils and a compacted soil layer at least two-feet thick with a hydraulic conductivity less than  $1 \times 10^{-7}$  centimeters per second (cm/sec). GRE has submitted a report to EPA showing that the actual performance of the composite liner system at Coal Creek Station equals or exceeds the performance of the liner criteria in the CCR rule.

Both Consumers Energy and DTE Electric Company own and operate several CCR impoundments in southeast Michigan. These units were constructed within thick (20 to 100 feet), laterally-contiguous, glacially-compacted natural clay-rich soil. A report evaluating the effectiveness of the natural clays underlying the impoundments concludes that the clay provides the same or better level of protection from potential migration of contaminants than the composite liner system in the CCR rule.

Cleco Power owns and operates a CCR surface impoundment at its Dolet Hills Power Station in Mansfield, Louisiana. Cleco submitted a technical report evaluating the physical and hydraulic characteristics of the geologic material underlying the impoundment, which consists of low-permeability clays in excess of two feet. The impoundment remains in detection monitoring under the CCR rule.

**Commenter Name:**

**Commenter Affiliation:** Berkshire Hathaway Energy Company

**Comment Number:** EPA-HQ-OLEM-2019-0173-0085

**Page(s):** 5

**Excerpt ID:** 58868

**Comment:** For example, NV Energy operates two CCR surface impoundments which are double-lined with 80-mil high-density polyethylene liners and are equipped with interstitial leak detection and leachate collection systems. Both the Nevada Division of Environmental Protection and the Nevada Division of Water Resources (state engineer) approved the ponds' design, which adheres to applicable state regulatory guidance.

**Commenter Name:**

**Commenter Affiliation:** Salt River Project Agricultural Improvement and Power District (SRP)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0087

**Page(s):** 2

**Excerpt ID:** 58881

**Comment:** Although the CGS Evaporation Pond is "unlined" as defined in the CCR rule, this facility has a natural geologic clay liner as a result of being located directly on top of the Chinle Formation, which includes a thick sequence of naturally low permeability clays that act as a barrier to downward migration of water from the ground surface and from the Evaporation Pond. Conservative estimates of time for infiltrating water to reach the uppermost aquifer is approximately 629 years. As confirmed by over 20 years of groundwater monitoring data and recent stable and radiogenic isotope analyses, this natural liner is as protective as the geo-membrane liners required for surface impoundments.

**Commenter Name:**

**Commenter Affiliation:** DTE Energy

**Comment Number:** EPA-HQ-OLEM-2019-0173-0089

**Page(s):** 2

**Excerpt ID:** 58906

**Comment:**

DTE would also like to highlight technical evidence in the record supporting the position that some alternative liner systems are as protective as the federal standard.

- A report developed by TRC Environmental Corporation on behalf of DTE and Consumers Energy evaluates several natural clay lined existing CCR surface impoundments in south east Michigan. The report evaluates the effectiveness of the natural clays underlying the impoundments and concludes that the clay provides the same or better level of protection from potential migration of contaminants than the composite liner system in the CCR rule.<sup>1</sup>

**Commenter Name:** Paul Pike

**Commenter Affiliation:** Ameren

**Comment Number:** EPA-HQ-OLEM-2019-0173-0117

**Page(s):** 3

**Excerpt ID:** 59030

**Comment:**

AMO has a specific example of the situation postulated above. AMO's Sioux Energy Center was constructed prior to the establishment of the CCR Rule and was constructed with a liner exceeding the CCR rule requirements, but occasionally is below the water table, due to transient flooding near the Missouri and Mississippi rivers. Missouri regulations require new landfills to evaluate local groundwater elevations prior to construction. Prior to construction of the Sioux landfill, sufficient historical groundwater elevations were presented to the Missouri Department of Natural Resources (MDNR) for review. Out of an abundance of caution, AMO presented an engineering demonstration to MDNR that concluded there would be no adverse effects to human health or the environment as a result of occasional contact with high groundwater. This

demonstration was accepted by MDNR (see attachments). The liner that was installed at Sioux exceeds the current CCR liner design standard and significantly exceeded the State's standard.

This unit meets all of the location standards with the occasional exception of the separation to the uppermost aquifer (if the most conservative definition of the uppermost aquifer is taken to be ground surface, during flooding conditions). The local aquifer changes due to its location between the Mississippi and Missouri Rivers, and seasonal rainfall patterns. The existing State groundwater monitoring system has been operated for over 10 years and even with the close proximity of the uppermost aquifer it has not shown an exceedance of groundwater standards. The unit has a certified CCR groundwater monitoring system and there is no indication from groundwater monitoring data that the unit has or will adversely affect groundwater (i.e., no statistically significant increases (SSI) of Appendix IV constituents above relevant groundwater protection standards). This unit is being forced to close solely due to an overly conservative view of groundwater separation and does not pose a risk to human health or the environment.

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 5

**Excerpt ID:** 59074

**Comment:** The CWDF at Apache is technically unlined per the CCR Rule even though the primary liner system on the bottom of the pond is the same thickness as required by the CCR Rule and the sides are thicker than required by the CCR Rule. The secondary, or backup, clay layer does not meet the thickness and permeability requirements that were established within the rule; however, the groundwater results continue to demonstrate that the CWDF liner meets the RCRA protectiveness standard. The groundwater has been sampled throughout the life of the facility, indicating the liner is competent, and the facility is not impacting groundwater.

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 6

**Excerpt ID:** 59075

**Comment:**

The groundwater monitoring results from the federal CCR program further demonstrate that the Apache CWDF liner is functioning consistent with RCRA Subtitle D's protectiveness standard. Apache has two monitoring well networks for the CCR Rule that measure groundwater in addition to the APP well network discussed above. Monitoring and statistical analysis of groundwater results began for the Apache CCR monitoring networks in 2017, like most other CCR-regulated units. The groundwater results have shown no statistically significant increases above background values attributable to the CCR units. In other words, none of the impoundments are impacting groundwater. Both groundwater monitoring systems for the CWDF are in Detection Monitoring for the CCR Rule.



In summary, there are no documented groundwater impacts from the CWDF that would compromise public health or the environment that are attributed to the CWDF. The liner design information documents a robust, composite system. Groundwater results from the CWDF's in-service date (mid-1990s) confirm the liner is intact and effective. Requiring a retrofit of the CWDF will cost AEPCO over \$27 million dollars and will place financial hardship on the cooperative's customers with no measurable benefit to human health or the environment.

## Response ÷

to the above comments: The Agency acknowledges the information provided by the commenter. However, as discussed in Units III.B and C of the preamble, broader conclusions about any individual unit will require site-specific data beyond what is documented in these comments.

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### 5.1.2 Environmental Group Comments on Specific Impoundments Outside of Part B Record

**Commenter Name:**

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0038

**Page(s):**

**Excerpt ID:** 58683

**Comment:** The four coal ash ponds at the former Wood River plant in Illinois are near a densely populated area, and have already been documented with groundwater contamination of toxic contaminants, as noted in a statewide groundwater monitoring report from 2019. A lifetime permit for this site without needed provisions for review/renewal would be a mistake.

**Commenter Name:** Angie Rosser

**Commenter Affiliation:** West Virginia Rivers Coalition (WV Rivers) et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0091

**Page(s):** 2

**Excerpt ID:** 58911

**Comment:** Most, if not all, of the facilities in WV have found statistically significant increases (SSI) in groundwater contaminants and should be considered ineligible to demonstrate an alternative liner to avoid closure. WV Rivers is opposed to CCR facilities in WV using an alternative liner demonstration that risks increased contamination of groundwater.

**Commenter Name:**

**Commenter Affiliation:** Hoosier Environmental Council (HEC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0119

**Page(s):** 2

**Excerpt ID:** 59032

**Comment:** One ash pond in Indiana has passed all of the location restrictions and has no ‘statistically significant increase’ or SSI in its groundwater record: the Clifty Creek Boiler Slag Pond. So, it might be eligible for the procedure to document its underlying soil conductivity and be designated as having an alternative liner. That would mean this pond, that is otherwise required to close because it is unlined, would stay open and continue to receive coal ash

**Commenter Name:**

**Commenter Affiliation:** Hoosier Environmental Council (HEC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0119

**Page(s):** 2

**Excerpt ID:** 59035

**Comment:** The second reason this ash pond’s eligibility is problematic, is that even though the Clifty Creek Boiler Slag Pond has no SSI in its groundwater record, it should have them. The reason no SSI were found was because the pond’s monitoring wells were compared to background wells that are impacted by coal ash. Two of the wells designated ‘background’ are downgradient from the ash pond according to the water elevations and one of the wells designated ‘upgradient’ has elevated contaminants consistent with coal ash impact. The surface of the ash pond water has been at elevations between 444 and 449.5 feet over the last 4 years, while the groundwater elevation in designated background well CF-15-05 was between 428.73 and 439.86 feet and designated background well CF-15-06 was between 422.15 and 437.12 feet. So, wells CF-15-05 and C-15-06 are downgradient from the ash pond. Designated upgradient well WBSP-15-02, located immediately adjacent to the Boiler Slag Pond, has consistently had a boron level above 3 mg/L and sometimes as high as 5.02 mg/L, sulfate consistently above 500 mg/L, and lithium usually above 0.04 mg/L and as high as 0.102 mg/L. These results are consistent with groundwater impacted by coal ash, so their use as ‘upgradient’ in the statistical assessment of the Clifty Creek groundwater masks coal ash impact in the monitoring wells.

**Commenter Name:**

**Commenter Affiliation:** Hoosier Environmental Council (HEC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0119

**Page(s):** 2

**Excerpt ID:** 59036

**Comment:** The proposal for alternate liners goes on to say that “Facilities that have improperly placed groundwater monitoring wells” would not be eligible, which would appear to address the problem with background wells at Clifty Creek. However, placement of the groundwater monitoring wells has not had any oversight to date due to the self-implementing nature of the CCR Rule, and in Indiana we have many wells designated “background” like those at Clifty Creek that are in fact impacted by coal ash. In implementing the alternate liner proposal, the EPA would have to carefully delineate which characteristics would be deemed acceptable for both monitoring and background wells.

**Commenter Name:**

**Commenter Affiliation:** Hoosier Environmental Council (HEC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0119

**Page(s):** 2-3

**Excerpt ID:** 59037

**Comment:** Implementation of this proposal would require careful review of impoundments that claim to not have adversely affected groundwater. Of the 15 Indiana power plants subject to the CCR Rule, 10 have monitoring wells designated ‘background’ that are impacted by coal ash. They are impacted by coal ash based on a combination of their location, their contaminant levels, the presence of coal ash in their boring logs, or their water elevations (see appendix A). Seven out of those 10 have water elevations in their background wells that are downgradient or level with the downgradient monitoring wells. I would caution EPA, if it moves forward with the alternate liner proposal, that inappropriate background wells are probably also in place in other states, so the SSI determinations alone cannot be counted on to determine whether a pond is impacting the groundwater.

**Commenter Name:**

**Commenter Affiliation:** Hoosier Environmental Council (HEC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0119

**Page(s):** 4

**Excerpt ID:** 59040

**Comment:** The Clifty Creek Boiler Slag Pond should not be eligible for alternate liner status that would allow it to continue receiving coal ash because it is contaminating the underlying groundwater, but masking that contamination with inappropriate background wells, and because it is located in the floodplain of the Ohio River creating a risk of a massive ash spill

**Commenter Name:**

**Commenter Affiliation:** Hoosier Environmental Council (HEC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0119

**Page(s):** 4

**Excerpt ID:** 59041

**Comment:** The EPA’s proposed evidence to support an alternate liner could not prove that there is a continuous, impermeable layer beneath all of the Clifty Creek Boiler Slag Pond, just as it could not prove it for any pond. Therefore, the EPA should abandon this proposal

**Response to the above comments:** The Agency acknowledges the information provided by the commenters. However, the Agency has received no indication that the facilities discussed in these comments have any plans to apply for an alternate liner demonstration. Therefore, the Agency considers these comments to be outside of the scope of this rulemaking.

## Chapter 6 Timing Comments

**Commenter Affiliation:** American Coal Council (ACC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0088

**Excerpt ID:** 58904

**Comment:** We urge EPA to expediently clarify some elements of its proposal and address timelines that are not workable as proposed, including with regard to other EPA-proposed CCR rule revisions. We are especially concerned that there will not be enough time for EPA to review and respond to comments in this Part B rulemaking and publish a final rule in time for facilities to submit applications for alternate liner demonstrations before the deadline to initiate closure

occurs. It is critically important that EPA take whatever steps are necessary to address these timing issues and ensure the full availability of the two-step process for facilities to engage in that process.

**Response:** This issue is discussed in Unit III.D.1 of the final rule preamble. The deadline to cease receipt of waste was revised in the Part A final rule to be no later than April 11, 2021, which gives owners and operators who may have had an application denied time to cease receipt of waste before the deadline or pursue the alternative closure standards in § 257.103 (f)(1) or (f)(2).

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Excerpt ID:** 59073

**Comment:** It is essential that EPA align the Closure Part B Rule with the Closure Part A Rule and establish a set of logical, stepped deadlines. Presently, the Closure Part A Rule deadlines for submittal of applications for closure commencement extensions based on lack of disposal capacity may fall prior to the issuance of the final closure rules and deadlines to submit liner demonstration applications. As a result, facilities may be faced with the challenge of devoting resources to two parallel paths to seek an extension under Closure Part A first and then seek an alternate liner demonstration under Closure Part B. To add further complexity, the proposed closure commencement deadline without an extension (August 31, 2020) may also fall prior to finalizing these rules and before the requirement to submit a liner demonstration application. AEPCO asks EPA to consider the deadlines for closure, extensions, and liner demonstration applications in both closure rules and align closure commencement tolling, as needed. AEPCO understands the need to expedite rulemaking, but the framework that facilities must follow should be functional, streamlined, and not unduly burdensome.

**Response:** This issue is discussed in Unit III.D.1 of the final rule preamble. The deadline to cease receipt of waste was revised in the Part A final rule to be no later than April 11, 2021, which gives owners and operators who may have had an application denied time to cease receipt of waste before the deadline or pursue the alternative closure standards in § 257.103(f)(1) or (f)(2).

The issue of pursuing alternate closure standards under § 257.103(f)(1) or (f)(2) while the owner or operator is in the process of applying for an alternate liner demonstration is discussed in Unit III.D.3 of the preamble.

**Commenter Affiliation:** Great River Energy

**Comment Number:** EPA-HQ-OLEM-2019-0173-0080

**Excerpt ID:** 58823

**Comment:** Great River Energy urges that EPA finalize the proposed rule as soon as possible. As previously stated, the units at the Coal Creek Station are likely to be deemed adequately protective under the proposed rule's alternative liner provisions. However, until the proposed rule is finalized, the current regulations require that these surface impoundments close. As a

result, Great River Energy is compelled to continue to invest our member-owners' money and resources in permitting, engineering, and planning to obtain alternative disposal capacity even though it is unlikely this will be necessary in the end. To minimize the impact of this, we urge EPA to expedite the finalization of the proposed rule with its alternative liner provision.

**Response:** This issue is discussed in Unit III.D.1 of the final rule preamble. The deadline to cease receipt of waste was revised in the Part A final rule to be no later than April 11, 2021, which should give owners and operators who may have had an application denied time to cease receipt of waste before the deadline or pursue the alternative closure standards in § 257.103(f)(1) or (f)(2).

**Commenter Name:** Dorothy Kellogg

**Commenter Affiliation:** National Rural Electric Cooperative Association (NRECA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0096

**Excerpt ID:** 58951

**Comment:** Timing is critical. Plants that expect to be able to make a successful alternative liner demonstration are already dedicating resources and engaging technical experts to assist with the liner demonstration, and they need to know what will be required. NRECA urges EPA to finalize both this and the Part A (closure) rule concurrently, providing enough time for plants to make the alternative liner demonstration.

**Response:** This issue is discussed in Unit III.D.1 of the final rule preamble. The deadline to cease receipt of waste was revised in the Part A final rule to be no later than April 11, 2021, which gives owners and operators who may have had an application denied time to cease receipt of waste before the deadline or pursue the alternative closure standards in § 257.103(f)(1) or (f)(2).

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Excerpt ID:** 58779

**Comment:** The final rule must be effective in time for owners/operators to utilize the alternative liner demonstration.

EPA's timing for finalizing the Part B proposal is imperative to ensure owners/operators can utilize the alternate liner demonstration provisions without penalty. Part B requires owners/operators to submit initial applications within thirty days of the final rule's effective date. Submitting a "complete application" tolls the initiation of closure deadline, which is August 31, 2020 under the Part A proposal. Therefore, to allow owners/operators the full thirty days to submit initial applications and toll Part A's proposed deadline to initiate closure, the Part B final rule must become effective by August 1, 2020. If the rule is not effective by then, the initiation of closure deadline will come before initial applications are due. Owners/operators would therefore need to submit initial applications early to toll the initiation of closure deadline. To avoid this scenario, EPA must ensure the final rule is effective by at least August 1, 2020. Alternatively, EPA should extend the proposed deadline to initiate closure so owners/operators have the full thirty days to submit their initial applications.

**Response:** This issue is discussed in Unit III.D.1 of the final rule preamble. The deadline to cease receipt of waste was revised in the Part A final rule to be no later than April 11, 2021, which gives owners and operators who may have had an application denied time to cease receipt of waste before the deadline or pursue the alternative closure standards in § 257.103(f)(1) or (f)(2).

## 6.1 Effective Date of Final Rule

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Excerpt ID:** 58839

**Comment:** Under the current CCR rule, owners/operators must initiate closure of unlined CCR surface impoundments no later than October 31, 2020. In EPA’s recent “Part A Proposal,” the Agency proposed to revise this date to August 31, 2020. Whatever date EPA ultimately determines is appropriate for unlined impoundments to initiate closure, it is critical that EPA finalizes the alternative liner demonstration provisions of the Part B Proposal in time for facilities to be able to avail themselves of this option.

This means that under the proposed alternative liner provisions, a final rule would need to be effective no later than thirty days before the deadline to initiate closure. Otherwise, facilities would not have the necessary amount of time to submit an application request by the deadline to initiate closure. If facilities cannot submit an application in time—which under the Part B Proposal tolls the deadline for initiating closure—the alternative liner demonstration provision would be of no use and would needlessly subject certain unlined impoundments to closure when such units are not posing an unreasonable risk of adverse effects to human health or the environment.

**Response:** This issue is discussed in Unit III.D.1 of the final rule preamble. The deadline to cease receipt of waste was revised in the Part A final rule to be no later than April 11, 2021, which gives owners and operators who may have had an application denied time to cease receipt of waste before the deadline or pursue the alternative closure standards in § 257.103(f)(1) or (f)(2).

The issue of pursuing alternate closure standards under § 257.103(f)(1) or (f)(2) while the owner or operator is in the process of applying for an alternate liner demonstration is discussed in Unit III.D.3 of the preamble.

**Commenter Affiliation:** Great River Energy

**Comment Number:** EPA-HQ-OLEM-2019-0173-0080

**Excerpt ID:** 58829

**Comment:** We urge EPA to issue the Part A and Part B rules as a single rulemaking to ensure that the provision of both the Part A and Part B rules are carefully coordinated and that any schedules predicated on Federal Register publication dates are consistent. Furthermore, understanding the final requirements of both rules simultaneously is important for owners and

operators to plan for and respond to the rule's requirements. Issuing Part A and Part B as separate rules may result in owners being required to plan and implement actions without a complete understanding of the requirements that will be applied. Therefore, the rules should be published as a single rule or simultaneously.

**Response:** This issue is discussed in Unit III.D.1 of the final rule preamble. The deadline to cease receipt of waste was revised in the Part A final rule to be no later than April 11, 2021, which gives owners and operators who may have had an application denied time to cease receipt of waste before the deadline or pursue the alternative closure standards in § 257.103(f)(1) or (f)(2).

The issue of pursuing alternate closure standards under § 257.103(f)(1) or (f)(2) while the owner or operator is in the process of applying for an alternate liner demonstration is discussed in Unit III.D.3 of the preamble.

## 6.2 Deadline for Submission of Application

**Commenter Affiliation:** American Coal Council (ACC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0088

**Excerpt ID:** 58902

**Comment:** The timing of EPA's promulgation of a final rule is critical. The current CCR rule requires closure be initiated for unlined impoundments by October 31, 2020. In a separate rulemaking, EPA proposed to revise this date to August 31, 2020. Whatever date to initiate closure is ultimately determined by EPA, it is imperative that EPA finalize the alternative demonstration provisions of this CCR Part B rule in time for facilities to actually be able to utilize this option. Thus, a final rule for the alternative liner provision would need to be issued by EPA no later than thirty days before the deadline to initiate closure. If not, facilities would have insufficient time to submit the application required as step one per this Part B proposal before the deadline to initiate closure. If that were the case, the step two alternative liner demonstration would become moot since it is the submission of the application that tolls the deadline for initiating closure. This would result in subjecting some unlined impoundments not posing an unreasonable risk of adverse effects to closure solely because of a regulatory-induced timing problem

**Response:** This issue is discussed in Unit III.D.1 of the final rule preamble. The deadline to cease receipt of waste was revised in the Part A final rule to be no later than April 11, 2021, which gives owners and operators who may have had an application denied time to cease receipt of waste before the deadline or pursue the alternative closure standards in § 257.103(f)(1) or (f)(2).

**Commenter Name:** Carolyn Slaughter

**Commenter Affiliation:** American Public Power Association (APPA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0099

**Excerpt ID:** 58973

**Comment:** Whatever deadline is ultimately selected, EPA must finalize the alternative liner demonstration provisions of the Part B Proposal in enough time for facilities to be able to use

this option. If the final alternative liner demonstration is not published in the Federal Register at least 30 days before the deadline to initiate closure, facilities may not have enough time to submit an alternative liner demonstration application and toll the deadline to initiate closure

**Response:** This issue is discussed in Unit III.D.1 of the final rule preamble. The deadline to cease receipt of waste was revised in the Part A final rule to be no later than April 11, 2021, which gives owners and operators who may have had an application denied time to cease receipt of waste before the deadline or pursue the alternative closure standards in § 257.103(f)(1) or (f)(2).

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Excerpt ID:** 58802

**Comment:** A. EPA must account for impacts resulting from the COVID-19 pandemic.

When finalizing Part A's deadline to initiate closure and Part B's deadlines to submit alternate liner initial applications and demonstrations, EPA must consider the COVID-19 global pandemic's direct and indirect effects. To combat the pandemic, the federal and state governments have instituted policies and procedures that have changed how business and individuals operate. Electric utilities are no exception. Given widespread shelter-in-place orders and other restrictions, the ability to produce and compile data and information needed for initial applications and liner demonstrations could be hindered. Accordingly, Cleco requests EPA to build in flexibility for meeting deadlines to the extent an owner/operator can show COVID-19 has impacted its ability to meet these deadlines.

**Response:** EPA disagrees that additional time is necessary to accommodate the COVID-19 pandemic. The initial application requires only that facilities compile existing information; there is no reason that facilities cannot do this in the time allowed. Nor does the commenter claim that this is not currently possible but merely that current events "could hinder" such efforts. Although the demonstration will require additional data collection and analyses, the demonstration is not due for over one year, and the final rule establishes a potential extension if needed to accommodate delays in laboratory analyses.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Excerpt ID:** 58780

**Comment:** EPA must correct the deadline to submit initial applications.

As stated above, the Part B preamble requires owners/operators to submit initial applications "no later than 30 days after the effective date of a final rule." However, the proposed rule at 40 C.F.R. § 257.71(d)(2)(i) states the deadline is April 2, 2020. This is thirty days after the Part B proposal's publication in the Federal Register, not thirty days after the final rule's effective date. It is unclear if EPA is using April 2, 2020 as a placeholder or inadvertently identified it as the



required submittal date. Regardless of the reason, EPA must revise this date or the application deadline will pass more than two weeks before these comments are even due

**Response:** The inconsistencies between the preamble and regulatory text have been resolved. Initial applications are now due no later than November 30, 2020.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Excerpt ID:** 58781

**Comment:** EPA should provide more than thirty days to submit initial applications.

EPA should also provide more than thirty days for owners/operators to submit their initial applications. The Part B proposal places emphasis on submitting a “complete application.” As written, however, it is not clear what level of detail EPA expects. For example, it is unclear whether EPA is seeking representative geologic cross sections and groundwater contour maps of the facility or all existing hydrogeologic data. The level of detail applications must include will have a major effect on the time and effort needed to submit them. Putting together a submittal could very well take more than thirty days, especially if EPA requires significant detail. Cleco therefore asks that EPA provide owners/operators more than thirty days to prepare applications.

**Response:** EPA is extending the timeframe available for facilities to submit the initial application to no later than November 30, 2020. This issue is discussed in Unit III.D.1.a of the preamble to the final rule.

**Commenter Affiliation:** DTE Energy

**Comment Number:** EPA-HQ-OLEM-2019-0173-0089

**Excerpt ID:** 58905

**Comment:** DTE requests that EPA proceed with the proposed revisions expeditiously, and that finalization of the alternative liner demonstration provisions be finalized at least 30-days before the deadline to initiate closure. Otherwise, facilities would not have the necessary amount of time to submit an application request by the deadline to initiate closure. If facilities cannot submit an application in time- which under the proposal tolls the deadline for initiating closure- the alternative liner demonstration provision would not be able to be used and would needlessly subject certain unlined impoundments to high cost, unnecessary closures when such units are not posing an unreasonable risk of adverse effects to human health or the environment.

**Response:** This issue is discussed in Unit III.D.1 of the final rule preamble. The deadline to cease receipt of waste was revised in the Part A final rule to be no later than April 11, 2021, which gives owners and operators who may have had an application denied time to cease receipt of waste before the deadline or pursue the alternative closure standards in § 257.103(f)(1) or (f)(2).

**Commenter Affiliation:** Luminant Generation Company LLC et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0097

**Excerpt ID:** 58957

**Comment:** This application step is intended to provide EPA with enough information to quickly confirm that units are eligible to seek an alternate liner demonstration. However, given the significance of this step, EPA must provide facilities with adequate time to assemble this critical preliminary information, which may require the assistance of third party engineering firms. Facilities should not be rushed to prepare this information, which, if determined to be insufficient, will disqualify a facility from being able to seek an alternate liner demonstration and subject the unit to closure.

Thus, at the very least, EPA should provide facilities at least 60 days after the final rule is effective to submit the initial application and supporting documentation required by proposed § 257.71(d)(1)(i), and should further take steps to ensure that this deadline falls well before any revised deadline for closure. Of course, facilities would have the option of filing initial applications before the submission deadline.

**Response:** EPA is extending the timeframe available for facilities to submit the initial application to no later than November 30, 2020. This issue is discussed in Unit III.D.1.a of the preamble.

**Commenter Affiliation:** Luminant Generation Company LLC et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0097

**Excerpt ID:** 58959

**Comment:** Finally, there appears to be a drafting error in the text of proposed § 257.71(d)(2)(i), which states that demonstration applications must be submitted by April 2, 2020. This deadline would fall before the close of the public comment period on the Proposed Rule, which is April 17, 2020. EPA should correct the drafting error in the final regulatory text and clarify the submission period for the application.

**Response:** The inconsistencies between the preamble and regulatory text have been resolved. Initial applications are now due no later than November 30, 2020.

**Commenter Name:** Greg Snellen

**Commenter Affiliation:** Missouri Department of Natural Resources

**Comment Number:** EPA-HQ-OLEM-2019-0173-0093

**Excerpt ID:** 58914

**Comment:** Section IV.A. Alternate Liner Demonstration, p. 12459: “EPA will evaluate the information submitted and determine whether or not the surface impoundment is eligible to submit an alternate liner demonstration. EPA will notify the facility of its determination as expeditiously as possible. The facility must also post EPA’s determination to its CCR public website. If the application is found by EPA to lack necessary information or specificity, the facility may have an opportunity to resubmit with the required information. However, no

resubmissions will be accepted after the initial application deadline, which is the date 30 days after the effective date of a final rule.” (emphasis added)

**Comment:** This section of the preamble and 40 C.F.R. § 257.71(d)(2)(i) of the proposed rule have conflicting deadlines for submittal of the initial application. The Department recommends the deadline language in this section of the preamble also be used in 40 C.F.R. § 257.71(d)(2)(i) of the proposed rule. See Comment 17 below.

**Response:** The inconsistencies between the preamble and regulatory text have been resolved. Initial applications are now due no later than November 30, 2020.

**Commenter Name:** Greg Snellen

**Commenter Affiliation:** Missouri Department of Natural Resources

**Comment Number:** EPA-HQ-OLEM-2019-0173-0093

**Excerpt ID:** 58922

**Comment:** 40 C.F.R. § 257.71(d)(2)(i) Deadlines for Submission, p. 12476: “The owner or operator must submit the application under paragraph (d)(1)(A) of this section to EPA or the Participating State Director for approval no later than April 2, 2020.”

**Comment:** This date has passed and should be revised to allow sufficient time for owners and operators to submit complete applications containing the elements required by C.F.R. 40 § 257.71(d)(1)(i). The Department recommends providing owners and operators 30 days from the effective date of the final rule to complete submission of the required initial application. This would be consistent with the statement in the preamble on p. 12459. See Comment 1 above.

**Response:** The inconsistencies between the preamble and regulatory text have been resolved. Initial applications are now due no later than November 30, 2020.

**Commenter Name:** Tawny Bridgeford

**Commenter Affiliation:** National Mining Association (NMA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0095

**Excerpt ID:** 58930

**Comment:** Timing: EPA must carefully coordinate the finalization of this rule with the timelines to initiate closure established in EPA’s recent “Part A Proposal,” which (if finalized) will change the time in which owners and operators must initiate closure of unlined CCR surface impoundments from no later than Oct. 31, 2020, to Aug. 31, 2020. It is critical that EPA finalize the alternate liner demonstration provision in this “Part B Proposal” in time for facilities to actually avail themselves of this important opportunity. Failure to finalize this rule within 30 days of the deadline to initiate closure will void any benefits from this provision and result in certain impoundments prematurely closing. Facilities must be given time to submit an application request before the deadline to initiate closure to secure any chance of using this new mechanism.

**Response:** This issue is discussed in Unit III.D.1 of the final rule preamble. The deadline to cease receipt of waste was revised in the Part A final rule to be no later than April 11, 2021,

which gives owners and operators who may have had an application denied time to cease receipt of waste before the deadline or pursue the alternative closure standards in § 257.103(f)(1) or (f)(2).

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Excerpt ID:** 58846

**Comment:** USWAG notes another drafting error in the Proposal. The proposed regulatory text states that applications to submit equivalency demonstrations must be submitted by April 2, 2020. This is clearly a drafting error, as that date has already passed and the comment period has not even expired. As explained above, any date for submitting an application must coincide with (or be before) the date established in the final Part A rule for initiating closure.

**Response:** The inconsistencies between the preamble and regulatory text have been resolved. Initial applications are now due no later than November 30, 2020.

### 6.3 Deadline for Submission of Demonstration

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Excerpt ID:** 58789

**Comment:** EPA should also make the extension available for reasons other than “analytical limitations.” The Part B proposal seeks to address issues stemming from site-specific factors, namely that some clay-lined impoundments are protective of human health and the environment despite not having a liner that meets the CCR rule’s precise technical standards. EPA states that “[b]oth the amount of site-specific data and the complexity of the analyses necessary for a demonstration will vary based on the size of the unit, the type of engineered liner present (or lack thereof), heterogeneity of site geology, and other site-specific factors.” EPA further states that “the more site-specific data that can be incorporated into a demonstration and the greater the characterization of the associated uncertainties, the greater the confidence in the ultimate conclusions and the greater likelihood of approval.” EPA should thus appreciate the fact that unique site features that may not be considered “analytical limitations” can lead to site-specific delays. Other unique factors that could lead to site-specific delays include potential constraints related to the COVID-19 pandemic, site accessibility, scheduling and allocation of resources, unforeseen weather delays, and contractor availability due to any or all of these situations listed. It is out-of-step with Part B’s purpose to limit the ability of owners/operators to obtain deadline extensions only for “analytical limitations.” EPA should accordingly broaden the scope of issues for which deadline extensions are available

**Response:** This issue is discussed in Unit III.D.2.a of the preamble to the final rule. Regarding the commenters concern about COVID-19, EPA disagrees that additional time is necessary to accommodate the Covid 19 pandemic. The initial application requires only that facilities compile existing information; there is no reason that facilities cannot do this in the time allowed. Nor does the commenter claim that this is not currently possible but merely that current events “could

hinder” such efforts. Although the demonstration will require additional data collection and analyses, the demonstration is not due for over one year, and the final rule establishes a potential extension if needed to accommodate delays in laboratory analyses.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Excerpt ID:** 58785

**Comment:** The alternate liner demonstration deadline should be measured from when EPA deems a surface impoundment eligible to submit a demonstration.

The Part B proposal measures the deadline to submit alternate liner demonstrations from when initial applications are due. Specifically, alternate liner demonstrations are due twelve months after the initial application deadline. While this language has the appearance of providing owners/operators a year to prepare demonstrations, they actually have significantly less time. The Part B proposal states that EPA “will notify the owner or operator of its determination on the eligibility of their surface impoundment” within sixty days of receiving a “complete application.” Therefore, an owner/operator could have as little as ten months to prepare a liner demonstration after learning its unit is eligible.

In EPA’s own words, “[t]he application step is designed to ensure that a unit meets minimum requirements before embarking on a comprehensive alternate liner demonstration.” Based on this statement, EPA rightly believes that owners/operators should not be forced to expend time and resources preparing an alternate liner demonstration without certainty that its surface impoundment is eligible. As described in later sections, the data EPA requires liner demonstrations to include is extensive and complex and will take at least one year to collect and compile. Thus, by measuring the deadline to submit demonstrations from when initial applications are due, EPA is requiring owners/operators to start work before eligibility decisions are made so they can timely submit their liner demonstrations if eligible. This result is inconsistent with EPA’s own statements. EPA should measure the deadline to submit an alternate liner demonstration from EPA’s eligibility determination, not the application deadline.

EPA should provide additional time to submit alternate liner demonstrations to allow owners/operators to develop more robust and detailed submittals.

The Part B proposal requires owners/operators to submit alternate liner demonstrations “to EPA for approval no later than one year after the deadline for the initial application.” This means liner demonstrations are due only thirteen months after the final rule’s effective date. Cleco believes that if EPA gave owners/operators additional time to develop liner demonstrations, they could perform more robust analyses and provide greater certainty “that continued operation of the unit would pose no reasonable probability of adverse effects to human health or the environment.” If given more time, owners/operators could, for example, perform three-dimensional (3D) visualization to support conceptual site models (CSMs). 3D visualization would strengthen site characterizations by identifying and eliminating data gaps and limiting uncertainty as to subsurface conditions and potential contaminant fate and transport. It would also improve the

explanation of the hydrogeologic characterization detailed in the CSM and provide stakeholders with an enhanced understanding of the demonstration.

In addition, validation of fate and transport models could take significant time. If not validated, fate and transport models are not considered representative. This is especially the case when there are uncertainties present at a site. Owners/operators must address uncertainties through model sensitivity analysis, data gap analysis, and appropriate data gathering to fill those gaps. Also, field sampling and analysis is required to test the model. Visualization of scientific data is an important tool for environmental investigations by representing site-specific numerical data in a visual format, which provides a method to better understand the results and to effectively convey those results. These processes take time and in some instances could require more than twelve months to complete.

Owners/operators also likely need more than twelve months to develop the data for the “potential for infiltration” line of evidence. The Part B proposal states that collecting in-situ data to measure actual infiltration “may be difficult in low-conductivity soils or may disturb the integrity of the impoundment. To avoid these issues, EPA notes that “it may be more practical to rely on analysis conducted in a laboratory setting for soil-based liners and underlying soil, but it is critical that any laboratory tests are designed to reflect the conditions at the specific site in order to provide useful data.” EPA then provides a number of examples of how to ensure samples are representative. Cleco agrees in theory that the examples EPA provides might accomplish this objective but requests that EPA provide more time to gather this data.

More time is also needed to establish background water quality and to evaluate the potential effects for seasonality in the groundwater quality data set. Seasonality is the presence of natural or manmade seasonal effects on groundwater quality observations. As referenced in the CCR rule’s preamble, EPA contemplated background water quality sampling for Appendix III and IV parameters to occur over a twenty-four-month period. In addition, as its name indicates, evaluating seasonality requires at least twelve months. Based on these factors, EPA should provide additional time to produce the data necessary to establish background water quality and account for seasonality.

Further, if owners/operators are required to install additional monitoring wells or other equipment necessary to develop data for the liner demonstrations, they could be required to obtain permits or approvals from State entities to do so. Cleco therefore asks that EPA account for State approval/permit processes

For all these reasons, Cleco requests that EPA provide owners/operators at least eighteen months from when EPA deems a unit eligible to prepare and submit liner demonstrations

**Response:** This issue is discussed in Unit III.D.2 of the preamble to the final rule.

**Commenter Affiliation:** Harvard [GSAS Environmental Action Team \(GrEAT\)](#)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0122

**Excerpt ID:** Excerpt Id 59072

“EPA further defends its 12 month application window by stating that “it is possible that these demonstrations can identify leaks that might have been missed for some time and result in greater long-term protection at the site.” Allowing facilities that may be leaking to continue to operate in the interest of identifying leaks is clearly in violation of the RCRA standard”

**Response:** This is addressed in Unit III of the final rule preamble.

#### 6.4 Timeline for EPA Review of Demonstrations

**Commenter Affiliation:** Attorney General of Maryland et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0101

**Excerpt ID:** 58998

**Comment:** The regulations do not even give the reviewing agency a deadline for approving or disapproving a submitted demonstration, so that such a demonstration can remain pending indefinitely

**Response:** The Agency disagrees and is finalizing as proposed § 257.71(d)(2)(v) which states that EPA will evaluate the comments received and amend its decision as warranted within four months.

#### 6.5 Request for Clarification on Deadline Extension Requirements due to Analytical Limitations

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Page(s):** 11

**Excerpt ID:** 58787

**Comment:** 3. EPA should revise the liner demonstration deadline extension to provide clarity and allow extensions for reasons other than “analytical limitations.”

If an owner/operator cannot meet the liner demonstration deadline “due to analytical limitations,” it may submit a request for a liner demonstration deadline extension. Owners/operators must submit these requests at least ninety days before the submittal deadline. The request must include “a summary of the data that have been analyzed for the samples responsible for the delay and an alternate timeline for completion that has been certified by the laboratory.” Cleco supports EPA’s inclusion of an extension provision but believes it should be revised in a number of ways.

EPA should clarify what it means by “analytical limitations.” The Part B preamble provides a single specific example of an “analytical limitation,”—analysis of low conductivity soils taking a “considerable amount of time.” This example alone does not provide owners/operators with sufficient guidance for determining the types of items that fall into the class described as an “analytical limitation.” To address this issue, EPA should provide additional examples of “analytical limitations.”

**Commenter Name:** Bill Matthews  
**Commenter Affiliation:** Cleco Corporate Holdings LLC  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0078  
**Page(s):** 12-13  
**Excerpt ID:** 58791

**Comment:** EPA should also provide additional guidance on what information extension requests should include. Currently, the Part B proposal simply states that the request should include “a summary of the data that have been analyzed for the samples responsible for the delay . . . .” Throughout the Part B proposal, EPA places emphasis on the “completeness” of submissions. There is no reason to believe that the EPA would place less emphasis on the completeness of extension requests. EPA should therefore provide owners/operators additional guidance for submitting extension requests.

**Commenter Name:** Bill Matthews  
**Commenter Affiliation:** Cleco Corporate Holdings LLC  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0078  
**Page(s):** 13  
**Excerpt ID:** 58794

**Comment:** The extension request provision is equally vague as to the length of extensions. The proposal simply states that owners/operators should submit “an alternate timeline for completion that has been certified by the laboratory.” Cleco asks that EPA provide additional information and/or guidance regarding the duration of available extensions.

**Response:** The Agency provides clarification on the types of analytical limitations that will be considered for an extension and information that must be submitted as part of the request for an extension due to analytical limitations in Unit D.2.a.i through ii of the preamble to the final rule.

## 6.6 Deadline Tolling Linked to Application/Demonstration Process

**Commenter Affiliation:** American Coal Council (ACC)  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0088  
**Excerpt ID:** 58895

**Comment:** ACC agrees with EPA that submission of a complete application should toll the deadline to cease receipt of waste at the impoundment facility until issuance of a final decision on the facility’s eligibility. ACC also believes EPA should clarify that such tolling would continue without interruption through the period of review and final decision on the facility’s alternate liner demonstration.

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0123  
**Excerpt ID:** 59094

**Comment:** Tolling closure commencement deadlines upon simple administrative completeness would pose no harm to public health or the environment. The facilities achieving administrative



completeness are not leaking. EPA would be able to easily confirm via a CCR Unit's semi-annual monitoring data that the CCR Unit seeking consideration does not have any SSLs statistically exceeding groundwater protection standards. Therefore, during the pendency of the alternate liner demonstration process, groundwater would not be impacted.

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Excerpt ID:** 59095

**Comment:** AEPCO anticipates that Applications and particularly Demonstration Packages will be voluminous and will require significant technical review time from EPA. As such, the substantive portion of the review should occur after administrative completeness has been achieved to enter the alternate liner off-ramp and have closure commencement deadlines tolled pending review.

**Response to the above comments:** Submission of a complete application will toll the facility's deadline to cease receipt of waste until issuance of a final decision on the application is issued. Incomplete submissions will not toll the facility's deadline and will be rejected without further process. If the application is approved, the deadline to cease receipt of waste will be tolled until an alternate liner demonstration is determined to be incomplete or a final decision on the alternate liner demonstration is issued.

Submission of a complete demonstration package will toll the facility's deadline to cease receipt of waste into that CCR surface impoundment until issuance of a final decision on the demonstration is issued. Incomplete submissions will not toll the facility's deadline and will be rejected without further process.

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Excerpt ID:** 59104

**Comment:** AEPCO agrees with EPA's theoretical approach to toll closure commencement deadlines during the pendency of the alternative liner demonstration review. The Proposed Rule provides a tolling process in the proposed regulatory language, "Submission of a complete application will toll the facility's deadline to cease receipt of waste into that unit until issuance of a final decision on the unit's eligibility." A second tolling period in the Proposed Rule reads, "Submission of a complete demonstration package will toll the facility's deadline to cease receipt of waste into the unit until issuance of a final decision under paragraph (d)(2)(v) of this section." We believe EPA's intent is for tolling to last for the entire liner demonstration process; however, the current proposal leaves a time period not tolled between the EPA determination on the Application and facility's submission of the complete demonstration package. To correct this, EPA should revise the proposed regulatory language to state that the closure commencement deadline should be tolled from (1) the date from submittal of the Application, or at least at EPA's

determination of administrative completeness, and until (2) either EPA denies the Application or the Demonstration Package, whichever occurs first.

**Commenter Affiliation:** Berkshire Hathaway Energy Company

**Comment Number:** EPA-HQ-OLEM-2019-0173-0085

**Excerpt ID:** 58865

**Comment:** Importantly, USWAG notes that the timing gaps in the proposal must be fixed in the final rule to properly toll requirements to cease operations and close while alternative liner demonstration applications are pending. Berkshire Hathaway Energy supports these recommended changes and agrees they should be incorporated in the final rule.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Excerpt ID:** 58806

**Comment:** Tolling the initiation of closure deadline

As written, the tolling provisions create what appears to be an unintended gap in coverage. With respect to applications, the proposal states that “[s]ubmission of a complete application will toll the facility’s deadline to cease receipt of waste into that unit until issuance of a final decision on the unit’s eligibility.” With respect to liner demonstrations, the proposal states that “[s]ubmission of a complete demonstration package will toll the facility’s deadline to cease receipt of waste into that unit until issuance of a final decision . . . .”

Under these provisions, the initiation of closure deadline would be tolled from (1) when the owner/operator submits a “complete application” until EPA determines eligibility, and (2) from when the owner/operator submits a “complete demonstration package” until EPA makes a final decision. EPA appears to have inadvertently created a gap in tolling coverage from when EPA determines a unit’s eligibility until the owner/operator submits a complete demonstration package, which could be up to twelve months. Cleco requests that EPA revise the tolling provision to run from application submittal until either (1) EPA determines the unit is ineligible to submit a liner demonstration, or (2) if EPA determines the unit is eligible, until EPA issues a final decision on the unit’s liner demonstration

The Part B proposal includes provisions stating that a “complete application” and a “complete demonstration package” toll the initiation of closure deadline. Cleco agrees that this deadline should be tolled during the liner demonstration process but believes the current proposal includes deficiencies that will lead to unintended circumstances.

**Commenter Affiliation:** Luminant Generation Company LLC et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0097

**Excerpt ID:** 58960

**Comment:** Under the Proposed Rule, submission of a complete application under step 1 “will toll the facility’s deadline to cease receipt of waste until issuance of a final decision on the unit’s eligibility.” Similarly, submission of a complete demonstration package under step 2 “will toll the facility’s deadline to cease receipt of waste until issuance of a final decision” on the alternate liner demonstration package. These tolling provisions are critical and should be finalized. However, the proposed regulatory text could be read to contain a gap in tolling between EPA’s or the Participating State Director’s decision as to a facility’s eligibility under step 1 and a facility’s submission of an alternate liner demonstration under step 2. Thus, the final rule should clarify that, in addition to the tolling provided in the Proposed Rule, once EPA or a Participating State Director has determined that a unit is eligible to make an alternate liner demonstration, the cease receipt date will remain tolled until a final decision on the unit’s alternate liner demonstration is made.

**Commenter Name:** Tawny Bridgeford

**Commenter Affiliation:** National Mining Association (NMA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0095

**Excerpt ID:** 58931

**Comment:** Tolling of Closure Obligations: NMA is concerned that there may be an inadvertent gap in the tolling of closure obligations under this provision. As written, the proposed regulatory text suggests that there would be no tolling of the requirement to initiate closure between the agency’s decision on a facility’s eligibility and a facility’s submission of an alternate liner demonstration. The alternate liner demonstration process will not work unless the agency clearly tolls the deadline to initiate closure from the time a complete application is submitted until the agency determines that a facility is not eligible or that the facility has failed to make a successful alternate liner demonstration.

**Commenter Name:**

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Excerpt ID:** 58845

**Comment:** The requirement to cease operations and close must be tolled until it is determined that a facility is not eligible or has not made an adequate demonstration.

EPA has proposed that the deadline for unlined impoundments to initiate closure will be tolled for facilities that are seeking to continue operating under an alternative liner demonstration.

USWAG agrees that such tolling is necessary, since, as noted above, the proposed provision is of use to facilities only if it is available before such units are required to begin closure. Moreover, it is appropriate to toll the deadline to initiate closure because, as discussed above, units applying under step one of the process are required to submit documentation showing that the impoundment poses no unreasonable risk to groundwater in the short term.

Note that, in what USWAG assumes was a drafting error, the proposed regulations contain a gap in tolling. Under proposed § 257.71(d)(2)(ii), the requirement to initiate closure is tolled from the time a facility submits a complete application until EPA makes a determination on a facility’s eligibility. Tolling is then provided once an alternative liner demonstration is submitted for the Agency’s review and runs until the Agency makes a decision on that demonstration. The

proposed regulatory text thus would not toll the requirement to initiate closure between the Agency's decision on a facility's eligibility and a facility's submission of an alternative liner demonstration. The Agency should ensure that this tolling gap is removed in the final rule. For example, the regulations could provide: "Submission of a complete application will toll the facility's deadline to cease receipt of waste into that unit until issuance of a final decision on a unit's eligibility. A final determination by EPA or the Participating State Director that a unit is eligible will toll the facility's deadline to cease receipt of waste into that unit until a final decision on the unit's alternative liner demonstration."

**Commenter Name:** Dorothy Kellogg

**Commenter Affiliation:** National Rural Electric Cooperative Association (NRECA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0096

**Excerpt ID:** 58945

**Comment:** We also support USWAG's recommendations to improve the proposed alternative liner demonstration process: The deadline to cease placement and initiate closure of a unit should be tolled while EPA (or the Participating State Director) evaluates the plant's application.

**Commenter Affiliation:** Attorney General of Maryland et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0101

**Excerpt ID:** 58999

**Comment:** Not only that, but submission of a complete demonstration—even an inadequate one—will, under EPA's proposal, toll the deadline for the impoundment to cease receipt of waste. Id. at 12,476. The upshot is that the Part B Proposal extends the time for clay-lined impoundments to continue operating, perhaps indefinitely, even if they do not meet the alternate-lining criteria.

**Response to the above comments:** The proposed rule indicated that the time period between when an initial application was approved up until the time the alternate liner demonstration package was submitted would not toll the cease receipt of waste deadline. That was not the Agency's intent. EPA intended that the deadline would be tolled during the entire time between an approved application and the final determination on the ALD. Accordingly, the regulatory text has been amended to make this clear.

To clarify: Submission of a complete application will toll the facility's deadline to cease receipt of waste until a final decision on the application is issued. If the application is approved, the deadline to cease receipt of waste will continue to be tolled until either an alternate liner demonstration is determined to be incomplete or a final decision on the alternate liner demonstration is issued. Incomplete submissions -- whether an application or a demonstration package --will not toll the facility's deadline and will be rejected without further process.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Excerpt ID:** 58808

**Comment:** Certified submittals should toll the deadline for ceasing receipt of waste.

The Part B proposal states that the submittal of a “complete” submittal tolls the cease receipt deadline while an “incomplete” submittal does not. This “completeness” measure will create confusion for owners/operators, since they will not know whether an application is “incomplete” until EPA makes its determination. The uncertainty created by this scenario has potentially significant consequences. For example, an owner submits an application it believes is complete. By doing so, the owner believes the deadline to initiate closure has been tolled. Accordingly, the owner does not cease receipt and initiate closure while its application is under EPA review. After the initiation of closure deadlines passes, EPA determines the owner submitted an incomplete application. As a result, the deadline was never actually tolled. The owner therefore misses the deadline and is in violation of the CCR rule.

EPA should employ a certification process rather than a “completeness” measure. Under this approach, the tolling period would begin when the owner/operator makes a submittal that has been certified by a professional engineer (PE) that it meets the requirements of the CCR rule. This would help eliminate the uncertainty described above, and it is consistent with other provisions in the CCR rule that require PE certifications. As an alternative to this certification approach, Cleco requests that EPA clearly state what constitutes a “complete application.”

**Response:** EPA has amended the regulatory text to identify specific documents that facilities must provide as part of their application for it to be considered complete. This issue is discussed in Unit III.B of the preamble to the final rule.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Excerpt ID:** 58816

**Comment:** EPA must revise the short-term alternate to initiation of closure so it is available to owners/operators whose liner applications or demonstrations are denied.

The Part A proposal also includes a “short-term alternate to initiation of closure,” which provides a brief extension and allows a surface impoundment to continue operating until November 30, 2020. “This short-term alternative is designed to be self-implementing and for units that need three additional months or less to complete the necessary measures to achieve cease receipt of waste into the CCR surface impoundment in question.” Owners/operators that utilize the short-term mechanism must prepare and place into the facility operating record a notification of their intent to do so “[n]o later than August 31, 2020.”

In its current form, the short-term mechanism will be unavailable to owners/operators that submit alternate liner applications and demonstrations, since the August 31, 2020 submittal deadline and November 30, 2020 deadline to initiate closure will almost certainly have passed before

owners/operators receive a determination from EPA that they are required to initiate closure. EPA should therefore revise the short-term mechanism to provide these owners/operators an actual opportunity to utilize it. One approach is for EPA to add a provision stating that owners/operators have a certain amount of time after EPA denies an application or liner demonstration to prepare a notice of intent to utilize the short-term extension. EPA could similarly state that the owner/operator has three months from the date of the notice (i.e., the amount of time the Part A proposal provides) to cease receipt of waste and initiate closure. This approach would afford owners/operators submitting alternate liner applications and demonstrations the same opportunity to utilize the short-term mechanism as the owners/operators who are not submitting applications and demonstrations

**Response:** The Part A final rule did not include a “short-term alternate to initiation of closure”. However, the deadline to cease receipt of waste was revised in the Part A final rule to be no later than April 11, 2021, which gives owners and operators who may have had an application denied time to cease receipt of waste before the deadline or pursue the alternative closure standards in § 257.103(f)(1) or (f)(2).

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Excerpt ID:** 58715

**Comment:** We agree that submittal of a complete application should toll the facility’s deadline to cease receipt. However, as currently proposed, there is no mechanism to confirm when that tolling would begin. It is critical to be clear about the completeness of an application, since incomplete applications will not toll the cease receipt deadline. EPA states that it will complete its review of the complete application within 60 days of receipt and notify the owner of its determination on the eligibility. It is important to distinguish between the completeness of an application in terms of content versus a determination of eligibility to make an alternate liner demonstration. EPA should include a provision for a completeness determination so that a facility has confirmation that the cease receipt deadline is being tolled while EPA reviews the application for eligibility.

**Response:** EPA has amended the regulatory text to identify specific documents that facilities must provide as part of their application for it to be considered complete. This issue is discussed in Unit III.B of the preamble to the final rule. EPA disagrees that reliance on a certification provided by a professional engineer would be sufficient to allow units to continue to operate during the year long process to complete an ALD. As discussed at greater length in the preamble to the final rule, the application process is designed to ensure that only units that can operate safely throughout the entire process may progress to the second stage. However, the Agency provides clarification throughout Unit III.B on the specific information that must be submitted as part of the application. The Agency further discusses in Unit III.D.1.a the consequences of an incomplete application.

## Chapter 7 Comments on Language within the proposal

### 7.1 Applicability of Rule to Multi-Unit Systems

**Commenter Name:** Bill Matthews  
**Commenter Affiliation:** Cleco Corporate Holdings LLC  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0078  
**Page(s):** 6-7  
**Excerpt ID:** 58784

**Comment:** B. Single-unit vs. multi-unit applications

Surface impoundments are sometimes part of multi-unit systems (i.e., multiple surface impoundments on one plant site), which often share groundwater monitoring systems or other technical features. The Part B proposal does not discuss the alternate liner demonstration process in the context of multi-unit systems and it is unclear whether owners/operators seeking to demonstrate that numerous surface impoundments within a multi-unit system have adequate alternate liners should submit one or multiple application(s) and demonstration(s). From a practical standpoint, an owner/operator should be able to make one submittal to reduce duplicating work with the understanding that EPA can make individual decisions on an impoundment-by-impoundment basis. Cleco requests that EPA provide clarity on this issue.

**Commenter Name:** Greg Snellen  
**Commenter Affiliation:** Missouri Department of Natural Resources  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0093  
**Page(s):** 6  
**Excerpt ID:** 58921

**Comment:** 40 C.F.R § 257.71(d)(1)(i) Application, p. 12476: “The owner or operator of the CCR surface impoundment must submit a letter to the Administrator or the Participating State Director, announcing their intention to submit a demonstration under this paragraph. The application must include the location of the facility and identify the specific CCR surface impoundment for which the demonstration will be made. The written demonstration must include information proving all of the following:”

**Comment:** It is unclear whether the rule requires a separate application submission for each surface impoundment that a facility wishes to include in the demonstration, or if they can be combined into one application. The Department recommends allowing requests for multiple surface impoundments for the same contiguous facility to facilitate easier assessment of overlapping impacts between surface impoundments.

**Response:** The Agency provides clarification in Unit III.A.5 on the applicability of an alternate liner demonstration to multi-unit impoundment systems.

## 7.2 "Has or Will Not" Standard in Application

**Commenter Name:**  
**Commenter Affiliation:** Xcel Energy Inc.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0044  
**Page(s):** 6-7  
**Excerpt ID:** 58712

**Comment:**

The proposed rule contains language that in some instances implies a higher standard be met in the application than the standard that is required for the actual demonstration. It is also confusing as to whether the standards being referred to are for the application or the subsequent demonstration. Specifically, 257.71(d)(i) is intended to outline the requirements for the application, but states ‘The written demonstration must include information proving all of the following:’. We believe EPA intended to say “application” in that sentence.

Further, this requirement to ‘prove’ in the application confuses or could be read to modify the subsequent requirements, such as 257.71(d)(i)(C) which states, ‘That there is no indication from the groundwater monitoring data that the unit has or will adversely affect groundwater (i.e. no statistically significant increases (SSI) of Appendix IV constituents above relevant GWPS), including documentation of the most recent statistical tests conducted and the rationale for the methods used in these comparisons.’. Similar language is found in the preamble on page 12459. There are several aspects of this language that we believe are not entirely accurate and should be clarified.

First, use of the terms ‘prove’ and ‘or will’ implies that a facility must prove up-front in the application the very conclusion that the demonstration is intended to bear out, and implies a more stringent standard than for a successful demonstration which is “with a reasonable degree of certainty”. Requiring demonstration of this future condition also exceeds the requirement to ‘submit information documenting that the facility is in compliance with the applicable requirements in 40 CFR 257 subpart D’ as stated in the preamble. As stated above, we support the requirement for a facility to show that it is ‘in compliance’, but not that it must demonstrate a future compliance condition. Consideration of a change in future conditions is already addressed in the Proposal at 257.71(d)(2)(vii), Loss of Authorization.

**Commenter Name:**

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Page(s):** 40

**Excerpt ID:** 58853

**Comment:**

4. EPA must be clear on the substantive standard facilities must meet to be eligible under step one of the process.

Under the Proposal, a facility must submit as part of its application information “proving” that “there is no indication from the groundwater monitoring data that the unit has or will adversely affect groundwater. . .” A facility’s ongoing groundwater monitoring data clearly can show that it “has not” exceeded any Appendix IV constituent. But it is unclear what is needed to show that a facility “will not” do so in the future. Moreover, this “has or will not” standard required in the application is even more stringent than the standard for making the later alternative liner demonstration, which requires the facility to demonstrate “with a reasonable degree of certainty”



that a facility “will not result in groundwater concentrations above the relevant groundwater protection standard at the unit boundary.”

**Commenter Name:**

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Page(s):** 40-41

**Excerpt ID:** 58854

**Comment:** The first step in the process—which allows a facility to remain open for a short period of time—should not be more stringent than what is required to make a demonstration allowing the impoundment to remain open for the life of the unit. Rather, facilities should only be required to show that the facility has not adversely affected groundwater and that there is no reasonable probability of it doing so during the pendency of its demonstration review. As discussed above, the information submitted in application, including data from the unit’s groundwater monitoring system, which has been in place since October 17, 2017, is more than sufficient to enable EPA to conclude that there is “no reasonable probability” that the unit will have an adverse impact on human health or the environment during evaluation of an equivalency liner demonstration package.

**Commenter Name:** Tawny Bridgeford

**Commenter Affiliation:** National Mining Association (NMA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0095

**Page(s):** 5

**Excerpt ID:** 58935

**Comment:** Eligibility Standards: NMA urges EPA to clearly explain the substantive standards facilities must meet to be eligible under the first step of the process. As written, EPA is proposing to require a facility to submit as part of its application information “proving” that “there is no indication from the groundwater monitoring data that the unit has or will adversely affect groundwater[.]” While this can be demonstrated in part using ongoing groundwater monitoring data, it is not clear what the agency will accept to show a facility will not adversely impact groundwater in the future. Moreover, this standard conflicts with the standard for making the subsequent alternate liner demonstration, which requires only that the facility demonstrate “with a reasonable degree of certainty” that it “will not result in groundwater concentrations above the relevant groundwater protection standard at the unit boundary.” At the first step, facilities should only be required to show that the facility has not and, with a reasonable degree of certainty, will not adversely affect groundwater during the pendency of its demonstration review. This can be done using data from the unit’s groundwater monitoring system and other preliminary information regarding the site-specific conditions (e.g., the type of alternative liner system or natural clay barrier underlying the unit) that is likely to prevent adverse impacts over the pendency of the alternative liner demonstration preparation and review.

**Commenter Name:** Dorothy Kellogg

**Commenter Affiliation:** National Rural Electric Cooperative Association (NRECA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0096

**Page(s):** 3

**Excerpt ID:** 58948

**Comment:** 4. The standard for Step 1 (eligibility) should not be more stringent than the standard for Step 2 (demonstration).

**Commenter Name:**

**Commenter Affiliation:** Lower Colorado River Authority (LCRA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0100

**Page(s):** 3-4

**Excerpt ID:** 58983

**Comment:**

As stated in the preamble to the CCR Proposal (85 Fed. Reg. at 12459): “As designed, the geosynthetic liners required by the 2015 CCR rule would prevent any release of leachate to the subsurface. In contrast, soil-based liners and the underlying soil are permeable by nature and so may have greater potential for leachate to migrate from the unit over time. Thus, if these alternate units together with the surrounding subsurface environment cannot be reasonably anticipated to prevent leakage to a degree that prevent adverse effects to groundwater (i.e., trigger corrective action), then the design and environmental setting of these units cannot be considered equivalent to a lined unit.” (emphasis added). However, further in the preamble (85 Fed. Reg. at 12462 (Duration of Alternate Liner Demonstration)), EPA states: “The approved demonstration will be effective for the remaining active life of the unit since the demonstration must show that the design of the surface impoundment would not result in exceedances of the GWPS at any point in the future.” (emphasis added).

Under the CCR Proposal, a facility would have to submit, as part of its application, information “proving” that “there is no indication from the groundwater monitoring data that the unit has or will adversely affect groundwater (i.e., no statistically significant increase (SSI) of Appendix IV . . . constituents above relevant GWPS).” The facility’s groundwater monitoring system and the data obtained from sampling can support a demonstration that a unit “has not” adversely affected groundwater (i.e., no SSI of Appendix IV constituents above relevant GWPS), but it is unclear how a facility would show that such adverse effects “will not” occur in the future. Additionally, the proposed, future-looking, “will not adversely affect” application standard is more onerous than the proposed standard for making an alternate liner demonstration, which would require the facility to demonstrate “with a reasonable degree of certainty” that “operation of the surface impoundment will not result in groundwater concentrations above the relevant groundwater protection standard at the unit boundary.” Therefore, LCRA asks EPA to consistently use the “with a reasonable degree of certainty” performance standard throughout the proposed rule, replacing the “would not result in” or “has [not] or will [not] adversely affect groundwater” standards.

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 9

**Excerpt ID:** 59081

**Comment:** In addition, a CCR Unit seeking approval of an alternate liner should not be held to a higher standard of compliance with the CCR Rule requirements than “lined” CCR Units. The

Proposed Rule provides for facilities to submit information to demonstrate that the CCR unit is not leaking; however, the information sought in the Application process “[t]hat there is no indication from the groundwater monitoring data that the unit has or will adversely affect groundwater,” goes beyond the current CCR Rule requirements in two ways. First, “no indication from the . . . data” suggests that groundwater data and statistical analyses could show the unit is not leaking, but there could be a subjective judgment by EPA that there is further concern. Such a judgment would go beyond the objective requirements of the CCR Rule and would hold the CCR Unit to a higher standard. Second, EPA seeks information concerning whether the CCR Unit “will adversely affect groundwater,” adding an element of proof about the future. It is obviously far beyond the current CCR Rule requirements to place a burden on facilities to predict the future based on current groundwater data. This effort in the Application process would require substantial field investigation and modeling, and even though this requirement should not be included at all, it is completely inappropriate to place it in the Application phase, due just 30 days after the Final Rule is published. In summary, all CCR Units, whether lined or unlined, should be held to the same standards of compliance with the provisions of Section 257

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 14

**Excerpt ID:** 59098

**Comment:** AEPCO requests that EPA provide additional guidance concerning what EPA expects facilities to submit to substantiate the four Application criteria. For example, it is unclear what the facility must show to provide “no indication” of adverse impact on groundwater. AEPCO suggests that facilities provide monitoring data collected for the CCR Program that is not yet posted on the public-facing website. These data would supply EPA with as much up-to-date information as the facility has available.

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 14

**Excerpt ID:** 59103

**Comment:** In addition, EPA should clarify that it does not intend for CCR Units, such as the Apache Station CWDF that is in Detection Monitoring, to conduct Appendix IV sampling and statistically analyze it in comparison to GWPS. Conducting this type of sampling and analysis is not presently required by the CCR Rule and would exceed the timeframe that EPA has provided for Application submittal, due to the time needed to obtain samples, laboratory analysis, develop the relevant GWPS, and conduct a statistical comparison to it. For similar activities required in Assessment Monitoring, two sampling events are required before the establishment of a GWPS for Appendix IV constituents and the statistical analysis to determine if Appendix IV constituents are at a SSL above the GWPS. If Appendix IV samples are required for the Application, EPA will need to provide a duration closer to 180 days to prepare the application after the final rule is published.

**Response:** EPA has amended the preamble and rule language to reduce potential confusion between the requirements for the application and demonstration steps. The Agency has also provided clarification in Unit III.B.4 of the preamble for the final rule on the intent of the specific language referenced by the commenters and the information that must be submitted as part of the application step. The application step is designed to ensure that it is likely a facility will ultimately be able to make the more extensive demonstration to support continued operation, and that the CCR surface impoundment can operate safely over the near term while the facility collects the data and conducts the analyses necessary to support the demonstration. The documentation required in the application step is distinct from and does not exceed the requirements of the demonstration step. Further, the application step does not require further data collection, as the facility can rely on existing monitoring data to document that the unit remains in detection monitoring.

### 7.3 Clarification on Language about Site Hydrogeology

**Commenter Name:**

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Page(s):** 5

**Excerpt ID:** 58705

**Comment:**

Natural Lithology and Site-Specific Hydrogeologic Conditions The proposed rule as currently written makes multiple references to consideration of the ‘underlying soil’ beneath an unlined unit.

In the preamble to the proposed rule on page 12458, EPA states, ‘EPA agrees it is possible for individual impoundments that are not lined with either a composite liner or alternative composite liner...to still be protective...’.

Additionally, on page 12475, the proposed rule text at 257.71(d) states, ‘An owner or operator of a CCR surface impoundment constructed without a composite liner or alternate composite liner as defined in 257.70(b) or (c), may submit an Alternate Liner Demonstration...to demonstrate that the design of the current liner system or the naturally occurring media present performs equivalent to...’. It reads further, ‘...the owner or operator must demonstrate with a reasonable degree of certainty, that based on the construction of the unit and surrounding site conditions, operation of the surface impoundment will not result in...’.

Also, on page 12576, EPA states that the, ‘...report must evaluate the potential for infiltration through any liners and underlying soils that control release and transport of leachate...conducting an analysis of the soil-based liner and underlying soil of the unit...’

We agree that it is appropriate and critical to include natural lithology and site hydrogeologic conditions in an equivalency demonstration, and we think that it is clear this is what EPA is

referring to when describing ‘underlying soils’ and ‘surrounding site conditions.’ It is also clear that EPA recognizes that these site-specific conditions can be not only in addition to, but in lieu of a constructed (i.e. composite or compacted clay) liner. However, we believe that the intent could be further clarified by including the more technically descriptive terms, ‘natural lithology and site hydrogeologic conditions’ along with the term ‘underlying soils’.

**Response:** EPA did not incorporate the exact language requested by the commenter. As acknowledged in the comment, the language used in the proposal was clear and the requested revisions were not intended to alter the requirements of the rule, but only to provide further clarification. The Agency instead believes it is more useful to emphasize the distinction between soil used in an engineered liner and the naturally occurring soil at the site. The Agency has provided further clarification on the requirements for characterizing the hydrogeology of the naturally occurring soils. The Agency believes that the revised preamble language, along with referenced websites and guidance documents, provides sufficient clarity on the requirements of the rule.

#### 7.4 Proposed Edits to Language for Clarity or Consistency

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Excerpt ID:** 59087

**Comment:** With respect to Section 257.71(d)(1)(ii), EPA should clarify that the Alternate Liner Demonstration Package should be certified by a “qualified professional engineer” not a “professional engineer.” This would be consistent with other certification requirements in the current CCR Rule

**Response:** EPA agrees with this suggestion and has finalized the requirement that certification must be provided by a “qualified professional engineer”.

**Commenter Affiliation:** Lower Colorado River Authority (LCRA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0100

**Excerpt ID:** 58978

**Comment:** In the preamble to the CCR Proposal (85 Fed. Reg. at 12459), and consistent with proposed 40 C.F.R. § 257.71(d)(1)(i)(C), EPA states that “the facility must show . . . that there is no indication from groundwater monitoring data that the unit has or will adversely affect groundwater (i.e., no statistically significant increases (SSI) of Appendix IV constituents above relevant GWPS).” LCRA agrees with and supports EPA’s position that any actual or potential adverse effect to groundwater is determined by an SSI of an Appendix IV constituent. This is consistent with the April 2015 CCR Rule and has been the standard implemented by facilities subject to the CCR Rule. However, the language in the CCR Proposal is not consistently used throughout the proposed rule. Therefore, LCRA recommends the following revisions to achieve consistency throughout the CCR Proposal and with the existing CCR Rule:

85 Fed. Reg. at 12459, Column 3: “This would require that, at a minimum, the owner or operator demonstrate that the surface impoundment has not and will not result in groundwater concentrations above relevant GWPS at the unit boundary (health-based or background, whichever is higher).” This language should be revised to read: “This would require that, at a minimum, the owner or operator demonstrate that there is no indication from groundwater monitoring data that the unit has or will adversely affect groundwater (i.e., no statistically significant increases (SSI) of Appendix IV constituents above relevant GWPS).

**Response:** The commenter is correct that the appropriate language in this case should refer to statistically significant concentrations above the GWPS rather than simply to concentrations above the relevant GWPS. However, this provision has been revised in the final rule to require that the facility be in detection monitoring, so this issue is now moot.

**Commenter Affiliation:** Lower Colorado River Authority (LCRA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0100

**Excerpt ID:** 58979

**Comment:** 85 Fed. Reg. at 12461, Column 2 (Incorporation of Lines of Evidence Into Demonstration): “The required lines of evidence will be incorporated into the final demonstration because each one provides different site-specific data that is necessary to conclude whether exceedances of GWPS have occurred or may occur at some point in the future.” This language should be revised to read: “The required lines of evidence will be incorporated into the final demonstration because each one provides different site-specific data that are necessary to conclude whether statistically significant exceedances of GWPS have occurred or may occur at some point in the future.”

**Response:** The language referred to by the commenter is correct as it was written in the preamble. When discussing concentration levels more broadly, and particularly when discussing modeling, it can be appropriate to say, for example, “facilities must demonstrate that continued operation of the unit does not result in an exceedance of GWPS.” When conducting modeling, you don’t apply the same statistical tests as you would for the part 257 groundwater monitoring standards compliance requirements. The model either tells you it is higher than the standard or not.

**Commenter Affiliation:** Lower Colorado River Authority (LCRA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0100

**Excerpt ID:** 58980

**Comment:** 85 Fed. Reg. at 12462, Column 1 (Duration of Alternate Liner Demonstration): “The approved demonstration will be effective for the remaining active life of the unit since the demonstration must show that the design of the surface impoundment would not result in exceedances of the GWPS at any point in the future.” This language should be revised to read: “The approved demonstration will be effective for the remaining active life of the unit since the demonstration must show that the design of the surface impoundment would not result in statistically significant exceedances of the GWPS at any point in the future.”

**Response:** The language referred to by the commenter is correct as it was written in the preamble. When discussing concentration levels more broadly, and particularly when discussing modeling, it can be appropriate to say, for example, “facilities must demonstrate that continued operation of the unit does not result in an exceedance of GWPS.” When conducting modeling, you don’t apply the same statistical tests as you would for the part 257 groundwater monitoring standards compliance requirements. The model either tells you it is higher than the standard or not.

**Commenter Affiliation:** Lower Colorado River Authority (LCRA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0100

**Excerpt ID:** 58981

**Comment:** 85 Fed. Reg. at 12462, Column 2 (Duration of Alternate Liner Demonstration): “To ensure that no exceedances of GWPS will occur in the future, facilities that trigger assessment monitoring must also conduct intra-well analyses on each downgradient well as part of subsequent groundwater monitoring reports to identify any trends of increasing concentrations.” This language should be revised to read: “To ensure that no statistically significant exceedances of GWPS will occur in the future, facilities that trigger assessment monitoring must also conduct intra-well analyses on each downgradient well as part of subsequent groundwater monitoring reports to identify any statistically significant trends of increasing concentrations.”

**Response:** ~~EPA agrees with these suggested language changes.~~

**Response:** Although EPA agrees with many of the general concepts expressed by the commenter, the regulatory text in the final rule (and the accompanying preamble) have been revised in response to other comments such that the commenter’s specific revision is not appropriate.

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Excerpt ID:** 58844

**Comment:** The “reasonable degree of certainty” standard certainly meets the Subtitle D “no reasonable probability” protectiveness standard. Nonetheless, USWAG recommends that, to eliminate any confusion in the regulatory community regarding the standard that will be used to evaluate the alternative liner demonstration, the Agency be consistent with RCRA Subtitle D and use the “no reasonable probability” standard in the regulatory text in lieu of the “reasonable degree of certainty” language.

**Response:** The Agency has revised the language to use the “no reasonable probability” RCRA protectiveness standard in the regulatory text.

## 7.5 Potential Inconsistencies Between Preamble and Regulatory Text

**Commenter Affiliation:** Association of State and Territorial Solid Waste Management Officials (ASTSWMO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0116

**Excerpt ID:** 59021

**Comment:** Preamble Section IV.A. continued with statements regarding the posting of the letter and all associated documentation (pg 12459, top of middle column), EPA’s determination (pg 12459, bottom of middle column), and alternate liner demonstration (pg 12461, bottom third of third column) to the facility’s CCR public website. Such requirements were not included in the proposed language under 257.71(d) or 257.107. It is unclear whether the existing requirements at 257.105(f)(2) and 257.107(f)(3) with respect to documentation of liner type would apply, especially since the deadline to post design information has passed. Proposed 257.71(d)(2)(iv) does require the EPA/State to publish a proposed decision on the alternate liner demonstration to their website for a 30-day comment period.

**Response:** The existing requirements at §§ 257.105(f)(2) and 257.107(f)(3) have already applied to the units and the deadlines have passed. The regulatory text in the final rule at §§257.105 (f)(14) through (f)(24) as well as §§257.106 (f)(14) through (f)(24) and §§257.107 (f)(14) through (f)(24) have been amended to specify the recordkeeping requirements, notifications and documents that must be posted to the facility’s publicly accessible CCR Internet site that relate to the alternate liner demonstration.

**Commenter Affiliation:** Lower Colorado River Authority (LCRA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0100

**Excerpt ID:** 58982

**Comment:** As stated in the preamble to the CCR Proposal (85 Fed. Reg. at 12459): “As designed, the geosynthetic liners required by the 2015 CCR rule would prevent any release of leachate to the subsurface. In contrast, soil-based liners and the underlying soil are permeable by nature and so may have greater potential for leachate to migrate from the unit over time. Thus, if these alternate units together with the surrounding subsurface environment cannot be reasonably anticipated to prevent leakage to a degree that prevent adverse effects to groundwater (i.e., trigger corrective action), then the design and environmental setting of these units cannot be considered equivalent to a lined unit.” (emphasis added). However, further in the preamble (85 Fed. Reg. at 12462 (Duration of Alternate Liner Demonstration)), EPA states: “The approved demonstration will be effective for the remaining active life of the unit since the demonstration must show that the design of the surface impoundment would not result in exceedances of the GWPS at any point in the future.” (emphasis added).

Under the CCR Proposal, a facility would have to submit, as part of its application, information “proving” that “there is no indication from the groundwater monitoring data that the unit has or will adversely affect groundwater (i.e., no statistically significant increase (SSI) of Appendix IV . . . constituents above relevant GWPS).” The facility’s groundwater monitoring system and the data obtained from sampling can support a demonstration that a unit “has not” adversely affected groundwater (i.e., no SSI of Appendix IV constituents above relevant GWPS), but it is unclear how a facility would show that such adverse effects “will not” occur in the future. Additionally, the proposed, future-looking, “will not adversely affect” application standard is more onerous than the proposed standard for making an alternate liner demonstration, which would require the



facility to demonstrate “with a reasonable degree of certainty” that “operation of the surface impoundment will not result in groundwater concentrations above the relevant groundwater protection standard at the unit boundary.” Therefore, LCRA asks EPA to consistently use the “with a reasonable degree of certainty” performance standard throughout the proposed rule, replacing the “would not result in” or “has [not] or will [not] adversely affect groundwater” standards.

**Response:** The final regulation has been revised in numerous ways to clarify the standards that must be met and the specific showings that must be made to support an alternate liner demonstration. Among these changes is that the final regulatory text incorporates a performance standard that is identical to RCRA section 4004(a) that there is no reasonable probability of adverse effects on human health and the environment.

## 7.6 Typographic Corrections

**Commenter Affiliation:** Arizona Department of Environmental Quality (ADEQ)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0042

**Excerpt ID:** 58696

**Comment:** In the proposed rule, § 257.71(d)(2)(i) reads, “...submit the application under paragraph (d)(1)(A) of this section to EPA...” The correct reference should be to (d)(1)(i) as (d)(1)(A) does not exist. Furthermore, the second sentence of § 257.71(d)(2)(i) reads, “[t]he owner or operator must submit the demonstration required under paragraph (d)(1)(B).” The correct reference should be to (d)(1)(ii) as (d)(1)(B) does not exist.

**Commenter Name:** Kent Mayo, Baker Botts L.L.P.

**Commenter Affiliation:** Cross-Cutting Issues Group (CCIG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0098

**Excerpt ID:** 58970

**Comment:** The text of proposed 40 C.F.R. § 257.71(d)(2)(i) states that the deadline to submit the alternate liner demonstration application would be April 2, 2020.<sup>5</sup> This appears to be a typo, since this deadline would fall before the close of the public comment period on the Proposed Rule, which is April 17, 2020. The preamble to the Proposed Rule clearly states that EPA intends the application deadline to be “no later than 30 days after the effective date of a final rule.”<sup>6</sup> Accordingly, CCIG respectfully requests that EPA clarify the deadline to apply for the alternate liner demonstration and correct the apparent typographical error.

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEP CO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Excerpt ID:** 59090

**Comment:** EPA has proposed that facilities submit an alternate liner demonstration application (the Application). In the pre-publication version of the Proposed Rule, EPA set the deadline for submittal as 30 days from publication of this Final Rule. We ask EPA to correct the

typographical error setting this due date erroneously as April 2, 2020. AEPCO is in agreement with EPA's proposed due date in the pre-publication version of the Proposed Rule.

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Excerpt ID:** 59100

**Comment:** The proposed regulatory language in the Proposed Rule requires that a facility demonstrate in its Application that there are “no statistically significant increases (SSI) of Appendix IV to this part constituents above relevant GWPS.” We believe this is a typographical error and should be corrected to replace “statistically significant increases (SSI)” with “statistically significant levels (SSLs)” which is the term of art associated with the relevant GWPS.

**Commenter Affiliation:** Association of State and Territorial Solid Waste Management Officials (ASTSWMO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0116

**Excerpt ID:** 59020

**Comment:** Preamble Section IV.A. Alternate Liner Demonstration (pg 12459, top of middle column) states “The owner or operator must first submit a [Alternate Liner Eligibility letter – 257.71(d)(1)(i)] letter to EPA, no later than 30 days after the effective date of the final rule; the proposed regulatory language at 257.71(d)(2)(i) states the deadline is April 2, 2020.

**Commenter Affiliation:** Association of State and Territorial Solid Waste Management Officials (ASTSWMO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0116

**Excerpt ID:** 59017

**Comment:** The citations under proposed 257.71(d)(2)(i) appear to be incorrect. References to (d)(1)(A) and (d)(1)(B) should be (d)(1)(i) and (d)(1)(ii), respectively.

**Commenter Name:** Kent Mayo, Baker Botts L.L.P.

**Commenter Affiliation:** Cross-Cutting Issues Group (CCIG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0098

**Excerpt ID:** 58971

**Comment:** However, paragraphs “(d)(1)(A)” and “(d)(1)(B)” do not exist.

It appears that EPA intended the proposed regulatory text above to reference proposed 40 C.F.R. § 257.71(d)(1)(i), which addresses the submission of applications, and 40 C.F.R. § 257.71(d)(1)(ii), which addresses the demonstration requirement. Accordingly, CCIG respectfully requests that EPA correct the apparent typographical error and insert the appropriate cross-reference.

**Commenter Affiliation:** Arizona Department of Environmental Quality (ADEQ)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0042

**Excerpt ID:** 58698

**Comment:** Additionally, § 257.71(d)(2)(i), reads, “[t]he owner or operator must submit the application under paragraph (d)(1)(A) of this section to EPA or the Participating State Director for approval no later than April 2, 2020.” By the time this proposed rule would become effective, “April 2, 2020” would be in the past. EPA should revise “April 2, 2020” to “30 days after the effective date of a final rule” in order to align with the corresponding part of the Federal Register’s Supplementary Information, which states at Section IV, Subsection A, page 12459, top of the second column, “[t]he owner or operator must first submit a letter to EPA, no later than 30 days after the effective date of a final rule, declaring their intention to submit a demonstration under this provision.”

**Response:** Thank you for your comments. EPA has corrected this edit in the regulatory text.

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Excerpt ID:** 58713

**Comment:** Secondly, evaluation to determine ‘...no statistically significant increases (SSI) of Appendix IV constituents above relevant GWPS’, is predicated on a previous statistical evaluation of the groundwater monitoring data having shown statistically significant increases (SSI) of Appendix III constituents over background levels, since this is the proper sequence of groundwater data evaluation in 257.94 and 257.95. Therefore, while we agree with the use of specific criteria, we think that clarification of the criteria would be helpful. Therefore, we suggest that the text in 257.71(d)(i) be modified to read, ‘The written application must include information demonstrating all of the following:’ We further suggest that the text in 257.71(d)(i)(C) be modified to remove the first sentence and read, ‘That statistical evaluation of the groundwater monitoring data has not shown that there are any statistically significant increases (SSI) of Appendix III constituents over background levels, and if such SSIs have been identified, that subsequent statistical evaluation has not shown any statistically significant increases (SSI) of Appendix IV constituents above the relevant GWPS, including documentation of the most recent statistical tests conducted...’. These criteria are consistent with 257.94 and 257.95, and with EPA’s position that a site can qualify to make the alternate liner demonstration if it is in assessment monitoring, provided that the GWPS have not been exceeded.

**Response:** EPA has revised the text in § 257.71(d)(1)(i) as suggested by the commenter. As discussed in the final rule preamble at Unit III.B.4, EPA has revised the text to require that the unit remain in detection monitoring throughout the application process.

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEP CO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Excerpt ID:** 59079

**Comment:** The Proposed Rule provides for the Liner Design Criteria section of the CCR Rule to be amended to add:

(d) Alternate Liner Demonstration. An owner or operator of a CCR surface impoundment constructed without a composite liner or alternate composite liner as defined in § 257.70(b) or (c), may submit an Alternate Liner Demonstration to the Administrator or the Participating State Director to demonstrate that the design of the current liner system or the naturally occurring media present performs equivalent to a composite liner as defined in § 257.70(b).

The italicized section of the proposal makes the current liner technical specifications for new CCR landfills the equivalency standard for demonstrations. We note that EPA has already provided facilities the opportunity to meet this alternative liner standard in 40 CFR § 257.71(a)(1)(iii). While we agree that the technical specifications in 257.70(c) are state-of-the-art, AEPCO does not agree that liners must be equivalent to these specifications to ensure there is no reasonable probability of adverse effects on health or the environment. Otherwise, this would essentially convert the RCRA Subtitle D Protectiveness Standard into a technology standard, even though the record does not support this high bar.

To correct this problem, AEPCO suggests the following revision to Section 257.71, as emphasized in italics below:

(d) Alternate Liner Demonstration. An owner or operator of a CCR surface impoundment constructed without a composite liner or alternate composite liner as defined in § 257.70(b) or (c), may submit an Alternate Liner Demonstration to the Administrator or the Participating State Director to demonstrate that the design of the current liner system or the naturally occurring media present ensures, *with a reasonable degree of certainty, that there is no reasonable probability of adverse effects on health or the environment.*

In summary, it is critical that EPA revise the alternative liner demonstration standard to be the RCRA Subtitle D Protectiveness Standard. This standard is grounded in RCRA’s statutory text and will lead to a fair test for liners, rather than biasing certain technologies or liner systems. The key query should be whether there is sufficient evidence that a liner system will protect public health and the environment, given the site-specific characteristics surrounding the CCR Unit.

**Response:** The performance standard in the final regulation incorporates the Subtitle D statutory language of “no reasonable probability”.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Excerpt ID:** 59207

**Comment:** Compounding these concerns, EPA proposes that owners or operators must only “present evidence to demonstrate” that the unit will not cause exceedances of groundwater protection standards at the unit boundary “to a reasonable degree of certainty.” No definition of what is “reasonable” is provided in the proposed rule, but this language appears to be designed to give EPA or a state agency discretion to approve demonstrations based on incomplete information. This is an additional reason why the proposed alternate liner provision is arbitrary, capricious, and contrary to law, for all of the reasons discussed above.

**Response:** The final regulation has been revised in numerous ways to clarify the standards that must be met to support an alternate liner demonstration. Among these changes is that the final regulatory text incorporates a performance standard that is identical to RCRA section 4004 (a). The final regulation also makes clear that incomplete submissions will be rejected without further process.

**Commenter Name:** Greg Snellen

**Commenter Affiliation:** Missouri Department of Natural Resources

**Comment Number:** EPA-HQ-OLEM-2019-0173-0093

**Excerpt ID:** 58916

**Comment:** Section IV.A. Alternate Liner Demonstration, Incorporation of Lines of Evidence Into Demonstration, p. 12461: “The required lines of evidence will be incorporated into the final demonstration because each one provides different site-specific data that is necessary to conclude whether exceedances of GWPS have occurred or may occur at some point in the future. Depending on the complexity of a particular site, the data may be applied to a probabilistic fate and transport model similar to that used in the 2014 Human and Ecological Risk Assessment of Coal Combustion Residuals<sup>10</sup> or 2019 EPRI Model Evaluation of the Relative Performance of Alternative Liners.<sup>11</sup>” (emphasis added)

Comment: If this information is carried forward to the final rule, it would be helpful to provide a link in the footnotes to the location of these documents on EPA’s website.

**Response:** These documents are not currently on EPA’s website but can be found in the docket for this rule along with any other documents referenced in the preamble.

**Commenter Name:** Greg Snellen

**Commenter Affiliation:** Missouri Department of Natural Resources

**Comment Number:** EPA-HQ-OLEM-2019-0173-0093

**Excerpt ID:** 58920

**Comment:** 15. 40 C.F.R. § 257.71(d) Alternate Liner Demonstration, pp. 12475-76: “An owner or operator of a CCR surface impoundment constructed without a composite liner or alternate composite liner as defined in § 257.70(b) or (c), may submit an Alternate Liner Demonstration to the Administrator or the Participating State Director to demonstrate that the design of the current liner system or the naturally occurring media present performs equivalent to a composite liner as defined in § 257.70(b). To be granted, the owner or operator must demonstrate, with a reasonable degree of certainty, that based on the construction of the unit and surrounding site conditions, operation of the surface impoundment will not result in groundwater concentrations above the relevant groundwater protection standard at the unit boundary. Prior to the submission of the alternate liner demonstration, the facility must submit an alternate liner demonstration application documenting the unit’s eligibility to submit a demonstration. The application and demonstration must be submitted to the Administrator or the Participating State Director no later than the relevant deadline in paragraph (d)(2) of this section. The Administrator or the Participating State Director will act on the submissions in accordance with the procedures in paragraph (d)(2) of this section.” (emphasis added)

Comment: The Department supports the incorporation of the term “unit boundary,” as it will allow some flexibility in locating the demonstration points, while also considering existing infrastructure and physical limitations that may affect the final location of a demonstration point.

**Response:** EPA misspoke in the proposed rule quoted by the commenter. The final rule requires that groundwater monitoring be conducted at the waste boundary. The 2015 CCR Rule requires that a groundwater monitoring system must be established that, among other things, accurately represents the quality of groundwater passing the waste boundary of the CCR unit. §257.91(a)(2) requires that downgradient monitoring wells must be installed at the waste boundary that insures detection of groundwater contamination in the uppermost aquifer. § 257.71(d) also requires that operation of the surface impoundment will not result in groundwater concentrations above the groundwater protection standards at the waste boundary.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0076

**Excerpt ID:** 58771

**Comment:** EPA's documentation for the proposed rule states that, "In order for an unlined surface impoundment to continue to operate, EPA is proposing that the owner or operator demonstrate that continued operation of the unit would pose no reasonable probability of adverse effects to human health or the environment in the future." "No reasonable probability of adverse effects to health or the environment" is not a meaningful and protective standard, and we could easily find out too late that the determination was incorrect, once grievous further damage has been done to groundwater.

**Response:** EPA disagrees that the cited language is not meaningful; this is the statutory standard that all facilities must meet in order to continue to operate under RCRA [section](#) 4004-(a). Moreover, the final regulation establishes numerous more specific criteria the facility must meet in order to demonstrate that this statutory standard has been met.

## Chapter 8 Application Requirements

### 8.1 General Comments

#### 8.1.1 General Agreement with Application Provisions

**Commenter Name:**

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Page(s):** 6

**Excerpt ID:** 58710

**Comment:** Xcel Energy agrees that a facility should be in compliance with applicable provisions of the CCR Rule in order to qualify to make an alternate liner equivalency demonstration, as stated in the preamble on page 12459, ‘Along with the letter, the owner or operator must submit information to EPA documenting that the facility is in compliance with the applicable requirements in 40 CFR 257 subpart D, including the location restrictions.’

**Response:** The Agency acknowledges this support.

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### 8.1.2 Request to Incorporate Information by Reference

**Commenter Name:**

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Page(s):** 6

**Excerpt ID:** 58711

**Comment:** However, EPA’s requirement in the proposed rule to make an additional demonstration seems unnecessary. Xcel Energy suggests that the CCR documentation in the facilities’ operating records and on the CCR website, which includes Groundwater System Certifications and Annual Groundwater Reports certified by a P.E. should be adequate to demonstrate compliance. That said, we understand that inclusion in the application of the information detailed in 257.71(d)(i)(A) through (D) would facilitate EPA’s review of the application. However, we have comments on the standard for demonstrating compliance and suggestions for clarifying the application procedures, as discussed below.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Page(s):** 18-19

**Excerpt ID:** 58804

**Comment:**

B. EPA should allow initial applications and demonstrations to include hyperlinks to information that is already available on CCR websites.

The Part B proposal requires initial applications and liner demonstrations to include information that is already publicly available on owner/operator CCR websites. As a logistical matter, Cleco requests that EPA allow owners/operators to include hyperlinks to specific documents and webpages rather than requiring them to repackage the information solely for these submittals. This would alleviate some of the time pressure by allowing owners/operators to focus on generating additional data rather than repackaging existing materials.

**Commenter Name:**

**Commenter Affiliation:** Luminant Generation Company LLC et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0097

**Page(s):** 9

**Excerpt ID:** 58958

**Comment:** In the alternative, EPA could simplify the requirements and clarify that data from the unit's groundwater monitoring system and information regarding site-specific conditions (e.g., type of liner system) is sufficient for a facility to proceed with the more comprehensive liner demonstration.

**Response to the above comments:** As discussed in greater detail in Unit III.B.3 [of the final rule preamble](#), the Agency disagrees that incorporation of the required information through reference provides sufficient documentation for the purposes of this rule.

## 8.2 Application Requirements

### 8.2.1 General Questions on what Constitutes “Complete” Application

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Page(s):** 20-21

**Excerpt ID:** 58809

#### **Comment:**

2. Certified submittals should toll the deadline for ceasing receipt of waste.

The Part B proposal states that the submittal of a “complete” submittal tolls the cease receipt deadline while an “incomplete” submittal does not. This “completeness” measure will create confusion for owners/operators, since they will not know whether an application is “incomplete” until EPA makes its determination. The uncertainty created by this scenario has potentially significant consequences. For example, an owner submits an application it believes is complete. By doing so, the owner believes the deadline to initiate closure has been tolled. Accordingly, the owner does not cease receipt and initiate closure while its application is under EPA review. After the initiation of closure deadlines passes, EPA determines the owner submitted an incomplete application. As a result, the deadline was never actually tolled. The owner therefore misses the deadline and is in violation of the CCR rule.

EPA should employ a certification process rather than a “completeness” measure. Under this approach, the tolling period would begin when the owner/operator makes a submittal that has been certified by a professional engineer (PE) that it meets the requirements of the CCR rule. This would help eliminate the uncertainty described above, and it is consistent with other provisions in the CCR rule that require PE certifications. As an alternative to this certification approach, Cleco requests that EPA clearly state what constitutes a “complete application.”



**Commenter Name:****Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)**Comment Number:** EPA-HQ-OLEM-2019-0173-0082**Page(s):** 37-38**Excerpt ID:** 58847**Comment:**

2. A final rule must be clear as to what constitutes a “complete application.”

Because a complete application tolls the requirement to initiate closure, any final rule must be clear as to what constitutes a “complete” application. Facilities must be provided certainty when submitting the application that the tolling allowance applies to them, rather than facing the possibility of applying and then subsequently learning that the application was never complete—meaning that the deadline to initiate closure was never tolled and forcing the facility into noncompliance through no fault of its own. EPA can provide this certainty in a final rule by taking two steps.

First, it is critical that EPA distinguish between a “complete application” and a substantive determination on the application that a facility is eligible. Whether an application is complete depends on whether a facility has submitted the necessary pieces of information to EPA. It is not a judgment as to whether a unit is in fact eligible to submit an alternative liner demonstration. EPA should make this clear.

**Commenter Name:****Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)**Comment Number:** EPA-HQ-OLEM-2019-0173-0082**Page(s):** 38**Excerpt ID:** 58850

**Comment:** Clarity on the specific information needed to constitute a complete application must be provided in the final rule.

**Commenter Name:****Commenter Affiliation:** Salt River Project Agricultural Improvement and Power District (SRP)**Comment Number:** EPA-HQ-OLEM-2019-0173-0087**Page(s):** 3**Excerpt ID:** 58882

**Comment:** SRP agrees with USWAG’s comments that the final rule must be clear on what constitutes a “complete application” and that EPA should allow additional information to be provided following submission of a complete application if necessary.

**Commenter Name:****Commenter Affiliation:** American Coal Council (ACC)**Comment Number:** EPA-HQ-OLEM-2019-0173-0088**Page(s):** 4-5**Excerpt ID:** 58896

**Comment:** We would note the need for clarity and certainty with regard to what constitutes a “complete application”. EPA should explicitly identify the specific pieces of information that will make an application complete. Additionally, it is important for EPA to clearly distinguish between a complete application and a substantive determination on the application that a facility is eligible. A complete application is dependent on whether the facility has submitted the specifically-required pieces of information to EPA. It is not a judgement about or decision on whether the facility is eligible to submit an alternate liner demonstration.

**Commenter Name:** Tawny Bridgeford

**Commenter Affiliation:** National Mining Association (NMA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0095

**Page(s):** 4-5

**Excerpt ID:** 58932

**Comment:** Application Requirements: NMA urges EPA to explain in clear terms what constitutes a “complete application” that will toll the requirement to cease receipt of CCR and initiate closure. Failure to do so could result in a facility not submitting the correct information and losing the tolling benefits of this regulatory mechanism through no fault of its own. Currently, the proposed rule does not explain what information is needed to make the requisite showing. NMA believes that a certification from the company that the facility is in compliance should be sufficient at this stage. However, clarity on the specific information needed to constitute a complete application must be provided in the final rule, particularly if the agency expects facilities to gather additional groundwater, location, or other site-specific data or analyses

**Commenter Name:** Dorothy Kellogg

**Commenter Affiliation:** National Rural Electric Cooperative Association (NRECA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0096

**Page(s):** 3

**Excerpt ID:** 58946

**Comment:** 2. The final rule must clearly explain what will constitute a “complete application.”

**Commenter Name:** Carolyn Slaughter

**Commenter Affiliation:** American Public Power Association (APPA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0099

**Page(s):** 11-12

**Excerpt ID:** 58974

**Comment:** EPA must distinguish between a “complete application” and a substantive determination of the eligibility of a facility to submit a liner demonstration. A complete application depends on whether a facility has submitted the necessary pieces of information to EPA. A complete application is not based on a judgment as to whether a unit is eligible to submit an alternative liner demonstration. EPA should make this clear. Further, the final rule should identify the information needed to make an application complete such as a certification from the utility that it is in compliance with all applicable subparts

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 13

**Excerpt ID:** 59091

**Comment:** The Application identifies four criteria for inclusion. The CCR Unit must show, in summary: (1) the unit is in full compliance with the CCR Rule; (2) that the monitoring well network is sufficient; (3) that there are no adverse affects on groundwater; and (4) that location restrictions are met. At first blush, these criteria appear straightforward; however, the level of detail that EPA seeks is not apparent. This poses a concern for facilities because a complete Application will act to toll closure commencement deadlines during the pendency of the alternate liner consideration period.

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 13

**Excerpt ID:** 59092

**Comment:** AEPCO proposes a simplified process in which EPA would determine basic application completeness. A completeness review process would be equivalent to many state permitting processes in which sources achieve administrative completeness when submitting an application, prior to substantive review of the Application. AEPCO suggests that it would be helpful to EPA and a facility to hold a pre-application meeting to discuss the information to be submitted in the Application. Such a meeting would help the utility meet EPA's content expectations and familiarize EPA with the site.

**Response [to the above comments:](#)** EPA disagrees that reliance on a certification provided by a professional engineer would be sufficient to allow units to continue to operate during the year long process to complete an ALD. -As discussed at greater length in the preamble to the final rule, the application process is designed to ensure that only units that can operate safely throughout the entire process may progress to the second stage. However, the Agency provides clarification throughout Unit III.B on the specific information that must be submitted as part of the application. The Agency further discusses in Unit III.D.1.a the consequences of an incomplete application.

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### 8.2.2 Specific Comments on Proposed Requirements

**Commenter Name:**

**Commenter Affiliation:** Arizona Department of Environmental Quality (ADEQ)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0042

**Page(s):**

**Excerpt ID:** 58692

**Comment:** The proposed rule at (C) requires an applicant prove “[t]hat there is no indication from groundwater monitoring data that the unit has or will adversely affect groundwater (i.e., no statistically significant increases (SSI) of Appendix IV to this part constituents above relevant GWPS)”. As with (B) above, EPA should clarify the relationship between the requirements of the proposed rule, the requirements of §257.93 -- Groundwater sampling and analysis requirements, and §257.94 -- Detection monitoring program.

**Commenter Name:**

**Commenter Affiliation:** Arizona Department of Environmental Quality (ADEQ)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0042

**Page(s):**

**Excerpt ID:** 58693

**Comment:** The proposed rule at (B) requires an applicant prove “[t]hat the existing network of monitoring wells is sufficient to capture any releases...”. EPA should clarify the relationship between the groundwater monitoring system requirements of §257.91 and the requirement in the proposed rule “that the existing network of monitoring wells is sufficient to capture any releases”. How are these two rules related, and in what ways are they different? EPA should clarify what additional requirements must be met for a sufficient monitoring well network under the proposed rule.

**Commenter Name:**

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Page(s):** 38

**Excerpt ID:** 58848

**Comment:** Second, EPA must clearly identify the pieces of information that make an application complete. The current proposed regulatory language does not do this. For example, the Proposal would require a facility to submit documentation showing that it is in “full compliance” with the CCR rule, but it does not explain what information is needed to make this showing. USWAG believes that a certification from the company that it is in compliance should be sufficient. Otherwise, it is unclear what EPA expects to satisfy this condition. Similarly, proposed § 257.71(d)(1)(i) is not clear as to whether facilities need to gather additional groundwater and site-specific data, or whether EPA intends for facilities to submit only the previously-collected groundwater monitoring data and analyses conducted for their sites, including the qualified professional engineer’s certifications that the groundwater monitoring system and statistical methodology meets the requirements of the CCR rule (USWAG believes such certifications are sufficient for this stage of the process).

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0194

**Page(s):** 4-5

**Excerpt ID:** 59377

**Comment:**

## Initial Application

The EPA proposal calls for submittal of an initial application including documentation showing that the existing monitoring well network is sufficient to allow detection of any releases from the facility. Information to be included in this evaluation includes well locations and construction details, direction of flow, potentiometric surface maps, drawings and figures, and a discussion of the hydrogeology of the site justifying why the monitoring system is thought to be sufficient. Groundwater monitoring data showing no statistically significant increases in Appendix IV would be submitted as evidence that the facility has not adversely affected groundwater quality.

Following submittal of the initial data, EPA would then evaluate the information and determine whether or not the surface impoundment is eligible to submit an alternate liner demonstration.

The information required to be included in the initial submittal is insufficient to allow EPA to make an informed decision that is, protective of human health and the environment. Over the last decade I have personally reviewed monitoring data on scores of CCR disposal sites located in many parts of the country. This experience has shown that there are commonly overlooked elements of groundwater monitoring systems that are often ignored by owner/operators and regulators that must be examined if the initial submittal is expected to adequately screen out facilities that should not be allowed to submit an alternate liner demonstration. These include:

1. Determination of the elevation of liquid and/or leachate within the impoundment: The elevation of liquid and/or leachate inside the impoundment must be reliably determined and incorporated in order to obtain an accurate approximation of the direction of groundwater flow in the immediate vicinity of unlined surface impoundments. It is very common practice for the elevation of leachate within the impoundment to be ignored. The apparent water table or potentiometric surface can appear wildly different when the internal leachate elevation is considered, up to and often including reversal of indicated flow directions on the upgradient side of impoundments. Monitoring wells originally considered as upgradient or background monitoring locations can in fact be impacted by local flow out of the impoundment. This is a critical issue when considering systems monitoring unlined impoundments, some of which have maintained high hydrostatic head for several decades.

2. Determination of reliable upgradient of background groundwater quality: The available data set must be evaluated to determine if reliable upgradient or background groundwater quality values have been established. Improper background values can be caused by a variety of issues including local flow out of the impoundment (described above), impacts from other nearby facilities, and lithologic changes between upgradient and downgradient monitoring locations. Statistical comparisons to background water quality must be based on and are only accurate if true background water quality is developed and used in the analysis.

**Response [to the above comments](#):** The Agency provides clarification in Unit III.B.3 and 4 of the preamble for the final rule on the information that must be submitted as part of the application to ensure that the facility's groundwater monitoring program is in compliance with all requirements of the CCR rule and that there is currently no evidence that the impoundment(s) have adversely affected groundwater. This information must be adequate to demonstrate that

upgradient wells have been properly sited, which would include identifying any potential for groundwater mounding around the impoundment. Therefore, EPA does not believe that requiring facilities to extrapolate data on the depth of impounded water in the unit is appropriate or warranted. Incorporation of this data into the potentiometric surface may require additional assumptions about site conditions that could further increase uncertainty. Therefore, EPA will not require every facility to incorporate this data into groundwater flow maps submitted as part of the application. If needed, the depth of impounded water is already available as part of routine inspection reports.

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### 8.2.3 Request for Additional Requirements

**Commenter Name:**

**Commenter Affiliation:** Harvard GSAS Environmental Action Team (GrEAT)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0122

**Page(s):** 2

**Excerpt ID:** 59062

**Comment:-** In a study of five different GCL products, Kerry Rowe et al (2019) show that “selecting a GCL based on the initial hydraulic conductivity and swell index in a manufacturers product sheet provides no assurance of good performance in field applications” and the authors recommend that “designers pay more attention to selection of a GCL and preparation of the subgrade for important projects.” Many studies show that the hydraulic conductivity of GCLs has a complex dependence on many factors including the leachate chemistry, the effective stress or compaction density, subgrade water content, prehydration (Setz et al 2017, Chen et al 2019, Kerry Rowe et al 2019). In summary, recent literature shows that the hydraulic conductivity of GCLs can be heavily impacted by CCR leachates. Additionally, the hydraulic conductivity can be impacted by a variety of conditions in the field which we cannot be sure are adequately modeled in the lab. Furthermore, experts conclude that more studies are needed to obtain a good understanding of these complicated dynamics. Allowing unlined impoundments relying on geosynthetic liners to continue to operate for 12 months while applying for an exemption thereby violates the RCRA standard of posing “no reasonable probability of adverse effects on human health or the environment.”

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0193

**Page(s):** 43

**Excerpt ID:** 59362

**Comment:** (ii) Historical data on the construction of CCR units, which are critical to the determination of permeability under the unit, are rarely available.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0193

**Comment:**

**V. Site Characterization Case Studies**

In previous discussions I have shown that EPA's alternate liner demonstration proposal relies on conclusions from EPRI 2019 and how those conclusions, to the extent they are based on theoretical model runs using EPACMTP, cannot represent actual CCR surface impoundment subsurface conditions. One has to rely on actual site characterization data. In this section, I will analyze several such examples, starting with J.R. Whiting, the only example or case study discussed in EPRI 2019, followed by two Cleco sites (Dolet Hills and Brame Energy Center) and two DTE Energy sites (Monroe and Belle River). In each case, it will become clear that the level of characterization data that is provided and used to argue that the clay that is present under the existing CCR is protective – is simply inadequate.

Before proceeding to the case studies, I make the following general observations.

First, data relating to the construction quality assurance for existing CCRs is indispensable. It should be intuitive that a native “liner” at an existing CCR site is only protective as a starting matter if it is properly compacted prior to placement of wastes. EPA does not make this point in the preamble to the proposed rule, nor does it require construction quality data as an element of the alternate liner demonstration. Therefore it is worth stressing this critical oversight. Documenting construction details and considering them in any alternate liner demonstrations is paramount. Absence of such details must be fatal to any determination. The importance of this and the types of parameters that are important are discussed in the literature. As an example:

Results of hydraulic conductivity tests conducted on thirteen compacted clayey soils have been presented. The soils were collected from compacted clay liners at various landfills throughout the United States...The soils were compacted and permeated in the laboratory using various molding water contents and three compactive efforts believed to span the range of compactive effort commonly employed in the field...A graph of hydraulic conductivity vs. initial saturation confirmed this trend. It showed an inverse relationship between hydraulic conductivity and initial saturation and also illustrated that lower hydraulic conductivities are achieved for higher compactive effort...Stepwise linear regression was used to identify the compaction and compositional variables that are most useful in predicting hydraulic conductivity. The variables identified were initial saturation, compactive effort, plasticity index, and clay content...These equations may prove useful when considering potential borrow sources, selecting compaction machinery, or estimating the shape of an acceptable zone for compaction control.

As a practical matter, none of the case studies that I have reviewed, including the ones discussed in this section, have construction quality data like those noted above: initial saturation, compactive effort, plasticity index, and clay content – at the time of CCR surface impoundment construction. Of course, since many of these impoundments were installed decades earlier, obtaining such information now is a practical problem. However, lack of such documentation should be a disqualifying factor, in my opinion, in an alternate liner demonstration

**-Response to the above comments:** As discussed in greater detail in Unit III.B.7 of the preamble for the final rule, the Agency agrees with commenters that an additional requirement for submittal of information on construction quality is appropriate and necessary. Commenters listed several specific parameters for inclusion in the application requirements. However, EPA has previously found negligible correlation between field hydraulic conductivity and many of the common soil characterization parameters identified by commenters, such as plasticity index and clay content. In addition, the parameters relevant to a particular surface impoundment will depend on the design of that unit. Therefore, for clarity, EPA instead cited to a broader Agency review of the parameters most likely to influence construction quality and liner performance.

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#### 8.2.4 Additional Transport Pathways

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0193  
**Page(s):** 2-4  
**Excerpt ID:** 59353

##### **Comment:**

Finally, I agree with EPA when it states that, “in some instances, direct infiltration to groundwater may not be the sole mechanism by which unpermitted release of leachate from an impoundment occurs. It is possible that additional, site-specific release pathways may exist for some unlined units. In particular, if an unlined impoundment extends above grade, is adjacent to a water body and is underlain by a low-conductivity soil, there may be lateral transport from the impoundment directly into the water body driven in part by the hydrostatic head within the impoundment. If such conditions are present at a site, then the demonstration would also need to address whether such releases may occur and the potential adverse effects on health or the environment associated with these pathways. The same types of data collected to evaluate releases to groundwater should also support evaluation of such pathways. However, incorporation of other lines of evidence may also be warranted.” I will show in examples later where surface impoundments are clearly present adjacent to water bodies but for which no such demonstrations have been conducted by operators who have requested alternate liner demonstrations, relying on minimal characterization of apparent clay layers beneath the surface impoundment in question.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0194  
**Page(s):** 7-8  
**Excerpt ID:** 59381

##### **Comment:**

[Incorporation of Lines of Evidence into Demonstration](#)



EPA's discussion of incorporating the lines of evidence in the alternate liner demonstration describes a scenario where unpermitted releases of leachate occur from an unlined impoundment that extends above grade, is adjacent to a water body, and is underlain by a low-conductivity soil. In this scenario EPA rightly theorizes that there may be lateral transport from the impoundment directly into the surface water body. From the owner/operator's point of view this has historically been an ideal location for utilities to dispose of CCR wastes. With no or limited space between the waste unit and surface water body, there is often limited or no space for construction of a robust monitoring system. Locations where monitoring is conducted are so close to the surface water that dilution of release contaminants makes meaningful identification of water quality impacts difficult or impossible.

This is not a theoretical scenario that may or may not exist somewhere; this scenario occurs day in and day out at numerous CCR impoundments across the country. Good examples are sites like Dominion Virginia Power's Chesapeake Energy Center and Duke Energy's Roxboro Plant where CCR is stored immediately adjacent to, and discharges leachate directly into surface waters. Lack of appropriate regulation by EPA and states have caused concerned citizens groups to take legal actions to force companies to take appropriate closure actions to prevent the continued release of CCR contaminants. At most of these sites in Virginia and North Carolina, the state-mandated solution was removal of the source entirely. Unlined CCR waste disposal units cannot be allowed to continue operating in unsafe locations by submitting an alternate liner demonstration.

**Response [to the above comments](#):** The Agency acknowledges the support for inclusion of a requirement addressing additional transport pathways in the alternate liner demonstration. The Agency has clarified the requirements to address these pathways in Unit III.B.8 of the preamble for the final rule.

## 8.3 Location Restrictions comments

### 8.3.1 Add Location Restriction: Floodplains

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0194  
**Excerpt ID:** 59376

**Comment:** Location Restrictions

The EPA proposal specifically identifies a requirement that a site must be in full compliance with the CCR rule's requirements, including meeting all location restrictions.<sup>2</sup> Locations are typically considered unstable due to characteristics such as potential for damage from seismic events or known proximity to karst terrain. In practice, however, current regulations are failing to protect the environment against future impacts from release of CCR from sites located in unstable areas.

Surface impoundments constructed on floodplains are located on highly unstable locations due to active hydrologic and geomorphic processes that endanger stability of facilities. There are currently approximately 188 CCR impoundments and landfills on 66 regulated sites that are partially or fully within the area of inundation of the 100-year flood. Locating waste containment structures within the 100-year floodplain should be viewed, at best, as unacceptable waste management planning and a practice that will facilitate contamination of waters of the state and have potentially catastrophic results for future residents. Storm events will eventually create flood conditions that will overtop the berms and increase the potential for catastrophic release of wastes. Over the long term, capping CCR impoundments in place on the floodplain is neither secure nor permanent.

Meandering river channels are not stationary features. Lateral and/or downstream channel migration or sudden switches of the channel location, likely initiated during a flood event, will impinge on and undercut containment structures. Since the utility that buries the waste on the floodplain is only responsible for maintaining the facility for 30 years, facility damage or releases of waste that occur after that time will be left for others to correct.

Consequently, all CCR surface impoundments located in floodplains should be ineligible for the alternate liner demonstration.

**Commenter Affiliation:** Hoosier Environmental Council (HEC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0119

**Excerpt ID:** 59038

**Comment:** The third reason it would be problematic to continue use of the Boiler Slag Pond at Clifty Creek by designating it “lined” with this alternate liner proposal is that this ash pond is located entirely in the 100-year floodplain of the Ohio River, as illustrated in Figures 1 and 2. This means it will only be a matter of time before the river is in flood and creates a massive spill of the Clifty Creek coal ash.

Whether ash ponds were in the floodplain was not a criterion under the CCR Rule, but it should have been. Given the increasing frequency of so-called 100-year floods, coal ash storage should not be allowed even within the current 500-year floodplain.

**Response to the above comments:** EPA did not propose the alternative that the commenter is suggesting. Although the commenters have provided a factual basis to support their contention that the suggested alternative meets the RCRA section 4004(a) standard, no member of the public has had an opportunity to comment on it. EPA cannot therefore adopt this suggestion in the final rule. However, EPA notes that facilities remain obligated to comply with the current floodplains requirements at 40 CFR 257.3-1. Any facility not in compliance with this provision of the regulations would not be eligible for an alternate liner demonstration.

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### 8.3.2 Request to Allow Application Despite not Meeting Location Restriction

**Commenter Name:** Paul Pike

**Commenter Affiliation:** Ameren

**Comment Number:** EPA-HQ-OLEM-2019-0173-0117

**Page(s):** 2-3

**Excerpt ID:** 59026

**Comment:** AMO is also requesting that the new regulations include the ability for an owner/operator to provide a demonstration to the EPA that their existing lined facilities will not have adverse effects on human health or the environment. This liner demonstration could be created for units that have site-specific data to support the continuing use of the units even if they were constructed with a base that is located less than 1.52 meters (five feet) above the upper limit of the uppermost aquifer. Impoundments that were built prior to the final CCR rule may have had State requirements that either allowed less separation to the uppermost aquifer or met site-specific conditions which allowed for their authorization by their State.

AMO requests that the EPA include an option for the owner or operator to submit information to EPA documenting that the facility is in compliance with applicable requirements in 40 CFR part 257 subpart D, except for the placement above the uppermost aquifer. It is noted that the amount of sitespecific data and the complexity of the analyses necessary for a demonstration will vary based on the size of the unit, the type of engineered liner present (or lack thereof), heterogeneity of site geology, and other site-specific factors. For these reasons, it is imperative that EPA take into account each of these situations on a site specific basis.

The proposed demonstration shall contain information showing that the low effective hydraulic conductivity of the liner will preclude release and transport of contaminants. The proposed demonstration will further include Information detailing that the existing network of monitoring wells is sufficient to capture any releases based on direction of flow, well location, screening depth and other relevant factors, the potentiometric surface, and the anticipated direction(s) of groundwater flow across the site and that there is no indication from groundwater monitoring data that the unit has or will adversely affect groundwater (i.e., no statistically significant increases (SSI) of Appendix IV constituents above relevant GWPS), including documentation of the most recent statistical tests conducted.

AMO has a specific example of the situation postulated above. AMO's Sioux Energy Center was constructed prior to the establishment of the CCR Rule and was constructed with a liner exceeding the CCR rule requirements, but occasionally is below the water table, due to transient flooding near the Missouri and Mississippi rivers. Missouri regulations require new landfills to evaluate local groundwater elevations prior to construction. Prior to construction of the Sioux landfill, sufficient historical groundwater elevations were presented to the Missouri Department of Natural Resources (MDNR) for review. Out of an abundance of caution, AMO presented an engineering demonstration to MDNR that concluded there would be no adverse effects to human health or the environment as a result of occasional contact with high groundwater. This demonstration was accepted by MDNR (see attachments). The liner that was installed at Sioux exceeds the current CCR liner design standard and significantly exceeded the State's standard.

This unit meets all of the location standards with the occasional exception of the separation to the uppermost aquifer (if the most conservative definition of the uppermost aquifer is taken to be ground surface, during flooding conditions). The local aquifer changes due to its location between the Mississippi and Missouri Rivers, and seasonal rainfall patterns. The existing State

groundwater monitoring system has been operated for over 10 years and even with the close proximity of the uppermost aquifer it has not shown an exceedance of groundwater standards. The unit has a certified CCR groundwater monitoring system and there is no indication from groundwater monitoring data that the unit has or will adversely affect groundwater (i.e., no statistically significant increases (SSI) of Appendix IV constituents above relevant groundwater protection standards). This unit is being forced to close solely due to an overly conservative view of groundwater separation and does not pose a risk to human health or the environment. EPA response: EPA notes that the location standard already contains an alternative performance standard that can be met in lieu of the 5 foot requirement. EPA did not propose the alternative commenter is suggesting; nor did the commenter provide any factual basis to support their contention that the suggested alternative meets the RCRA 4004 (a) standard. EPA cannot therefore adopt this suggestion in the final rule.

**Response:** EPA notes that the location standard already contains an alternative performance standard that can be met in lieu of the 5-foot requirement. EPA did not propose the alternative the commenter is suggesting; nor did the commenter provide any factual basis to support their contention that the suggested alternative meets the RCRA 4004 (a) standard. EPA cannot therefore adopt this suggestion in the final rule.

## Chapter 9 Demonstration Step

### 9.1 General Comments

#### 9.1.1 General Requests for Greater Clarity/Flexibility

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Page(s):** 15-16

**Excerpt ID:** 58796

**Comment:** Cleco believes the evidence EPA requires is important to show a liner protects human health and the environment but requests EPA to allow reasonable and practical variations in the type of data presented and the manner in which data is collected. The Part B proposal lists very specific evidence owners/operators must produce and provides highly detailed descriptions of the manner in which data should be collected. This level of specificity could hinder the ability for owners/operators to produce the data necessary to satisfy the lines of evidence and develop a successful demonstration. Requiring strict compliance with such specific requirements could also force owners/operators to expend effort and resources on sampling and other delineation activities, even though they may already have similar data that does not meet the proposal's exact specifications but sufficiently demonstrates a liner's acceptability.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Page(s):** 17

**Excerpt ID:** 58799

**Comment:** To account for site-specific circumstances, EPA should ensure that it provides owners/operators with adequate flexibility with respect to the evidence they include in their demonstrations. This can be accomplished in a manner that in no way hampers EPA's ability to obtain the information and data necessary to make an informed determination regarding a liner's sufficiency.

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 13

**Excerpt ID:** 59093

**Comment:** The alternate liner demonstration package also needs to be provided a clear set of criteria for EPA to determine whether the Demonstration is complete because the consequence is whether closure commencement is tolled. Just like other application processes through EPA or those delegated to individual states, the application process is very clear on what data is required in order for the agency to make a determination. That allows the permittee to understand on the onset what is required to fulfill a complete application

**Response [to the above comments](#):** Commenters requested both greater flexibility and greater specificity in how to meet the requirements of the demonstration. EPA acknowledges the desire for both, but notes that providing more of one can offset the other. Therefore, as detailed throughout Unit III.C of the preamble for the final rule, EPA aimed to balance greater flexibility in how to collect the necessary site-specific data with greater specificity in how that data was applied in the demonstration.

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### 9.1.2 Qualifications for Demonstration Certification

**Commenter Name:**

**Commenter Affiliation:** National Ground Water Association (NGWA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0047

**Page(s):** 3

**Excerpt ID:** 58737

**Comment:** Certification of the alternate liner demonstration package should include licensed professionals in both the fields of engineering AND geology/hydrogeology. Licensed professional geologists or hydrogeologists are trained and experienced in investigation and analysis of groundwater and subsurface contaminant flow and chemistry. Licensed professional engineers are typically trained in materials and structures and may not have training and experience specific to the potential geochemical interactions and effects on earthen liners and/or leachate from the impoundments should breakthrough occur

**Response-:** The Agency disagrees with the commenter for reasons explained in Unit III.C [of the final rule preamble](#).

## 9.2 Characterization of Site Hydrogeology

### 9.2.1 Adequate Site Characterization Not Possible

**Commenter Name:**

**Commenter Affiliation:** Hoosier Environmental Council (HEC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0119

**Page(s):** 2

**Excerpt ID:** 59033

**Comment:** First, it will not be possible to prove that there is a sufficient alternate liner under the entire ash pond to prevent future leaks. This is true for all ash ponds. No characterization of the site's hydrogeology and potential for infiltration will be able to prove that a nonconductive layer is continuous under the entire ash pond, as it would have to be to prevent future contamination of the groundwater.

**Commenter Name:**

**Commenter Affiliation:** Harvard GSAS Environmental Action Team (GrEAT)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0122

**Page(s):** 5

**Excerpt ID:** 59072

**Comment:** EPA further defends its 12 month application window by stating that "it is possible that these demonstrations can identify leaks that might have been missed for some time and result in greater long-term protection at the site." Allowing facilities that may be leaking to continue to operate in the interest of identifying leaks is clearly in violation of the RCRA standard

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 26-27

**Excerpt ID:** 59183

**Comment:** Nor would the alternate liner process proposed by EPA generate sufficient site-specific information to ensure that any unlined impoundment could prove with any confidence that its underlying soils would be equivalent to composite liners in protecting health and the environment.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Comment:**

C. The Lines of Evidence Required in the Proposed Demonstration Process Will Not Ensure that So-Called “Alternate Liners” Meet the Protectiveness Standard.

Nor is there any reason to believe that EPA’s proposed alternate liner demonstration process would produce any more reliable information about the protectiveness of so-called “alternate liners” than the inadequate information that is currently in the Part B record. The deficiencies in the utility submissions discussed above (and discussed in more detail in the expert report of Dr. Ranajit Sahu) underscore that EPA is proposing a process in which utilities will attempt to demonstrate the impossible by drawing conclusions based on incomplete data that cannot fully represent the conditions across the entire footprint of a site.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0193  
**Page(s):** 43  
**Excerpt ID:** 59361

**Comment:** (i) Making ex post facto determinations that an adequate clay layer may be present under an existing CCR unit is next to impossible, given the extensive site characterization that will be needed in order to conclude the highly permeable layers and preferential pathways are not present within the clay layer. This will necessitate extensive investigative work, likely consisting of multiple rounds of field data collection including installation of additional borings and groundwater wells in each round, around the perimeter of the unit in order to achieve a very high degree of spatial resolution, even for relatively small sized units – i.e., down to 5 acres or less. Of course, the effort will be significantly greater for larger units. Investigative work of this type can take multiple years and cannot be completed in the time frames anticipated by the EPA’s proposed regulation.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0193  
**Page(s):** 44  
**Excerpt ID:** 59371

**Comment:** Based on the above, there is no reason for EPA to provide this “flexibility” when it is clear that there is no chance that any operator can, in good faith, provide the kinds of technical assurances that EPA expects before such flexibility can be granted. If this is allowed, it will simply encourage technical short-cuts in required demonstrations by operators and their consultants, hoping to obtain approvals from under-resourced federal and state agencies. The real-world outcome of such approvals, as well as from the inevitable delay in closing clay-lined impoundments during the approval process, will be additional adverse impacts on groundwater

**Response [to the above comments](#):** The Agency disagrees with the commenter for reasons explained in Unit III.C.1.b. [of the final rule preamble](#)

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### 9.2.2 Comments on Required Measurements at Existing Wells

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 11

**Excerpt ID:** 59085

**Comment:** EPA should consider modifying or removing the requirement at §257.71(d)(1)(ii)(A)(1) stating that uppermost aquifer hydraulic conductivity measurements must be measured from existing monitoring wells. Based on the variability of the site geology and the zones that are being monitored, there will be additional data points and locations that may be more representative than conductivity measurements taken from the existing well locations. The locations for these points should be determined by the technical team preparing the demonstration and should not be limited to these prescriptive locations.

**Response-:** The Agency disagrees with the commenter for reasons explained in Unit III.C.1.a.

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### 9.2.3 Request for Greater Flexibility in Sample Location

**Commenter Name:**

**Commenter Affiliation:** Arizona Department of Environmental Quality (ADEQ)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0042

**Page(s):**

**Excerpt ID:** 58694

**Comment:** In the Federal Register’s Supplementary Information, Section IV, Subsection A, Subtitle “Line of Evidence #1: Characterization of Site Hydrogeology”, page 12460, top of the first column, EPA provides a number of recommendations for the alternative liner demonstrations. One recommendation is that soil-borings be spaced no more than 200 feet apart around the circumference of a facility, based on subsurface exploration guidance for new road alignments published by the Federal Highway Administration (FHA). EPA should provide a rationale as to how guidance on new road alignments is directly applicable to geotechnical investigations for impoundment alternative liners. Further, the FHA guidance allows for greater spacing between borings where subsurface site conditions are known to be uniform, or for a program supported by geophysical and in-situ testing. EPA should at least discuss whether there will be an allowance for greater spacing between soil-borings similar to the FHA guidance.

**Commenter Name:**

**Commenter Affiliation:** Arizona Department of Environmental Quality (ADEQ)



**Comment Number:** EPA-HQ-OLEM-2019-0173-0042

**Page(s):**

**Excerpt ID:** 58695

**Comment:** EPA further recommends that soil-boring data should be collected at depth to the top of the water table. ADEQ recommends some acknowledgement from EPA that, particularly in the American Southwest, the nearest aquifer may be hundreds of feet below the ground surface. Under such circumstances, EPA should consider alternatives to making this demonstration, such as collecting samples at a sufficient depth to demonstrate protection equivalent to a geosynthetic liner, without necessary drilling to the top of the water table.

**Commenter Name:**

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Page(s):** 2

**Excerpt ID:** 58701

**Comment:** The Alternative Liner Demonstration Process Should Account for Facilities that have Unique Hydrogeologic Conditions, Including Site Lithology and Groundwater Characteristics. EPA's proposal would require that, at a minimum, the owner or operator demonstrate that the surface impoundment has not and will not result in groundwater concentrations above relevant Ground Water Protection Standards (GWPS) at the unit boundary throughout the post closure period. There are impoundments located where the lithology and hydrology are such that there is no reasonable probability that water from an impoundment would reach the uppermost aquifer. As described in more detail below, Xcel Energy's Comanche Generating Plant's bottom ash impoundment is in an area where the uppermost aquifer lies 1,500 feet below ground surface, and groundwater travels very slowly in the bedrock. Additionally, the State has concurred that the site specific hydrogeologic setting is protective of groundwater.

**Commenter Name:**

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Page(s):** 5-6

**Excerpt ID:** 58707

**Comment:**

We agree that it is appropriate to include guidance for criteria to be used in a site hydrogeologic characterization and infiltration evaluation, as EPA has proposed at 257.71(d)(ii)(A) and (B). We understand that EPA expects characterization studies to be designed and implemented using a technically appropriate approach and would emphasize that this must be based on site-specific conditions and the judgment of qualified professionals. To that end, it is important for EPA to recognize that some of the specific details in the proposed lines of evidence do not fit at all sites, and it is essential that the proposal provide sufficient flexibility for sites to meet these criteria as applicable and as potentially modified to fit site-specific conditions.

For example, page 12460 of the preamble states, '...EPA also recommends that samples extend down to the top of the natural water table...'. While we understand this reference to be to the

uppermost aquifer, because that is the target of groundwater monitoring systems, at Comanche, the site conditions do not lend themselves to this simplified interpretation. As previously stated, the uppermost aquifer is approximately 1,500 feet below ground surface, where borings would yield no useful information. Further, the discontinuous perched water at the site is not consistent with the term ‘natural water table’, although in order to meet the requirements of the rule, Xcel Energy implemented the groundwater monitoring system within that perched water. Although this perched water is not an aquifer or a natural water table, it is the only sub-surface water that can reasonably be monitored. Site sampling will continue in this perched water and any further site characterization will continue to focus on this zone as well as the upper portions of the bedrock, to a depth that is appropriate to evaluate the hydraulic conductivity of and potential fractures in the bedrock.

**Commenter Name:**

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Page(s):** 5-6

**Excerpt ID:** 58708

**Comment:**

We agree that it is appropriate to include guidance for criteria to be used in a site hydrogeologic characterization and infiltration evaluation, as EPA has proposed at 257.71(d)(ii)(A) and (B). We understand that EPA expects characterization studies to be designed and implemented using a technically appropriate approach and would emphasize that this must be based on site-specific conditions and the judgment of qualified professionals. To that end, it is important for EPA to recognize that some of the specific details in the proposed lines of evidence do not fit at all sites, and it is essential that the proposal provide sufficient flexibility for sites to meet these criteria as applicable and as potentially modified to fit site-specific conditions.

For example, page 12460 of the preamble states, ‘...EPA also recommends that samples extend down to the top of the natural water table...’. While we understand this reference to be to the uppermost aquifer, because that is the target of groundwater monitoring systems, at Comanche, the site conditions do not lend themselves to this simplified interpretation. As previously stated, the uppermost aquifer is approximately 1,500 feet below ground surface, where borings would yield no useful information. Further, the discontinuous perched water at the site is not consistent with the term ‘natural water table’, although in order to meet the requirements of the rule, Xcel Energy implemented the groundwater monitoring system within that perched water. Although this perched water is not an aquifer or a natural water table, it is the only sub-surface water that can reasonably be monitored. Site sampling will continue in this perched water and any further site characterization will continue to focus on this zone as well as the upper portions of the bedrock, to a depth that is appropriate to evaluate the hydraulic conductivity of and potential fractures in the bedrock.

Thus, while the Comanche impoundment is a legitimate candidate for an alternate liner demonstration, and the Proposal would allow for that demonstration, we suggest the rule could be further clarified. We urge EPA to clarify the rule to more expressly provide adequate

flexibility to make case-by-case demonstrations that would reflect unique site conditions such as Comanche, where aquifer monitoring is neither feasible nor appropriate.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Page(s):** 16

**Excerpt ID:** 58797

**Comment:** To illustrate, for subsurface samples collected around the impoundment perimeter (Item 2 above), “EPA recommends that initial samples be collected at distances no greater than 200 ft apart in low-conductivity soils.”<sup>48</sup> EPA states that “[t]his distance reflects recommendations by the U.S. Department of Transportation for the characterization of unknown subsurface environments in Geotechnical Aspects of Pavements.” EPA fails to recognize that the purpose of DOT’s standard (ensuring that soils underlying a paved roadway are sufficient to support extremely heavy vehicles) is different than EPA’s purpose (identifying soil conductivity levels). EPA also fails to recognize that DOT’s 200 feet recommendation is for a “full invasive program.” and that DOT recommends wider spacings in other scenarios. “Where subsurface conditions are known to be uniform, a minimum spacing of 120 m (400 ft) is generally recommended. In a program supported by geophysical and in-situ tests . . . , a spacing of 150–450 m (500–1500 ft) as indicated in NCHRP 1-37A may be all that is necessary, depending on the uniformity of site conditions.” As DOT’s guidance shows, this is another instance where site-specific conditions should dictate what is necessary to develop a sufficient characterization.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Page(s):** 16-17

**Excerpt ID:** 58798

**Comment:** Cleco has a number of surface impoundments ranging from 61 to 298 acres for which it may submit alternate liner demonstrations. To characterize the subsurface pursuant to Louisiana Department of Environmental Quality (LDEQ) regulations, Cleco already has soil borings at the surface impoundment perimeters that are spaced 450 feet apart. To comply with EPA’s 200-foot spacing “recommendation,” Cleco will need to spend substantial time and resources to produce supplemental data to meet the line of evidence requirements. This is despite the fact that (1) Cleco already has data that LDEQ has deemed sufficient to characterize the subsurface, and (2) performing additional soil borings to meet the DOT standard is not needed to better characterize subsurface conditions.

**Commenter Name:**

**Commenter Affiliation:** Great River Energy

**Comment Number:** EPA-HQ-OLEM-2019-0173-0080

**Page(s):** 4

**Excerpt ID:** 58830

**Comment:**

The proposed rule's requirements for alternative source demonstrations should be flexible enough to account for the wide range of site conditions to which they will be applied. The proposed rule and preamble contain requirements and recommendations that are most appropriate for sites that rely on the underlying hydrogeology for protection. For facilities that rely on the performance of an engineered geocomposite liner system, like ours, some of these investigation requirements are unnecessary.

For example, the preamble to the proposed rule contains a recommendation that borehole sampling be conducted at no more than 200-foot separation. While this resolution of sampling may be justified in some situations, for facilities that rely on the performance of an engineered liner the protectiveness of the unit is not directly related to the subsurface geology. Therefore, more widely spaced borings may be appropriate. Given the range of site-specific conditions, the precise number of borings is more appropriately determined for each individual site rather than specifying the sampling frequency in the regulatory text or preamble.

**Commenter Name:**

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Page(s):** 41-42

**Excerpt ID:** 58856

**Comment:**

5. The technical requirements for making an alternative liner demonstration should enable owners/operators to develop appropriate data based sitespecific characteristics.

Under step two of the process, the Proposal would require a facility to submit information that, at a minimum, contain two lines of evidence: (1) characterization of site hydrogeology and (2) potential for infiltration. USWAG agrees that these two lines of evidence are necessary to make the contemplated alternative liner demonstration. However, USWAG urges EPA to ensure that any final rule allows flexibility in what information is needed under each line of evidence and how that information is ultimately presented to EPA. This flexibility is needed since, as EPA itself notes, "both the amount of site-specific data and the complexity of analysis necessary for a demonstration will vary based on the size of the unit, the type of engineered liner present (or lack thereof), heterogeneity of site geology, and other site-specific factors." Because EPA will ultimately review the demonstration for sufficiency (in contrast to self-implementing provisions), this flexibility can be appropriately given here.

**Commenter Name:**

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Page(s):** 42

**Excerpt ID:** 58857

**Comment:** For example, in the preamble to the Proposal, EPA recommends that, when characterizing site hydrogeology, initial boring samples be collected at distances no greater than 200 feet apart. But this presumptive 200-foot minimum separation is based the U.S. Department of Transportation’s recommendations relating to geotechnical issues in pavement design, construction, and performance and is not readily applicable to developing geological stratigraphy, conducting field testing, or collecting samples for laboratory sampling for all surface impoundments. This is particularly true for large impoundments, where conducting borings at these intervals would simply be infeasible and may not provide useful site-specific information. Because no two sites are the same, EPA should avoid promulgating regulatory language or making statements in the preamble that would apply strict criteria or requirements to the development of alternative liner demonstrations.

**Commenter Name:**

**Commenter Affiliation:** Salt River Project Agricultural Improvement and Power District (SRP)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0087

**Page(s):** 3

**Excerpt ID:** 58885

**Comment:**

Alternate Liner Demonstration Requirements Should Be Site-Specific.

SRP appreciates EPA’s efforts to outline the technical details and analyses EPA requires to demonstrate that continued operation of individual unlined surface impoundments “pose no reasonable probability of adverse effects on human health or the environment.” However, because the hydrogeology at each site is unique, EPA should not prescribe specific data collection and hydrogeologic investigation programs, but rather provide flexibility to develop sitespecific data collection and site characterization programs. Such an approach would allow performance-based Alternative Liner Demonstrations to provide technical details appropriate to each site’s unique geological setting.

**Commenter Name:**

**Commenter Affiliation:** Salt River Project Agricultural Improvement and Power District (SRP)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0087

**Page(s):** 3-4

**Excerpt ID:** 58886

**Comment:**

Subsurface Sample Spatial Resolution Should be Site-Specific.

The text of proposed rule 40 C.F.R. § 257.71 (d)(1)(ii)(A)(2) requires that subsurface samples be collected at the perimeter of the impoundment at a spatial resolution sufficient to ensure that regions of substantially higher conductivity have been identified. The text generally conforms to the RCRA facility investigation guidelines which call for site-specific analyses to determine the appropriate number and spacing of borings. The Resource Conservation Recovery Act (“RCRA”) facility investigation guidance (Interim Final RACRA Facility Investigation [RFI] Guidance, Vol. II of IV, EPA 530/SW-89-031) indicates that the number of borings necessary to

characterize soils is dependent on the geological complexity, size, potential areal extent of a release, and the importance of defining small-scale discontinuities in formation materials.

In Part IV.A of the preamble (Line of Evidence #1: Characterization of Site Hydrogeology), EPA recommends a boring spacing of 200 feet based on Department of Transportation (“DOT”) requirements for highway design. The referenced DOT sample spacing requirements is overly prescriptive with regards to the spacing and depth of samples required to characterize hydraulic properties of formation materials at the perimeter of the CCR impoundment (Line of Evidence #1). The relevance of the DOT requirements to CCR impoundment conditions is unclear and conflicts with the sitespecific analyses described under the RCRA facility investigation guidance.

An appropriate characterization program would include a multi-phase soil characterization program that is based on site-specific geology, geomorphology, geologic structure, existing hydrologic data, and other information to identify the number of borings necessary to develop a suitable sample population to facilitate statistical analyses. If warranted, based on analyses of the soil sample data, additional borings could then be placed in focused areas where data indicate that additional characterization is necessary to ensure that data collection is focused in areas presenting the greatest potential for variability.

The final rule should be revised to clarify that a site-specific data collection program should be developed for each site that identifies the number and spacing of borings based on site-specific criteria in accordance with existing RCRA site investigation guidance

**Commenter Name:**

**Commenter Affiliation:** Salt River Project Agricultural Improvement and Power District (SRP)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0087

**Page(s):** 4-5

**Excerpt ID:** 58887

**Comment:**

Required Depth of Soil Samples Should be Based on Site-Specific Criteria.

In Part IV.A of the preamble, EPA also recommends that soil samples be collected from ground surface to the natural water table or at least 20 feet below the nearest surface water body. This recommendation does not incorporate site-specific characteristics regarding the depth to the natural water table or the proximity to the nearest surface water body. While this recommendation may make sense in settings where CCR units are constructed adjacent to surface water bodies, or near surface groundwater, it does not reflect conditions in the arid southwest.

Beneath the CGS Evaporation Pond, the depth to the confined uppermost aquifer is approximately 270 feet. The nearest surface water body is approximately 3 miles away, on the opposite side of a topographic divide, and more than 100 feet lower in elevation than the base of the CCR impoundment. In this setting, the Evaporation Pond does not bear any hydraulic relationship to groundwater in the uppermost aquifer or to the nearest surface water body.

Drilling borings at a spacing of 200 feet around the Evaporation Pond will require approximately 100 borings. Assuming that number of borings, drilling to the top of the uppermost aquifer (a depth of approximately 270 feet) will produce approximately 27,000 feet of core. A significant portion of the deeper core would bear little relevance to analysis of the performance of the Evaporation Pond's natural geologic clay liner.

Understanding that the intent of the characterization program is to understand the capacity of the formation materials to limit downward and lateral seepage from the impoundment, the near-surface materials bear greater relevance to the performance of the natural geologic clay liner than the deeper materials. For example, if sufficient seepage restriction is not identified within the upper 100 feet of the formation, given a depth of 270 feet to the uppermost aquifer, it may not be reasonable to rely on the lower 170 feet of the formation to contain the seepage. For this reason, an appropriate soil characterization boring depth should be established based on site-specific criteria. An appropriate characterization depth in areas where the uppermost aquifer is deep may be 40 to 80 feet below the lowest point of the CCR impoundment.

An alternate approach to determining the depth to which soils must be characterized is to use a phased data collection program, where early characterization data are used to calculate the depth required to achieve seepage restriction equivalent to the composite liner. The target characterization depth could then be established at a point reasonably below that depth.

**Commenter Name:**

**Commenter Affiliation:** Salt River Project Agricultural Improvement and Power District (SRP)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0087

**Page(s):** 5-6

**Excerpt ID:** 58888

**Comment:**

Soil Characterization Borings Should Not Extend to Top of Confined Aquifers.

In Part IV.A of the preamble, EPA recommends that soil samples be collected from ground surface to the natural water table. The depth to the top of the uppermost aquifer at the Evaporation Pond is approximately 270 feet, and the uppermost aquifer is confined. During drilling required by the CCR Rule in 2016, dry conditions were observed from ground surface depths between 270 and 330 feet below ground surface. Once the confining layer was penetrated, water levels rose in each of the boreholes between 40 and 170 feet above the top of the uppermost aquifer. The uppermost aquifer is also underlain by a deeper regional aquifer that is also under artesian pressure. Drilling to the top of the uppermost aquifer in this setting for the purpose of soil characterization is unnecessary and creates potential conduits for solution migration.

A depth of 270 feet below ground surface is too great to reliably drive direct-push or geoprobe type tools for characterization purposes. Conventional drilling methods for collection of undisturbed soil samples at this depth include hollow stem auger, air-rotary casing hammer, sonic, and other casing advance methods. For each of the casing advance drilling methods, the drive casing must be pulled back incrementally to seal the boring with dry sealing products such

as bentonite chips or pellets. Installing dry sealing products to a depth of 270 feet in 100 borings, under artesian pressure, will result in bridging of the material in some number of the borings elevating the risk of fluid migration from above, or from below, due to artesian pressure. Alternately, if a grout slurry is to be used to seal the borings, the drive casing must be fully withdrawn and a tremie pipe installed. This process increases the risk that the borehole may collapse upon casing withdrawal, preventing the installation of the tremie to full depth and potentially resulting in incomplete sealing of the boring.

The sealing procedures described above are commonly used to seal soil borings or test borings and generally produce acceptable results. However, executing these sealing procedures over 27,000 feet of borehole at 100 boring locations, at an active CCR impoundment with driving head potential, and ongoing groundwater monitoring elevates the risk of creating a conduit that may result in exceedance of a groundwater protection standard value at the unit boundary.

Given these challenges, borings drilled for the purpose of soil characterization should not extend to the uppermost aquifer but rather should extend to a depth sufficient to characterize the seepage restricting properties of the formation materials based on sitespecific conditions.

**Commenter Name:** Tawny Bridgeford

**Commenter Affiliation:** National Mining Association (NMA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0095

**Page(s):** 5

**Excerpt ID:** 58936

**Comment:** Alternate Liner Demonstration: NMA supports EPA's proposal to require facilities to submit information that, at minimum, contains two lines of evidence: (2) characterization of site hydrogeology; and (2) potential for infiltration. NMA encourages the agency to allow flexibility in what information is needed under each line of evidence and how that information is presented. This information will vary because it is site-specific and will depend on various factors (e.g., size of the unit, type of liner, site geology, etc.)

**Commenter Name:**

**Commenter Affiliation:** Luminant Generation Company LLC et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0097

**Page(s):** 10

**Excerpt ID:** 58961

**Comment:** For example, in the preamble to the Proposed Rule, EPA recommends that, when characterizing site hydrogeology, initial soil boring samples should be collected at distances no greater than 200 feet apart. This recommendation is not supported by the record and should not be required. EPA's 200-foot minimum recommendation is based on the U.S. Department of Transportation's recommendations "for the characterization of unknown subsurface environments in Geotechnical Aspects of Pavements." However, this recommendation does not translate to surface impoundments, where site-specific information is generally already known. Moreover, the 200-foot minimum recommendation would be burdensome to implement at large surface impoundments that can span over one hundred acres. Finally, collecting boring samples at 200 feet apart at homogenous sites is not necessary and would not provide useful site-specific



information since the soil makeup is generally the same throughout such a site. While it is possible that collecting boring samples at 200-foot distances would be appropriate in some cases—for example, at heterogeneous sites where soils are less conforming—it should not be required or recommended for all sites.

**Commenter Name:** Kent Mayo, Baker Botts L.L.P.

**Commenter Affiliation:** Cross-Cutting Issues Group (CCIG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0098

**Page(s):** 3

**Excerpt ID:** 58969

**Comment:** Finally, because each site has unique hydrogeological conditions, the final rule should allow for flexibility when determining the technical requirements for making an alternate liner demonstration. In particular, in the preamble, EPA recommends that in making the alternate liner demonstration, companies space sample borings no more than 200 feet apart. This recommendation is based on Department of Transportation requirements for highway design. While the relevance of this standard to surface impoundments is not clear, even if this standard were applied, obtaining borings at this spacing may be infeasible and may not provide meaningful site-specific information. Rather than imposing a one-size-fits-all approach, an appropriate characterization program should be based on site-specific geology, geomorphology, geologic structure, existing hydrologic data, and other information to identify the number and spacing of borings necessary to characterize the hydrogeology and infiltration rate. Companies should be able to utilize different sample boring spacing—based on site-specific conditions—and still meet the proposed new alternate liner demonstration criteria in Section 257.71.

**Commenter Name:**

**Commenter Affiliation:** Lower Colorado River Authority (LCRA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0100

**Page(s):** 4-5

**Excerpt ID:** 58984

**Comment:**

In the CCR Proposal preamble (85 Fed. Reg. at 12460), “EPA recommends that initial samples be collected at distances no greater than 200 ft apart in low conductivity soils.” EPA cites a U.S. Department of Transportation (“DOT”) guidance document, *Geotechnical Aspects of Pavements*, as the source of the recommendation. EPA goes on to recommend that “samples extend to the top of the natural water table or at least 20 ft beneath the bottom of the nearest water body . . . , whichever is greater.”

The referenced DOT guidance document is specific to the construction of roadways where the primary considerations are the stiffness and strength of the underlying soil. With regard to the 200-foot spacing recommendation, the DOT guidance document contains the following in the paragraph immediately prior to the cited language: “The following provides a review of recommended practice from a geotechnical perspective based on guidelines from textbooks, several state agencies, and the FHWA.” The guidance also states:

The design engineer should prescribe the spacing and depth of the borings based on an evaluation of available information.

Therefore, in order to confirm that there are no adverse deeper deposits, to identify groundwater conditions, and to locate bedrock within the influence zone, a limited amount of explorations should always be performed to identify conditions in the subgrade to depths of 6 m (20 ft). However, as discussed in the next section, this does not necessarily mean borings to that depth.

Any recommendation on the spacing and depth of borings should be based on site - specific information. Accordingly, LCRA requests that the generic recommendations in the CCR Proposal preamble be removed. Site-specific decisions should be left to professional geoscientists.

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 11-12

**Excerpt ID:** 59086

**Comment:** In the preamble for the proposed rule, EPA recommends that initial samples be collected at distances no greater than 200 feet apart around the perimeter of the unit in low conductivity soils. The reference for this recommendation is for geotechnical investigations related to engineering design of pavement and is not necessarily relevant to hydrogeologic investigations used to evaluate contaminant fate and transport. It is also inconsistent with other portions of the preamble that cite the limitations of geologic mapping based primarily on the Unified Soil Classification System (USCS) developed for engineering or geotechnical purposes and supports the use of sequence stratigraphy and facies models to better characterize subsurface variability. The frequency of data collection should be based on the variability of the site geology and the professional opinion of the technical team performing the sequence stratigraphy efforts and not on any prescriptive requirement included in the preamble of the final rule.

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 12

**Excerpt ID:** 59088

**Comment:** As such, and consistent with much of the Proposed Rule, the demonstration and sufficiency of the supporting data should be site-specific, dependent on the depositional environment and stratigraphy of the soils underlying the unit, and based on the professional judgement of the qualified professional engineer certifying the Alternate Liner Demonstration Package and other qualified professionals (e.g., geologists and sequence stratigraphers) assisting with the preparation of the Alternate Liner Demonstration Package for evaluation by the EPA or the Participating State Director.

**Response [to the above comments](#):** The Agency acknowledges the request for greater flexibility and provides clarification in Unit III.C.1.d on the requirements for sampling locations.

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## 9.2.4 Request for Greater Flexibility in Sample Methods

**Commenter Name:**

**Commenter Affiliation:** Electric Power Research Institute, Inc. (EPRI)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0046

**Page(s):** 20

**Excerpt ID:** 58730

**Comment:**

### 2.2.1 Consideration of Surface Geophysics for Characterization of Site Hydrogeology

On page 12460, the March 3 Proposal discusses possible investigation techniques that provide necessary spatial resolution for mapping preferential flow pathways. This discussion references direct-push and borehole geophysical logging. These are commonly used investigation methods for high-resolution (i.e., advanced) site characterization. However, another general method that can be used for high-resolution site characterization is surface geophysics (e.g., electrical resistivity surveys). The Interstate Technology & Regulatory Council (ITRC) recently published a website that describes tools that can be used for advanced site characterization (<https://asct1.itrcweb.org/>). Surface geophysics, direct-push sampling, and borehole geophysics are all described on the ITRC website, along with guidance for selecting methods appropriate for a specific site.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Page(s):** 17

**Excerpt ID:** 58800

**Comment:** For example, site-specific geologic characterization can be obtained by other nonintrusive methods that achieve the same goal. Examples of non-intrusive approaches include surface geophysical methods such as seismic and electrical-resistivity. EPA should thus provide owners/operators the ability to employ such methods

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0193

**Page(s):** 2-4

**Excerpt ID:** 59390

**Comment:**

II. Importance of Preferential Pathways In its proposal, EPA recognizes that no alternate liner demonstration can be made without addressing preferential pathways that may be present in the subsurface. In fact, as part of its first line of evidence, EPA is proposing to require as part of any

demonstration a characterization of the site-specific hydrogeology that surrounds a surface impoundment. EPA notes that “some surface impoundments are located on soils that are expected to have extremely low hydraulic conductivity. However, there are concerns that heterogeneity within these soils may result in preferential flow pathways that effectively negate the low conductivity of the remaining soil. For example, many electric utilities are located in close proximity to bodies of water. The flow paths of these water bodies are likely to have shifted over geologic time, which could result in complex depositional environments with interconnected lenses of sand. Therefore, the purpose of this line of evidence is to define the variability of the soil around the impoundment and to ensure that this variability is reflected in any analysis of contaminant fate and transport.”

EPA goes on to state that “traditional geologic mapping that relies primarily on the Unified Soil Classification System (USCS) has been found to underestimate the interconnectedness of such deposits, as the USCS was developed for engineering or geotechnical purposes with little emphasis on the identification of depositional environments and the resulting distribution of different types of sediments.”

I agree with EPA’s concerns noted above that the subsurface and surrounding geology near the surface impoundment be thoroughly characterized, particularly as to the presence of preferential pathways that may allow leachate from the surface impoundment to migrate from the impoundment to groundwater or surface waters that may be present nearby. Later in these comments, I discuss case studies where there is evidence of leachate migration to groundwater. Furthermore, I am concerned that the level of investigation that will be required to properly identify the presence (or lack thereof) of such pathways is so large that most operators will not attempt it and that EPA and State Directors will be under pressure to accept less-than thorough investigations concluding that no such pathways exist. This is evident in some of the examples I discuss later in these comments.

I recognize that in the proposal, EPA suggests that sources rely on EPA guidance “on the use of sequence stratigraphy and facies models to better characterize subsurface heterogeneity” (citation omitted) and that “the cited guide is intended to help facilities better define groundwater flow paths and preferential contaminant migration pathways, identify data gaps in the site characterization, determine appropriate locations for wells, and determine appropriate well construction design (e.g., screen intervals).” But providing guidance is not the same as implementing it thoroughly as a practical matter. I also note that in the proposal EPA does not mention non-intrusive techniques such as ground-penetrating radar, and other electromagnetic methods that can be used to look for anomalies in the subsurface that may be indicative of preferential pathways. These techniques must be used to guide the placement of groundwater monitoring wells or other borings to further evaluate the presence and connectedness of any subsurface preferential pathways near surface impoundments. Without using these techniques to first characterize the sub-surface wherever possible, it makes little sense to advance borings and/or install groundwater wells simply assuming a site conceptual model that may or may not be accurate.

**Response [to the above comments](#):** The Agency acknowledges the request for greater flexibility and provides clarification in Unit III.C.1.c [of the preamble of the final rule](#) on the requirements for sampling methods.

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## 9.2.5 Comments on Site Conceptual Model

**Commenter Name:**

**Commenter Affiliation:** National Ground Water Association (NGWA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0047

**Page(s):** 3

**Excerpt ID:** 58738

**Comment:**

In addition to conceptual site models, groundwater and contaminant flow models should be developed drawing on the data used for the conceptual site models and run using various scenarios to ensure adequate consideration of a range of operating and site conditions, including differences in geochemistry between impoundment leachate and the subsurface environment. Appendix 4 of the proposed rule presents a long list of metals in flyash which if leached may significantly impact the subsurface environment and change its geochemistry.

The geologic cross sections required under ii(A)(3) should also include all relevant hydraulic information, including depth to saturated zones, piezometric surface elevation, withdrawal points, recharge and discharge areas. Based on groundwater and contaminant flow model projections, the cross sections should extend a sufficient distance from the impoundment to incorporate the influence of such features on the site-vicinity hydrogeology.

**Response-:** As explained in greater detail in Unit III.C.1.e [of the final rule preamble](#), the Agency agrees that information about site hydrology is important to include in the conceptual site model.

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## 9.3 Characterization of Liner Leakage and Potential for Releases

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### 9.3.1 Sample Collection and Analysis

**Commenter Name:**

**Commenter Affiliation:** Harvard GSAS Environmental Action Team (GrEAT)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0122

**Page(s):** 2

**Excerpt ID:** 59061

**Comment:** Moreover, while the USWAG decision made no specific reference to geosynthetic or other alternate liners, our second point shows that there is significant evidence that the hydraulic

conductivity of many alternate liners varies from laboratory values in situ and that impoundments with alternate liners should therefore be treated as unlined.

**Commenter Name:**

**Commenter Affiliation:** Harvard GSAS Environmental Action Team (GrEAT)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0122

**Page(s):** 3-4

**Excerpt ID:** 59067

**Comment:** The second line of evidence requires characterization of the potential for infiltration through liners and the underlying soils. The proposed rule recognizes that reliable collection of in-situ data may be difficult and proposes relying on laboratory analyses. However, as is acknowledged in the rule, even for carefully designed tests, the lab analyses may be unable to reproduce in-situ conditions and are still just approximations of the real-world performance.

**Commenter Name:**

**Commenter Affiliation:** Harvard GSAS Environmental Action Team (GrEAT)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0122

**Page(s):** 4

**Excerpt ID:** 59068

**Comment:**

As shown by several of the studies mentioned above, the in-situ conditions are very complex and we do not yet have enough understanding of how these complexities affect CCR leachability to ensure that we make accurate models in the lab. Furthermore, they potentially vary over time, for example due to the presence of the CCR leachates, to changing chemistry or composition of the leachates and subgrade water, to changing hydrogeological conditions (Clifton et al, 2018, Persaud et al, 2020). This means that we cannot rely on laboratory analyses to tell us if the impoundments are effectively limiting transport of contaminants. And secondly, even if these laboratory analyses were reliable, proving once to the EPA that the site is effectively limiting transport of contaminants is not reasonable proof that contamination or leakage will not happen at some future date.

In addition to accurately modeling the conditions in the real-world, a concern regarding laboratory tests is whether they are reliable and reproducible. A study by Benson et al (2016) investigates the measurement variability of hydraulic conductivity following the procedures of Method C of ASTM D 5084. They found “non-negligible” variation of the results. In addition, the authors comment that “many of the laboratories in the study did not follow the test method precisely” and suggest that the ASTM Committee D18 “should consider the implications of this finding, and evaluate whether laboratory accreditation and auditing programs need greater emphasis in geotechnical and geological engineering.” In a study of the new USEPA LEAF Method 1313 and 1316 by da Silva et al (2018) the authors compare the measured metal leachability of representative CCR samples with the leachability obtained by the Synthetic Precipitation Leaching Procedure (SPLP). They find that the two methods do not give the same leachability, that the SPLP results are variable when compared to LEAF results. If these standard laboratory tests are not reliable, and if experts recommend re-evaluating laboratory

accreditations, these results should not be relied upon as proof that sites are effectively preventing contaminants from leaching and harming the environment.

**Response [to the above comments](#):** The Agency disagrees with the commenter for reasons explained in Unit III.C.2 of the final rule preamble.

**Commenter Name:**

**Commenter Affiliation:** Salt River Project Agricultural Improvement and Power District (SRP)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0087

**Page(s):** 6-7

**Excerpt ID:** 58890

**Comment:**

**Sampling Locations Required to Demonstrate Potential for Infiltration Should be Site Specific.**

The preamble text describing analyses recommended to satisfy requirements stated in proposed rule 40 C.F.R. § 257.71(d)(1)(ii)(B) (Potential for Infiltration) is fairly prescriptive regarding sampling consideration and laboratory analyses to be performed on the samples to demonstrate the potential for infiltration (Line of Evidence #2), and appears to suggest that samples should be collected from beneath the impoundment but does not explicitly state this expectation. However, the preamble also correctly acknowledges that reliable collection of in-situ data beneath the impoundment may be difficult and may disturb the integrity of the impoundment. Borings drilled within CCR impoundment may penetrate natural formation sealing materials and may be difficult to seal creating conduits for fluid migration that may result in exceedance of a groundwater protection standard value at the unit boundary. In the final rule, EPA should clarify that sampling locations to demonstrate the potential for infiltration will be based on sitespecific characteristics and feasibility

At CGS, collection of formation samples beneath the Evaporation Pond is impractical and potentially unsafe. The characteristics of the Evaporation Pond are such that much of the impoundment is too shallow to float a barge with a drill rig on it, and too deep or soft to support either wheeled or tracked drilling equipment. Soft areas include the margins of impoundment where CCR material, composed primarily of flue gas desulfurization (FGD) solids have been deposited in slurry form since the early 2010's. The FGD solids overlie semi-saturated CCR material and evaporation residue which has accumulated in the impoundment since the 1980's. Either launching a barge or building engineered structures within the impoundment to support drilling equipment would require engineering and construction of structures overlying the soft sediments of the impoundment, resulting in potential instability problems and reducing the overall volume of the impoundment. Horizontal drilling beneath the impoundment for the purpose of collecting undisturbed formation samples is not practical in the deformable sediments of the Chinle Formation. These challenges limit the extent of the area where formation samples may be collected beneath the impoundment. Consequently, the area where samples may be collected within the footprint of the CCR impoundment is potentially too small to yield meaningful analyses.

Drilling beneath the Evaporation Pond is not necessary to demonstrate the potential for fluid migration at the unit boundary. The objective of the Alternate Liner Demonstration is to demonstrate with a reasonable degree of certainty that operation of the CCR impoundment will not result in groundwater concentrations above the relevant groundwater protection standard (GWPS) at the unit boundary. As assumed by the compliance criteria imposed by the CCR rule, it is reasonable to expect that fluid seeping vertically downward from the Evaporation Pond would also migrate horizontally toward the unit boundary. Fluid seeping vertically downward from the CCR impoundment that never migrates to the unit boundary will not result in groundwater concentrations above the GWPS at the unit boundary. Consequently, formation samples collected at an appropriate spacing (determined, based on site-specific characteristics) will be sufficient to evaluate the potential for migration at the unit boundary.

An appropriate formation characterization program should include sufficient formation samples collected at the unit boundary to facilitate statistical analyses, development of a geologic model representing the properties of materials beneath the impoundment, and flow modeling of the potential for fluid migration from beneath the CCR impoundment to the unit boundary

**Commenter Name:**

**Commenter Affiliation:** Luminant Generation Company LLC et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0097

**Page(s):** 11

**Excerpt ID:** 58963

**Comment:** As an alternative to in-situ data collection, EPA suggests that “it may be more practical to rely on analysis conducted in a laboratory setting.” However, as EPA recognizes, this is easier said than done because such tests must be accurately “designed to reflect the conditions at the specific site in order to provide useful data.”

**Response [to the above comments](#):** As discussed in in Unit III.C.2 of the final rule preamble, the Agency agrees with the commenters that in-situ collection of samples beneath the unit is neither practicable nor necessary.

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### 9.3.2 Comments Relevant to Permeant Liquid Used

**Commenter Name:**

**Commenter Affiliation:** National Ground Water Association (NGWA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0047

**Page(s):** 1-2

**Excerpt ID:** 58735

**Comment:** A significant concern of the National Ground Water Association is the geochemical effects that CCR impoundment leachate may have on the integrity of the earthen liners and, if breakthrough occurs, on the subsequent adverse impact to ground water quality. Introduction of the CCR to the impoundments may change pH and other characteristics of the impoundment waste that can compromise liner integrity. Furthermore, if the chemistry of the leachate is



significantly different than that of the subsurface environment and groundwater below the impoundment, the geochemical reactions may release other contaminants from the geologic matrix, thus exacerbating adverse impact to groundwater quality. This scenario will be technologically challenging and costly to remediate. NGWA recommends evaluating the interaction of the chemical characteristics of the CCR, existing impoundment wastewater, the current groundwater quality, the material used for the construction of the impoundment and the geologic matrix, to determine possible impacts before further CCR waste disposal is permitted. EPA should consider addressing this set of potential impacts in technical guidance to assist states and the regulated community in determining whether to permit CCR impoundments with alternate liners.

**Commenter Name:**

**Commenter Affiliation:** Harvard GSAS Environmental Action Team (GrEAT)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0122

**Page(s):** 2

**Excerpt ID:** 59391

**Comment:** Second: Geosynthetic liners have been shown by numerous studies to be susceptible to leaks. In particular, while individual geosynthetic clay liners (GCLs) may have low hydraulic conductivity in laboratory studies, in situ conditions, including exposure to CCR leachates, can increase the observed hydraulic conductivity. Benson et al. (2018) stated that “no systematic studies have been conducted to evaluate how [CCR] leachates affect the hydraulic conductivity of [compacted soil liners].” They continued to state that “coal combustion product leachates have been shown to affect the hydraulic conductivity of geosynthetic clay liners adversely under some circumstances.” Chen et al (2018) studied the hydraulic conductivity of GCLs containing granular sodium bentonite permeated from CCP leachates. This study found that the “chemistry of the CCP leachate has a strong influence on whether the hydraulic conductivity of a GCL will meet the equivalency requirements in the Federal Register.” In particular, hydraulic conductivity is affected by the ionic strength of the leachate and by the effective stress on the GCL specimen, amongst others. They find that using a prehydrated GCL can reduce the conductivity to coal combustion product leachates, however the authors caution that “permanence of the benefits achieved by prehydration with DI water over very long periods of time has not been evaluated.” We have no proof that prehydrating GCL as a method of reducing hydraulic conductivity will not have adverse effects on human health or the environment.

**Response [to the above comments](#):** As discussed in Unit III.C.2.b [of the final rule preamble](#), the Agency agrees with commenters that it is important the permeant liquid used reflects conditions within the impoundment.

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### 9.3.3 Comments Relevant to Thixotropic Effects

**Commenter Name:**

**Commenter Affiliation:** Electric Power Research Institute, Inc. (EPRI)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0046

**Page(s):** 22  
**Excerpt ID:** 58732

**Comment:**

2.3.2 Laboratory Soil Compaction

On page 12461, the March 3 Proposal states: “Preparation of samples intended to reflect compacted soil liners for testing may result in the soil becoming temporarily less permeable as a result of thixotropic behavior. Thixotropic materials, such as certain clays, become more fluid when agitated and the resulting dispersed structure can make it more difficult for water to infiltrate. However, the material will gradually become more solid and permeable as it is allowed to rest. Failure to allow such samples to rest for sufficient periods prior to testing could result in a lower measured conductivity than would actually occur in the field.”

EPRI is not aware of any evidence in the modern literature that thixotropic phenomena have any impact on the hydraulic conductivity of natural or compacted clay liner materials, or that a “rest period” is needed to provide a realistic measurement of hydraulic conductivity. The hydraulic conductivity of natural and compacted clays is controlled largely by mineralogy and plasticity of the fines component (Benson et al. 1994). For compacted clays, hydraulic conductivity is also controlled by the elimination of macrostructure through compaction (Benson and Daniel 1990, Benson et al. 1999), rather than microscale structure sometimes described with terms such as “dispersed” or “flocculated” (Benson and Daniel 1990). Testing of specimens of compacted clay or geosynthetic clay liners using actual or synthetic coal ash leachate in accordance with the methods in ASTM D7100 (Standard Test Method for Hydraulic Conductivity Compatibility Testing of Soils with Aqueous Solutions) or ASTM D6766 (Standard Test Method for Evaluation of Hydraulic Properties of Geosynthetic Clay Liners Permeated with Potentially Incompatible Liquids) is sufficient to ensure that physical, hydraulic, and chemical equilibrium is achieved during testing (Benson et al. 2018; Chen et al. 2018, 2019). Note that these tests may require hundreds of days to complete.

**Response:-** As discussed in greater detail in Unit III.C.2.c [of the final rule preamble](#), the Agency agrees with the commenter that the current record does not support a requirement for a pre-defined rest period to account for potential thixotropic behavior.

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9.3.4 Comments Relevant to Test Termination Criteria

**Commenter Name:**

**Commenter Affiliation:** Electric Power Research Institute, Inc. (EPRI)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0046

**Page(s):** 21

**Excerpt ID:** 58731

**Comment:**

### 2.3.1 Hydraulic Conductivity Testing for Clay Liners at CCR Sites

On page 12460, the March 3 Proposal states: “Tests used to estimate hydraulic conductivity (e.g., ASTM D 5084) need to use a permeant liquid that reflects the composition of the infiltrating impoundment porewater. CCR porewater can have both extreme pH and high salinity. Extreme pH may dissolve key components of the soil structure, while high salinity may result in interlayer shrinkage of clays, both of which can result in higher hydraulic conductivity.”

It should be noted that ASTM D5084 (Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter) is a common method to measure the hydraulic conductivity to water of compacted clays. This method is appropriate for measuring hydraulic conductivity to water and dilute solutions, but is not appropriate for more concentrated solutions such as some coal ash leachates that may alter hydraulic conductivity.

For more concentrated solutions, ASTM D7100 (Standard Test Method for Hydraulic Conductivity Compatibility Testing of Soils with Aqueous Solutions) is appropriate for natural and compacted clay liner materials. For geosynthetic clay liners, ASTM D6766 (Standard Test Method for Evaluation of Hydraulic Properties of Geosynthetic Clay Liners Permeated with Potentially Incompatible Liquids) is appropriate. ASTM D7100 and D6766 have specific testing provisions for liquids that may alter the hydraulic conductivity of compacted clay liners or geosynthetic clay liners. They also include chemical termination criteria to define when chemical interactions between the clay and the liquid are complete.

Additional and more detailed information on how coal ash leachates may affect the hydraulic conductivity of compacted clays and geosynthetic clay liners can be found in Benson et al. (2018) and Chen et al. (2018, 2019). These publications also include testing conditions specific to coal ash leachates that are not included in ASTM D6766 and ASTM D7100.

**Response 1-:** As discussed in greater detail in Unit III.C.2.e [of the final rule preamble](#), the Agency agrees that the methods to test hydraulic conductivity cited by the commenter are appropriate and include relevant test termination criteria.

**Commenter Name:**

**Commenter Affiliation:** Great River Energy

**Comment Number:** EPA-HQ-OLEM-2019-0173-0080

**Page(s):** 4-5

**Excerpt ID:** 58831

**Comment:** The hydraulic conductivity testing required by the proposed rule is also not appropriate for facilities relying on an engineered geocomposite liner system. The hydraulic conductivity testing recommended in the preamble is expensive, very time consuming, and not commonly conducted. In low permeability soils, like those at our facility, this testing is unlikely to be accomplished within the one-year period that is allotted for the demonstration study. Since the performance of the liner at our facilities is dependent on an engineered geocomposite liner system, any information developed with this method would not significantly inform an assessment of the protectiveness.

**Response-2:** As discussed in greater detail in Unit III.C.2.e, the Agency disagrees that such tests would not provide valuable information.

-

## 9.4 Application of Models to Demonstrate Protectiveness

### 9.4.1 Need to Account for Relevant Parameters

**Commenter Name:**

**Commenter Affiliation:** National Ground Water Association (NGWA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0047

**Page(s):** 2

**Excerpt ID:** 58736

**Comment:**

§257.71 Liner design criteria for existing CCR surface impoundments. (d) Alternate Liner Demonstration. For the alternate liner demonstration, data must demonstrate that groundwater protection standards will be achieved.

NGWA Comment: The groundwater monitoring network should provide the data for state and federal decisionmakers to make an informed decision on the adequacy of the alternate liner. The demonstration should be supported by appropriately modeled groundwater contaminant flow taking into account the geology and hydrogeology of the impoundment site and the potential human and wildlife receptors at and beyond the impoundment and site

**Response-:** As discussed further in Unit III.C.4, the Agency agrees that there are a number of parameters that must be accounted for to ensure that groundwater contaminant release and transport is appropriately modeled.

**Commenter Name:**

**Commenter Affiliation:** Harvard GSAS Environmental Action Team (GrEAT)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0122

**Page(s):** 3

**Excerpt ID:** 59064

**Comment:** Third: even if geosynthetic liners could meet the RCRA standard, the lines of evidence used to demonstrate safety may not reliably identify facilities with low risk of leaks. EPA identifies two lines of evidence for owners and operators to demonstrate that impoundments with alternate liners are safe. The rule states that these lines of evidence are “based on the understanding that the low effective conductivity of the liner and surrounding soils is the primary mechanism that will limit release and transport of contaminants.” However, as acknowledged by the rule, impoundments exist in complex hydrogeological systems. The risk of leaking is determined by a myriad of variables (Vengosh et al, 2019, Winter et al, 2013, Evans et al 2016). Reducing these systems to the one variable (i.e hydraulic conductivity) fails to capture this

complexity, increasing the chance of mischaracterizing the probability of leaks and thereby the system's compliance with the RCRA standard.

**Response-:** As discussed further in Unit III.C.4, the Agency disagrees with the commenter that the focus on site-specific characterization of hydraulic conductivity is inappropriate or that other key parameters have not been adequately addressed in the demonstration step.

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#### 9.4.2 Use of Groundwater Protection Standards at Unit Boundary

**Commenter Name:**

**Commenter Affiliation:** Missouri Chapter of the Sierra Club and Labadie Environmental Organization

**Comment Number:** EPA-HQ-OLEM-2019-0173-0086

**Page(s):** 2-3

**Excerpt ID:** 58872

**Comment:**

a. The EPA's proposal to permit alternative liners would increase the harm caused by leaking CCR surface impoundments.

Under the current regulatory scheme, all existing CCR surface impoundments that lack composite liners, as defined in the CCR Rule, must close. The CCR Rule also requires installation of composite liners for any new or expanded CCR unit. EPA established these liner requirements to prevent contaminants from leaking into groundwater resources and the environment. The alternative liner demonstration EPA now proposes directly conflicts with the intent of the CCR Rule by allowing contaminants to leak from CCR surface impoundments so long as the hydraulic conductivity of the subsurface soils are expected to be sufficient to prevent the migration of contaminants. EPA does not indicate how far contaminants are allowed to travel. In fact, the proposal would allow contamination to occur so long as it doesn't exceed groundwater protection standards established solely by the CCR unit's owner. This is sufficiently less protective than the liners required under the current standard, which prevents contaminants from escaping the CCR surface impoundment.

**-Commenter Name:**

**Commenter Affiliation:** Attorney General of Maryland et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0101

**Page(s):** 4

**Excerpt ID:** 58994

**Comment:** The proposal appears to rest on yet another unsupported assumption, moreover. EPA states that the owner or operator's demonstration "would require that, at a minimum, that the owner or operator demonstrate that the surface impoundment has not and will not result in groundwater concentrations above relevant GWPS at the unit boundary (health-based or background, whichever is higher)." 85 Fed. Reg. at 12,459. The proposal then explains that

“[t]his is the standard used to trigger corrective action for lined surface impoundments and is considered equally appropriate in this context.” In other words, EPA believes that the standard controlling when lined impoundments should take corrective action is “equally appropriate” for use in determining whether to treat impoundments as lined in the first place. EPA does not explain why compliance with the standard used to trigger corrective action in lined impoundments should determine whether to treat clay-lined impoundments as lined in the first place—i.e., why this standard is “equally appropriate.” The absence of such an explanation makes the proposal arbitrary and capricious.

**Response to the final rule preamble:** The Agency provides clarification in Unit III.C.4.b [of the final rule preamble](#) for the rationale for GWPS at the unit boundary as relevant and appropriate benchmarks to demonstrate that there is no reasonable probability of adverse effects to human health and the environment.

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#### 9.4.3 Risks from Constituents Outside of Appendix IV

**Commenter Name:**

**Commenter Affiliation:** Black Warrior Riverkeeper

**Comment Number:** EPA-HQ-OLEM-2019-0173-0045

**Page(s):** 8

**Excerpt ID:** 58724

**Comment:** The proposed rule does not even exclude leaking ponds from avoiding closure, as long as the contaminants leaking are not on a specific list of chemicals.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 29-30

**Excerpt ID:** 59200

**Comment:** In addition, Appendix IV monitoring is by definition limited to protecting only against human health exposures to contaminants listed in Appendix IV. Thus, this process fails to protect against health and environmental risks from contaminants such as boron and sulfate that are listed under Appendix III but not under Appendix IV. As discussed below, these pollutants can themselves cause significant harms, in addition to being indicators of the presence of other coal ash contaminants.

**-Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0194

**Page(s):** 7

**Excerpt ID:** 59373

**Comment:** EPA only requires a demonstration that the surface impoundment has not and will not result in groundwater concentrations above relevant GWPS at the unit boundary (health-based or background, whichever is higher). The provision allows leaking impoundments to continue to operate: This is not sufficiently protective as leaking of Appendix III contaminants is ignored, thereby violating RCRA 4004(a) protectiveness standard and the D.C. Circuit decision.

The following presents several examples of harm to health and the environment from leaking of Appendix III contaminants. The EIP March 2019 study of groundwater monitoring data demonstrates,<sup>6</sup> among others, the extensively reported groundwater contamination in 2018 by CCR waste units and CCR beneficial use sites with respect to two key Appendix III constituents. Boron (health-based standard of 3 mg/L) and sulfate (health-based standard of 500 mg/L) are reported by 48 percent and 55 percent, respectively, of the monitored coal-fueled power plants. Moreover, 45 percent and 46 percent, respectively of all CCR surface impoundments show unsafe levels of groundwater contamination by these two constituents; the corresponding values for CCR landfills are 23 percent and 36 percent for boron and sulfate, respectively.

Groundwater contamination poses a clear threat to drinking water supplies, and there are many examples of residential wells or public supply wells rendered unsafe by CCR. Yet the CCR Rule does not require the testing of drinking water wells near CCR waste units or CCR beneficial use sites, so the scope of the threat is largely underestimated. Much of the following information was initially compiled by environmental NGOs, then vetted by the EPA and included in its technical support documents on Damage Cases that accompanied the April 2015 CCR Rule. EIP's March 2019 study compiled a list of coal-fueled waste management sites where drinking water has been contaminated by CCR. These include seven sites where the contaminants are one or more Appendix III constituents. (In parenthesis, the concentration level of the contaminant as compared to a health standard):

(i) Gibson, Indiana (boron x8; in addition to Appendix IV pollutants), where Duke Energy had to supply bottled water after finding elevated levels of boron in offsite residential wells;<sup>9</sup> (ii) Colstrip, Montana (boron x26; sulfate x27; in addition to Appendix IV pollutants), where unsafe levels of boron, sulfate and possibly other pollutants migrated into a residential neighborhood. The owners of the plant had to provide clean water, and settled a lawsuit with 57 Colstrip residents for \$25 million in damages; (iii) Edgewater, Wisconsin (sulfate, x3), where a set of coal ash ponds has caused elevated iron and sulfate concentrations in offsite water supply wells; and (iv) In Illinois, another study of the 2018-posted groundwater monitoring well data recorded that 22 of the 24 power plants with unlined surface impoundments in that state reported groundwater contamination. In five of the power plants with data on Appendix III contaminants, the levels of boron exceeded the federal health standard by a factor of 3 to 23. Almost with no exception, the owners of these facilities intend to close them with the CCR in place.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0194

**Page(s):** 4-5

**Excerpt ID:** 59393



**Comment:** 3. Determination that all CCR contaminants are contained: EPA proposes to use analytical results for Appendix IV monitoring parameters as evidence that the facility has not adversely affected groundwater quality. Facilities requesting permission to function with no liner must be capable of containing all CCR contaminants within the impoundment. EPA should not be in the business of permitting substandard unlined facilities to degrade water quality, irrespective of whether the impacts are from contaminants identified in Appendix III or Appendix IV. All of the listed constituents can potentially harm human health, the environment, and contaminate potable water sources.

**Response –to the above comments:** As discussed in more detail in Unit III.C.4.d of the preamble to the final rule, the Agency disagrees with commenters that use of GWPS will allow risk from constituents outside of Appendix IV.

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#### 9.4.4 Use of EPACMTP is Not Appropriate

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0193  
**Page(s):** 11-12  
**Excerpt ID:** 59355

#### **Comment:**

#### IV. Comments on EPACMTP

As discussed in the previous section, EPA’s proposal relies on analysis by EPRI to suggest that there could be alternate liner demonstrations similar to the level of protection of human health and the environment as achieved by the base case composite liners required at CCR surface impoundments. The EPRI analysis relies, in part, on EPA’s Composite Model for Leachate Migration with Transformation Products (EPACMTP) model. While EPA itself has noted certain deficiencies in EPRI’s analysis as noted in the previous section, especially in how EPRI used EPACMTP, there are more fundamental and basic shortcomings in EPACMTP that should limit its application in any alternate liner demonstrations. I briefly note those in this section.

EPACMTP is, like many models, a highly simplified and idealized representation of the subsurface. It simply does not and cannot represent the real, usually highly complex subsurface conditions at any CCR surface impoundment site, particularly with regards to ever-present nonhomogeneous conditions including preferential migration pathways, which EPA correctly notes have to be characterized at any site requesting alternate liner demonstrations. For this, I rely on statements in EPACMTP’s own Technical Background Document.

First, I highlight the following statements provided in EPACMTP

“EPACMTP simulates the unsaturated zone and saturated zone as separate domains that are connected at the water table. Both the unsaturated zone and the saturated zone are assumed to be



uniform porous media. The thickness of the saturated zone is uniform in space and constant in time. EPACMTP does not account for the presence of macro-pores, fractures, solution features, faults or other heterogeneities in the soil or aquifer that may provide pathways for rapid or retarded movement of constituents.”

“Intrasite variability of properties (heterogeneity within the site) is not included as part of the analysis. As a result, EPACMTP does not account for uncertainty arising from treating each site as a homogeneous site with uniform flow and transport properties.”

The limitations I have emphasized above are self-evident as would be the case for a layered, “wedding-cake” model like EPACMTP – namely uniform geology, constant zone thicknesses, and importantly, no ability to account for the actual types of heterogeneities (macro-pores, fractures, solution features, faults, etc.) “that may provide pathways for rapid or retarded movement” of pollutants from the CCR to groundwater or surface waters near the CCR surface impoundment. Since it is essential that any preferential pathways that may be present at a site that claims to have an alternate liner be fully and completely delineated – i.e., establishing both their presence and complete connectivity or lack thereof – the EPACMTP cannot, by definition, be used to represent subsurface conditions. Any conclusions drawn from using EPACMTP, like in EPRI 2019, must therefore, at best, be treated as a starting point for analysis and not determinative.

Next, and importantly, EPACMTP is simply not appropriate for sites that are located near major water bodies – as many CCR surface impoundments are, given the large cooling water needs for all thermal power plants where such CCR impoundments are needed. The documentation for EPACMTP states:

“...EPACMTP does not account for the presence of major ground-water sources or sinks such as surface water bodies or large municipal pumping or injection wells. Therefore, use of EPACMTP may not be appropriate at sites with these or any other features which significantly modify regional flow fields, or at sites where the recharge varies locally.”

Based on the above, it is clear that EPACMTP should play little or no role in any actual alternate liner demonstration given its simple representation of subsurface geology and inability to account for heterogeneities and preferential pathways. Thus, all conclusions in EPRI 2019 based on analysis using EPACMTP are suspect insofar as they are intended to apply to actual CCR surface impoundments. There is simply no substitute for actual site characterization. In addition to the Plant Barry example discussed earlier, I turn to additional examples of such site characterization case studies that have been used to support and argue for alternate liner demonstrations showing how inadequate they are and how far they deviate from what EPA deems is necessary in the proposal.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0193

**Page(s):** 43

**Excerpt ID:** 59364

**Comment:** (iv) The EPA model, EPACMTP, given its limitations, is not an appropriate modeling tool that should be used to make alternate liner demonstrations. It uses simplified depictions of the subsurface geology and hydrogeology and therefore cannot depict the complex hydrogeology at most CCR, which are located near water bodies, with rare exceptions.

**Response [to the above comments](#):** As discussed in more detail in Unit III.C.4.a of the preamble to the final rule, the Agency disagrees that use of EPACMTP in an alternate liner demonstration is always inappropriate.

## 9.5 Additional Lines ~~Of~~ Evidence To Consider

### 9.5.1 Presence of a Geomembrane Liner

**Commenter Name:**

**Commenter Affiliation:** Luminant Generation Company LLC et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0097

**Page(s):** 10-11

**Excerpt ID:** 58962

**Comment:** As to the second line of evidence, it should be sufficient to provide a demonstration that there are no exceedances of any groundwater protection standards (“GWPS”) for Appendix IV constituents in order to show the lack of potential for infiltration. As EPA correctly recognizes: “reliable collection of in-situ data may be difficult in low-conductivity soils or may disturb the integrity of the impoundment.” Thus, the proposed requirements may create unnecessary risk with little benefit, especially at sites where groundwater monitoring has not detected Appendix IV constituents at statistically significant levels above applicable GWPS.

**Commenter Name:**

**Commenter Affiliation:** Luminant Generation Company LLC et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0097

**Page(s):** 11

**Excerpt ID:** 58964

**Comment:** Therefore, where it is not feasible to design a test that accurately reflects sites conditions, and the risk is too high to perform in-situ data collection, facilities should be able to rely on sitespecific data, including existing groundwater monitoring results, to support the Proposed Rule’s second line of evidence.

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 10

**Excerpt ID:** 59084

**Comment:**

Apache's CWDF liner is unique within the category of "unlined" CCR impoundments. AEPCO has the coveted composite liner highlighted as desirable in the USWAG decision. In the USWAG decision, the DC Circuit Court ruled against claylined impoundments, arguing that impoundments should have a composite liner system and that clay-lined or unlined units should not be allowed to remain in operation until they leak. Inequitably, AEPCO's liner is grouped with the other unlined facilities in the country, most of which have clay or natural liners due to the inflexible technical specifications in the CCR Rule for lined facilities. AEPCO suggests that composite liners should be provided preferential treatment in the liner demonstration process for three reasons: (1) Composite liners were treated differently by the USWAG court; (2) Composite liners are the state-of-the-art technology for CCR impoundments; and (3) The technical information outlined in the Proposed Rule's alternate liner demonstration process is tailored to analysis of clay and natural-lined units.

Units with a primary liner that is a membrane, such as AEPCO's 60-80 mil HDPE liner, should be allowed to continue operation with the required groundwater monitoring in place to demonstrate the effectiveness of the liner consistent with EPA's original approach in the 2015 CCR Rule. No other investigation or demonstration should be required, as AEPCO has over 25 years of data showing that this liner is protecting the underlying aquifer per the APP. AEPCO suggests that EPA consider providing an accelerated review of facilities equipped with a composite liner, albeit a liner that does not meet the standard at 257.70(b) for the lower clay layer, and provide regulatory certainty for these facilities on a much quicker timeline. No additional demonstration should be required for sites that are equipped with a membrane liner as part of a composite liner system, meet all location restrictions, and have not impacted groundwater. It should not take eighteen months or longer for AEPCO to prepare and EPA to review a demonstration when it is clear that such facilities meet the RCRA Subtitle D Protectiveness standard and can continue to safely operate with continual groundwater monitoring in place. EPA should consider providing approval of composite-lined facilities following the initial application, thus reserving the second demonstration step for clay-lined or naturally-lined facilities only.

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 12

**Excerpt ID:** 59398

**Comment:**

The requirement at Section 257.71(d) where the standard for the demonstration is meeting the composite liner criteria established in 257.70(b) is incorrect. Facilities that were already equipped with a composite liner, such as the CWDF at AEPCO's Apache Station, were already provided an opportunity to compare to this standard within the 2015 rule at 257.71(a)(iii). AEPCO chose not to pursue this comparison at the time because we were confident that our liner is protective of the aquifer and that our facility would not be required to close. With that said, this is not the Standard that should be required, but meeting RCRA's Subtitle D protectiveness standard is the bar that EPA should set. AEPCO has already cleared this bar, and will provide that evidence within the initial application.

The standard for the demonstration from a composite-lined unit should be that there is no indication from groundwater monitoring data that the unit has or affected groundwater. In the Proposed Rule, this is actually required in the Application phase and not in the Demonstration Package itself. EPA should either: (1) Allow for the Application to be adequate for composite-lined facilities that have not impacted groundwater, consistent with AEPCO's comments; or (2) Modify the Liner Demonstration process to create an inherent bias of success to account for the facilities that have a desirable composite liner system, while also providing more flexibility in the site-specific technical data to be submitted.

**Response [to the above comments](#):** As discussed in more detail in Unit III.C.3.a of the preamble to the final rule, the Agency disagrees that groundwater monitoring results alone are an adequate substitution for the information required in the demonstration, regardless of whether a geomembrane liner is present.

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### 9.5.2 Previous Certification

**Commenter Name:** Bill Matthews  
**Commenter Affiliation:** Cleco Corporate Holdings LLC  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0078  
**Page(s):** 17-18  
**Excerpt ID:** 58801

#### **Comment:**

#### 2. EPA should place particular emphasis on certain evidence

EPA makes clear that the factors it will consider when analyzing alternate liner demonstrations will vary from site to site. Cleco agrees that that a one-size-fits-all process would not provide owners/operators equal opportunities to have a liner demonstration approved. It is therefore understandable why EPA does not discuss the weight it will place on different types of evidence that owners/operators include in their demonstrations.

Two lines of evidence that EPA should give significant weight because they are particularly probative are (1) evidence that a surface impoundment has been certified by a state environmental regulatory agency, and (2) groundwater monitoring data showing that a CCR unit has never caused a SSI for any appendix IV constituent. For example, LDEQ requires that quality-assurance/quality-control (QA/QC) plans for liner construction and maintenance be included in the permit to ensure liners are designed, constructed, installed, and maintained properly. In addition, excavations and liners must be inspected and certified by a licensed state of Louisiana professional engineer with appropriate expertise. EPA should place significant weight on these lines of evidence and should recognize that these lines of evidence, taken together, establish a presumption that a surface impoundment's liner is adequately protective

**Commenter Name:**

**Commenter Affiliation:** Berkshire Hathaway Energy Company

**Comment Number:** EPA-HQ-OLEM-2019-0173-0085

**Page(s):** 4-5

**Excerpt ID:** 58867

**Comment:** Second, some deference should be given for applications that include proof of state approval of the liner for which the alternative liner demonstration is sought. For example, NV Energy operates two CCR surface impoundments which are double-lined with 80-mil high-density polyethylene liners and are equipped with interstitial leak detection and leachate collection systems. Both the Nevada Division of Environmental Protection and the Nevada Division of Water Resources (state engineer) approved the ponds' design, which adheres to applicable state regulatory guidance. State oversight and approval of liner system design should be a significant factor in EPA's consideration and approval of alternate liner demonstrations for those facilities that can include this information in their applications. Berkshire Hathaway Energy also agrees with the comments submitted by the State of Wyoming Department of Environmental Quality regarding the ability for the Director of an EPA-approved state CCR permit program to provide the appropriate resources for site-specific reviews of alternative liner demonstrations made for surface impoundments being protective of human health and the environment.

**Response [to the above comments](#):** As discussed in more detail in Unit III.C.3.b of the preamble to the final rule, the Agency disagrees that previous certification by either a state agency or professional engineer negates the need for [a/an](#) owner or operator to provide the information required in the demonstration step.

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### 9.5.3 Planned Closure Practices

**Commenter Name:** Greg Snellen

**Commenter Affiliation:** Missouri Department of Natural Resources

**Comment Number:** EPA-HQ-OLEM-2019-0173-0093

**Page(s):** 3

**Excerpt ID:** 58919

**Comment:**

Section IV.A. Alternate Liner Demonstration, Duration of Alternate Liner Demonstration, p. 12462: "EPA solicits comment on the appropriateness of the requirements included in this proposal. EPA also solicits comment on whether there are any additional lines of evidence or specific types of data that should be included as part of any demonstration." (emphasis added)

Comment: The Department recommends including plans to install an impermeable cap and dewater the impoundment as additional lines of evidence in the alternate liner demonstration. These actions could reduce groundwater impacts and/or change the hydrogeologic model.

**-Response-:** As discussed in more detail in Unit III.C.3.c the preamble to the final rule, the Agency disagrees that the planned closure practices is a relevant consideration in the determination whether continued operation of an impoundment will be protective.

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#### 9.5.4 Analysis of Groundwater Chemistry

**Commenter Name:**

**Commenter Affiliation:** Salt River Project Agricultural Improvement and Power District (SRP)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0087

**Page(s):** 5-6

**Excerpt ID:** 58889

**Comment:**

EPA Should Recognize Water Quality Analyses as an Alternate Liner Characterization Tool.

Neither the preamble nor the text of the proposed rule contemplate the use of water quality analyses as a characterization tool to demonstrate the absence of mixing of CCR impoundment fluids and native groundwater. Comparative water quality analyses are an important tool to help characterize relationship between fluid in a CCR impoundment and groundwater and should be incorporated into Line of Evidence #2 to characterize the potential for infiltration. These analyses may include dissolved mineral comparisons and isotopic analyses that will demonstrate whether or not there is evident mixing of impoundment water and groundwater. This type of comparative analysis may also be an important tool to help characterize saturated sand lenses, if encountered during formation characterization activities. If water contained within the saturated sand lenses exhibits characteristics similar to water in the impoundment, or exhibits mixing characteristics, it may be an indication that additional characterization is necessary. If water in saturated sand lenses or the uppermost aquifer exhibits a character that is notably distinct from water in the CCR impoundment, and there is no evidence of mixing, then these analyses may be used to demonstrate performance of an alternate liner.

**Commenter Name:**

**Commenter Affiliation:** Harvard GSAS Environmental Action Team (GrEAT)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0122

**Page(s):** 4

**Excerpt ID:** 59069

**Comment:** The EPA should consider other ways of monitoring for impact on the environment by CCR. For example, recent literature (Harkness et al 2016, Wang et al 2019, Wang et al 2020) proposes identifying CCR-impacted waters near coal ash ponds by measuring isotopic ratios of various elements (B, Sr, Pb), from which isotopic traces of CCRs that can be distinguished from background levels. Measuring a combination of distinct isotope traces and higher levels of CCR tracers is evidence for a coal ash pond leaking into nearby bodies of water. Harkness et al (2016)

state that “the systematic evidence for leaking of coal ash ponds shown in this study highlights potential environmental risks from unlined coal ash ponds.”

**Response to the above comments:** Commenters requested that EPA consider the utility of isotopic analysis to determine whether there is evidence of releases from an impoundment to surrounding environmental media. These types of analyses can be useful to support conclusions whether an increase of concentrations measured in the field are related to the operation of an impoundment. However, the utility of such analyses in an alternate liner demonstration is severely limited by the fact that such data only provides information on whether discernable impacts have already occurred and provide no indication whether and to what extent impacts may occur in the future. Therefore, EPA will not require the use of such analyses in the demonstration step. However, facilities may incorporate the results such analyses in the application step if the facility relied on these data to ensure compliance with the requirements of the CCR rule.

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#### 9.5.5 No Migration Demonstration

**Commenter Name:**  
**Commenter Affiliation:** Xcel Energy Inc.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0044  
**Page(s):** 3-4  
**Excerpt ID:** 58702

#### **Comment:**

In fact, EPA has incorporated such a risk-based approach in the Phase One Part One rule which allows for a 10-year suspension of groundwater monitoring upon demonstration of no reasonable probability of adverse harm. In the preamble of the Phase One Part One rule at page 636445, paragraph 2.C ‘Modification of Groundwater Monitoring Requirements’ EPA “recognizes that...requiring groundwater monitoring in these settings would provide little or no additional protection to human health and the environment”. It is our view that approval of suspension of groundwater monitoring for 10 years based on a no migration demonstration, should also allow an unlined impoundment to continue to operate provided it can make the same demonstration. No facility that has the ability to make a site specific ‘no migration’ demonstration should be required to develop alternative disposal capacity or prematurely close an impoundment based on the unintentional timing that would be created if EPA promulgates the Part A rule without making it consistent with the procedures and approvals that will be available under the Part B and Federal Permit Rules. Unlined impoundments that demonstrate ‘no migration’ potential should be allowed to continue to operate so long as that demonstration can be maintained, like the analogous provision in the Phase One Part One amendment allowing suspension of groundwater monitoring at Section 257.90(g).

**Commenter Name:**  
**Commenter Affiliation:** Xcel Energy Inc.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0044  
**Page(s):** 13-16  
**Excerpt ID:** 58717

**Comment:**

**C. NO REASONABLE PROBABILITY OF ADVERSE EFFECTS TO THE ENVIRONMENT (NO MIGRATION)** On July 30, 2018, EPA published Amendments to the National Minimum Criteria, Phase One, Part One, effective August 29, 2018. Among other provisions, the amendments added Section 257.90(g) Suspension of Groundwater Monitoring Requirements, which allows suspension of groundwater monitoring for up to ten years, provided a demonstration is made that, based on site specific characteristics where the CCR unit is located, there is no potential for migration of any of the Appendix III or IV constituents to the uppermost aquifer during the active life of the CCR unit and the post closure care period. The amended rule requires that the demonstrations be certified by a PE and approved by either the Participating State Director (under the WIIN Act) or EPA where EPA is the permitting authority.

Part IV(B) of the Preamble to the Phase One Part One rule (page 36444) states “EPA agrees with commenters that State programs are unlikely to be developed and approved prior to the critical deadlines in the CCR rule.” While this specific reference is in the discussion of risk-based groundwater protection standards (GWPS), it is equally relevant to the ability of a site to demonstrate ‘no migration’, given the current requirement for state or federal approval of such a demonstration. Colorado has not taken, nor is it expected to act to develop a state CCR program for approval by EPA, and EPA has only recently released its pre-publication version of the federal CCR permitting program on December 19, 2019. Comanche has made this ‘no migration’ demonstration for the BAP, which has been certified by a PE and which supports its suspension of groundwater monitoring. However, the federal permitting program is not yet in place to provide the opportunity for EPA to review and approve this demonstration.

As discussed above, EPA clearly intended that there be an option for suspension of groundwater monitoring requirements in cases where there is no potential for migration of any of the Appendix III or IV constituents to the uppermost aquifer during the active life of the CCR unit and the post closure care period. In the preamble of the Phase One Part One rule (page 36445), EPA also states that “...groundwater monitoring in these settings would provide little or no additional protection to human health and the environment.”. Finally, EPA recognizes that, “...The proposed rule also stressed that a “no migration” waiver from certain RCRA requirements 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 the “no migration” criteria are met will be rare.”. Based on the current evidence related to groundwater conditions, and the historic state approvals, Xcel Energy believes it can make this “no migration” demonstration in this case if there were a mechanism for approval and continued operation of this pond.

The continued operation of the Comanche BAP has been approved under state solid waste regulations based on Comanche’s demonstration that there is no potential for migration to the uppermost aquifer. The ‘no aquifer’ (‘no migration’) certification at Comanche is based on extensive studies and site-specific data and is certified by a PE. Consistent with EPA’s underlying authority and CDPHE approval of the operation of the BAP, the continued operation of the Comanche BAP does not pose any reasonable probability of adverse effects to the environment.



III. Conclusion Xcel Energy has completed multiple site conceptual hydrogeological models for the Comanche site. Prior to the promulgation of the CCR rule the CDPHE concurred that the perched water underlying the Comanche bottom ash impoundment is not an aquifer. Xcel Energy and its consultants have also evaluated the site and have concluded that a potential release from the impoundment has no reasonable probability of adverse effects to the environment. Xcel Energy believes that the Comanche sites provides a prime example of an unlined impoundment that has no reasonable probability of adverse effects to the environment. We believe that Comanche is eligible to make this demonstration and intend to submit an application and demonstration under the final Part B rule. Examples such as these merit EPA's action to harmonize the cease receipt deadline in the proposed Part A CCR rule amendment with the Part B not yet released for public comment. Based upon the site-specific conditions, we believe that the demonstration will support that this impoundment should be allowed to continue to receive CCRs until 2025 when the coal-fired units that this impoundment serves are retired and then to close the impoundment by removal of all CCR pursuant to the schedule outlined in the CCR rule.

**Response [to the above comments](#):** EPA disagrees with the suggestion that this rule should allow any unit that meets the "no migration" standard established in the ~~phase~~[Phase 1 part one](#)[Part One](#) rule [\(83 FR 83 36435, July 30, 2018\)](#) to continue to operate. EPA has not completed its reconsideration of that provision and is therefore not in the position to expand it further. The record supporting the no migration provision and the record supporting this final rule are not the same, and EPA does not believe that the record supporting this final rule would support the commenter's suggestion. Nor could EPA adopt the commenter's suggestion without first issuing a proposal and soliciting public comment.

## Chapter 10 Review Process

### 10.1 Public Participation During Finalization of Part B Rule

**Commenter Affiliation:** Faith in Place/ Clean Power Lake County

**Comment Number:** EPA-HQ-OLEM-2019-0173-0032

**Excerpt ID:** 58680

**Comment:** My name is Celeste Flores; I am the Lake County Outreach Director for Faith in Place and Co-Chair of Clean Power Lake County. I was born and raised in Lake County. I work in Waukegan, which is home to five of the thirteen superfund sites in IL. I am calling today on behalf of 703,462 Lake County residents, the third most populous county in IL.

To speak out in opposition to EPAs proposal to weaken the 2015 coal ash rule safeguards. While I appreciate this opportunity to comment, I strongly oppose EPAs decision to proceed with todays hearing during a global pandemic and national health emergency. By refusing to delay todays hearing, this agency is knowingly and willingly turning its back on the communities it has been tasked to protect. Rather it allows corporations to destroy the health of those living and working near coal ash. So often, the effects of exposure are not immediately visible. In Environmental Justices communities like Waukegan, IL, they are cumulative with the crippling effects of exposure becoming apparent decades later.

The proceeding today also eliminates a critical right of the public to meaningfully participate in rulemaking and directly address the EPA on this issue. This agency should pause this process immediately and provide a chance for the public to participate when this pandemic is over. Community members in Waukegan are literally dealing with life and death situations due to this pandemic. This agency's blatant disrespect to proceed shows how disconnected yall are from the reality of communities impacted.

This is not the first time this agency has failed to allow direct community engagement. In January, the EPA violated the law by not holding even one in-person public hearing on this same proposal. The only means available to the public, myself included, to address concerns about the proposed coal ash rollbacks was a virtual public hearing. This limits participation to those with internet access.

**Commenter Affiliation:** Unknown

**Comment Number:** EPA-HQ-OLEM-2019-0173-0038

**Excerpt ID:** 58685

**Comment:** I am concerned about the limited availability for public comment. I was unable to access the virtual public hearing, and was dismayed that the timeline was not extended to allow for in-person comments at a later date. I have participated at in-person hearings in the past, and I believe they were better publicized, and are the best way to engage public participation. The current process appears to be rushed, and whether by design or not, limits the scope of public involvement, particularly in the current pandemic. I am alarmed to have such limited public notice and participation regarding the permit process.

**Response to the above comments:** EPA disagrees that holding a virtual public hearing, rather than an in-person hearing, violates any provision of RCRA. Presumably Congress envisioned in-person hearings, since the technology to hold effective virtual hearings was not available when Congress enacted 1008 (a) (3), 4004 (a), and 7004 (b). But none of these provisions specify that a public hearing must be in person. Moreover, EPA is convinced that a virtual hearing meets both the letter and the spirit of these provisions. At least part of the purpose of a hearing requirement is to ensure *local* input on from those who would be most affected by the decisions. See, e.g., House debate on HR 3994, S. Pt. 102-35 at 1082. A virtual hearing, unlike an in-person hearing, allows for the participation of potentially affected parties across the country. While it is true that some people lack Internet access, a far greater number would be unable to travel to an in-person hearing held in Washington DC. Indeed, some commenters have noted a virtual hearing promotes greater participation from remote locations. EPA has received meaningful comments in previous, virtual public hearings that have been incorporated into the agency's decision-making process to develop final actions. It is also worth noting that speaking at an in-person hearing is not the only way to participate in this rulemaking; any member of the public may submit written comments to the docket at any point during the comment period.

## 10.2 Resources needed to review submissions by EPA and Participating States

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Excerpt ID:** 59096

**Comment:** AEPCO anticipates that Applications and particularly Demonstration Packages will be voluminous and will require significant technical review time from EPA. As such, the substantive portion of the review should occur after administrative completeness has been achieved to enter the alternate liner off-ramp and have closure commencement deadlines tolled pending review.

**Response:** EPA is revising the regulatory text (now found at § 257.71(d)(2)(iii)) for the application review to state that if the application is complete and the CCR surface impoundment is eligible for an alternate liner demonstration, the deadline to cease receipt of waste will be tolled until EPA determines the demonstration is incomplete or a final decision is issued. If the application is incomplete or the application is denied, the deadline to cease receipt of waste will not be tolled.

**Commenter Affiliation:** Black Warrior Riverkeeper

**Comment Number:** EPA-HQ-OLEM-2019-0173-0045

**Excerpt ID:** 58722

**Comment:** EPA's proposed demonstration process would allow unlined ponds to remain open for an unlimited time while EPA or state regulators evaluate complex information submitted by industry, including models purporting to show hydrologic impact, laboratory analyses, and other paper demonstrations. Neither EPA nor state regulators, however, have the necessary expertise to evaluate such highly technical demonstrations, nor is there an opportunity for meaningful public review.

**Response:** EPA disagrees with the commenter's allegation that EPA or state agencies would be likely to grant such authorizations regardless of what is truly justified under the regulatory criteria. EPA and EPA's contractors have the necessary expertise to evaluate the technical information that is required in the application and demonstrations. Further, in an effort to be more transparent and allow for public participation, the public (states, environmental organizations, public citizens and associations) will have an opportunity to provide comment on the application and on the alternative liner demonstrations. A state could only implement this regulatory process if the state's CCR program included the alternate liner demonstration process and was approved by EPA. During that approval, EPA evaluates if the state has the ability to implement the program.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Excerpt ID:** 59206

**Comment:** In addition, EPA and state agencies lack the resources to fully investigate and critique these utility submissions. As a result, owners and operators would have the incentive to attempt to make claims that are not supported by adequate data and then put the burden on the agencies to dig into the data to identify deficiencies in the utility's submissions (as Dr. Sahu illustrates in his report). Particularly in light of the fact that EPA and state agencies will often face political pressure to allow these unlined impoundments to continue to operate, the process proposed here by EPA practically guarantees that some alternate liner demonstration requests will be approved, notwithstanding the impossibility of demonstrating with any degree of certainty that the conditions at those impoundments would be adequately protective of human health and the environment.

**Response:** The Agency disagrees with this comment in that EPA will not approve any demonstrations for units that are not capable of meeting the strict requirements laid out in the final rule for both the application and the demonstration. EPA disagrees with the commenters allegation that EPA or state agencies would be likely to grant such authorizations regardless of what is truly justified under the regulatory criteria. EPA and EPA's contractors have the necessary expertise to evaluate the technical information that is required in the application and demonstrations. Further, in an effort to be more transparent and allow for public participation, the public (states, environmental organizations, public citizens and associations) will have an opportunity to provide comment on the application and on the alternative liner demonstrations. A state could only implement this regulatory process if the state's CCR program included the alternate liner demonstration process and was approved by EPA. During that approval, EPA evaluates if the state has the ability to implement the program.

**Commenter Name:** Isabel Carey

**Commenter Affiliation:** Institute for Policy Integrity

**Comment Number:** EPA-HQ-OLEM-2019-0173-0121

**Excerpt ID:** 59053

**Comment:** Finally, EPA may be unable to evaluate applications and demonstration packages in the respective 60 day and four month timeframes promised by the Proposed Rule. If more facilities apply than EPA anticipates, the agency provides no assurances that reviewing authorities will have the capacity to review all applications under the timeframes indicated. The RIA assumes that between 10 and 20 units will submit an application, but EPA concedes that an "additional 65 units could join this universe if they provide evidence of passing all location restrictions and installing a certified groundwater monitoring system." Units will be highly incentivized to apply, because EPA estimates that completing the application process will cost \$118,000 but a successful application will save the average unit \$12.5 million. Ultimately the compliance tolling provided to facilities is based on EPA's response times to the initial application and the final demonstration package. If EPA cannot meet its self-imposed deadlines, these delays will further push back surface impoundment closure and risk additional CCR releases from facilities that would otherwise have initiated closure proceedings.

**Response:** EPA is committed to reviewing the applications and demonstrations as expeditiously as possible. EPA disagrees with the commenters allegation that EPA or state agencies would be likely to grant such authorizations regardless of what is truly justified under the regulatory criteria. EPA and EPA's contractors have the necessary expertise to evaluate the technical

information that is required in the application and demonstrations. Further, in an effort to be more transparent and allow for public participation, the public (states, environmental organizations, public citizens and associations) will have an opportunity to provide comment on the application and on the alternative liner demonstrations. A state could only implement this regulatory process if the state's CCR program included the alternate liner demonstration process and was approved by EPA. During that approval, EPA evaluates if the state has the ability to implement the program. Furthermore, the deadline to cease receipt of waste is no later than April 11, 2021. EPA continues to believe that decisions on the applications will be made by this date which means an application that is denied would not grant the surface impoundment more time to operate.

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Excerpt ID:** 59109

**Comment:** When EPA is considering approval of applications the importance of having consistency among the EPA Regions that might be administering the review and approvals is critical. The technical information that is likely to be contained within an application needs to be thoroughly evaluated and in doing so there can be interpretation that needs to be consistent with guidance provided by EPA headquarters.

**Response:** The owner or operator must submit the appropriate documentation to the EPA Administrator. EPA has not delegated the application or demonstration review process to the Regional Administrator. EPA Headquarters will lead and conduct the review process.

**Commenter Name:** Jonathan Levenshush, Sierra Club, Beyond Coal Campaign

**Commenter Affiliation:** Sierra Club

**Comment Number:** EPA-HQ-OLEM-2019-0173-0048

**Excerpt ID:** 58742

**Comment:** EPA's proposed demonstration process would also allow unlined ponds to remain open for an unlimited time while EPA or state regulators evaluate complex information submitted by industry, including highly technical models and other data purporting to show hydrologic impact. Neither EPA nor state regulators, however, have the necessary expertise to evaluate these complex demonstrations, nor is there an opportunity for meaningful public review.

**Commenter Name:** Angie Rosser

**Commenter Affiliation:** West Virginia Rivers Coalition (WV Rivers) et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0091

**Excerpt ID:** 58912

**Comment:** We question whether EPA and/or state regulators have the necessary expertise to evaluate the technical demonstrations

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0193

**Comment:** Neither EPA nor state agencies – i.e., State Directors have the resources to undertake the investigations in the time frames EPA has discussed in the preamble to the proposed rule.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0193

**Comment:** Additional suggestions, as noted in these comments, including use of pre-requisite nonintrusive techniques to determine the degree of homogeneity (or lack thereof) in a clay layer will add more technical complexity and burdens to state and federal agencies that they may be illequipped to handle.

**Commenter Affiliation:** Attorney General of Maryland et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0101  
**Excerpt ID:** 58996

**Comment:** States may be ill-equipped to evaluate and respond to complex modeling submitted by impoundment operators. The public, for its part, lacks the sort of information that impoundment operators possess, and thus will be ill-equipped to oppose or challenge authorization requests. Once the possibility of an alternate-liner authorization exists, the path of least resistance for agencies may be to grant such authorization, regardless of whether it is truly justified under regulatory criteria

**Response to the above comments:** EPA disagrees with the commenters' allegation that EPA or state agencies would be likely to grant such authorizations regardless of what is truly justified under the regulatory criteria. EPA and EPA's contractors have the necessary expertise to evaluate the technical information that is required in the application and demonstrations. Further, in an effort to be more transparent and allow for public participation, the public (states, environmental organizations, public citizens and associations) will have an opportunity to provide comment on the application and on the alternative liner demonstrations. A state could only implement this regulatory process if the state's CCR program included the alternate liner demonstration process and was approved by EPA. During that approval, EPA evaluates if the state has the ability to implement the program.

#### 10.43 Disqualification during Application Process

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0082  
**Excerpt ID:** 58842

**Comment:** Moreover, if at any time during this evaluation process, ongoing groundwater monitoring reveals that the impoundment is causing groundwater contamination above an applicable groundwater protection standard, the impoundment would be disqualified from the equivalency liner demonstration option and must close.<sup>100</sup> Thus, there would be regulatory safeguards to ensure that, during the liner equivalency demonstration process, the units under evaluation are not leaking and therefore pose “no reasonable probability of adverse effects on health or the environment.”

**Response:** The Agency provided a rationale of why EPA is finalizing these amendments to the regulations in Unit III.D of the final rule.

## 10.54 Opportunity for Input on Approval/Rejection Decisions

### 10.54.1 Pre-submittal Meetings Between Applicants and EPA

**Commenter Affiliation:** Salt River Project Agricultural Improvement and Power District (SRP)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0087

**Excerpt ID:** 58884

**Comment:** Given the short amount of time to assemble and submit an application after finalization of the rule, SRP anticipates preparing much of its application for the CGS Evaporation Pond before the rule is finalized. A pre-application meeting with EPA during the timeframe to submit an application would be very beneficial to ensuring that the form and substance of an application meets EPA’s expectations and to address any preliminary questions EPA may have. SRP respectfully requests that EPA consider modifying the proposed rule to include the opportunity for a pre-application meeting.

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Excerpt ID:** 58851

**Comment:** In addition to providing clarity in the final rule on the specific information needed to constitute a complete application, USWAG believes that it would be extremely useful for the Agency to allow for pre-application meetings, if requested, to address questions of applicants. Given the narrow 30-day timeframe to submit an application, the opportunity for a pre-application discussion with Agency staff to ensure that the requisite information has been assembled will help ensure that applications are complete and that the appropriate deadlines are tolled during EPA review of the application

**Response to the above comments:** EPA is extending the timeframe available for facilities to submit the initial application no later than November 30, 2020. The additional time will provide the Agency the ability to engage in a limited amount of discussion with a facility before the application submission deadline. Such discussions would need to occur before the deadline for final submission of the application.

## 10.54.2 Ability to Provide Additional Information after Deadlines

**Commenter Affiliation:** American Coal Council (ACC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0088

**Excerpt ID:** 58897

**Comment:** EPA should also allow additional or clarifying information to be provided after a complete application has been submitted, and should provide a reasonable, achievable timeframe for this to occur.

**Commenter Name:** Carolyn Slaughter

**Commenter Affiliation:** American Public Power Association (APPA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0099

**Excerpt ID:** 58975

**Comment:** In addition to clarifying when an application is complete, EPA should allow a facility to provide additional information following the submission of a complete application after the 30-day submission period. This request would not deem the initial application to be “incomplete” so long as the additional information is provided to EPA within the Agency’s 60-day review period.

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Excerpt ID:** 59099

**Comment:** Once substantive review begins after administrative completeness, the facility should have the opportunity to provide EPA additional information that EPA needs for review. EPA’s proposal does not provide for this flexibility, but should. It is difficult for a facility to anticipate all of the information that EPA may need for review prior to Application submittal. As long as administrative completeness has been achieved, the facility should be able to provide additional information without consequence, even if EPA’s request is after the Application deadline. Facilities should be able to cooperatively facilitate EPA’s review, which will benefit EPA and the facility and should be given sufficient time to respond to EPA’s requests. AEPCO suggests that the ability for facility to submit additional information based on an EPA request after the final Package deadline is critical to be clearly written in the rule. If not, Packages will need to conservatively submitted prior to the final deadline to ensure that EPA does not request more information from the facility.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Excerpt ID:** 58810

**Comment:** D. EPA should provide additional time to resubmit an application or liner demonstration if EPA finds it lacks necessary information or specificity.



The Part B proposal states that if EPA determines an application or liner demonstration lacks “necessary information or specificity,” the owner/operator will have an opportunity to resubmit the application or liner demonstration “with the required information.”<sup>59</sup> However, EPA will not accept resubmissions after the original application or liner demonstration deadlines.<sup>60</sup> While Cleco supports allowing owners/operators to resubmit applications or liner demonstrations if they do not initially include necessary information or specificity, Cleco believes that EPA should provide owners/operators with additional time beyond the original deadlines to make their resubmittals. Not doing so would produce an unjust result. In addition, an insufficient application submittal does not mean the liner itself is insufficient, which is the ultimate point of the Part B proposal for liner demonstrations.

As written, the Part B proposal forces owners/operators to build in time for the possibility that EPA will determine that their application or liner demonstration lacks necessary information or specificity. By doing so, EPA divests owners/operators of the full amount of time to prepare their submittals and effectively requires them to make their submittals well in advance of the deadlines. Even if an owner/operator makes a submittal it believes is sufficient, it is entirely possible that EPA could notify the owner/operator that the submittal lacks necessary information or specificity after the original submittal deadline has passed. Due to circumstances outside of their control, the owner/operator would be deprived of the opportunity to submit additional information, which would likely result in EPA denying the application or liner demonstration.

To address this issue, EPA should provide additional time for owners/operators to resubmit an application or liner demonstration if EPA determines the original submittal lacks necessary information or specificity. One approach is for EPA to provide a universal amount of time for owners/operators to make resubmittals. However, since preparing resubmittals will likely require different amounts of time based on particular circumstances, Cleco believes a better approach is for EPA to provide additional time on a case-by-case basis.

**Commenter Affiliation:** Great River Energy

**Comment Number:** EPA-HQ-OLEM-2019-0173-0080

**Excerpt ID:** 58824

**Comment:** As drafted, the proposed rule requires the submission of an initial application within 30 days of the effective date of the rule. While the proposed rule allows the agency to request additional information from the applicant, the regulatory text and preamble suggest that any additional requested information would not be accepted after the initial submittal deadline (FR Vol 85 No. 42 12459). Not accepting additional information after the initial application deadline would effectively preclude the potential for coordination with the agency on the application contents.

Thirty days does not provide enough time for the following: develop and submit an initial application; review of the application by the agency; a request by the agency to provide additional information; and the applicant to develop and provide the requested additional information.

The final rule should be crafted to allow the submission of information requested by the agency after the submittal deadline. This will provide the applicant and the reviewing agency an opportunity to coordinate to ensure that enough information is available for the agency to make an informed decision on eligibility for the alternative liner provisions.

**Commenter Name:** Greg Snellen

**Commenter Affiliation:** Missouri Department of Natural Resources

**Comment Number:** EPA-HQ-OLEM-2019-0173-0093

**Excerpt ID:** 58917

**Comment:** Section IV.A. Alternate Liner Demonstration, Submission of Alternate Liner Demonstration and Approval Process, p. 12461: “EPA is proposing that the owner or operator must submit the facility’s alternate liner demonstration to EPA no later than one year after the deadline for submission of the initial application (i.e., 13 months after the effective date of a final rule), with all the data, analyses and conclusions certified by a professional engineer. If the demonstration is found by EPA to lack necessary information or specificity, EPA will notify the facility as expeditiously as possible and the facility may have an opportunity to resubmit with the required information. However, no resubmissions will be accepted after the deadline.” (emphasis added)

Comment: 40 C.F.R. § 257.71(d)(2)(i) Deadlines for Submission, p. 12476: “The owner or operator must submit the demonstration required under paragraph (d)(1)(B) of this section to EPA for approval no later than one year after the deadline for the initial application.”

The Department recommends additional time be allowed (up to 90 days) to revise and resubmit the demonstration based on time needed for regulatory review. A hard deadline of 13 months from the effective date of a final rule may not allow opportunity to adequately address comments. See Comment 18 below.

**Commenter Name:** Greg Snellen

**Commenter Affiliation:** Missouri Department of Natural Resources

**Comment Number:** EPA-HQ-OLEM-2019-0173-0093

**Page(s):** 6-7

**Excerpt ID:** 58923

**Comment:**

40 C.F.R. § 257.71(d)(2)(i) Deadlines for Submission, p. 12476: “The owner or operator must submit the demonstration required under paragraph (d)(1)(B) of this section to EPA for approval no later than one year after the deadline for the initial application.”

Comment: The Department recommends additional time be allowed (up to 90 days) to revise and resubmit the demonstration based on time needed for regulatory review. A hard deadline of 13 months from the effective date of a final rule (one year after the initial application is due) may not allow opportunity to adequately address comments. See Comment 4 above.

**Commenter Name:** Tawny Bridgeford

**Commenter Affiliation:** National Mining Association (NMA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0095

**Excerpt ID:** 58933

**Comment:** EPA should allow applicants to submit additional information to the agency after the application deadline (a 30-day submission period). If EPA requests additional information past this deadline, the agency should not deem the facility's initial application to be "incomplete" as long as it is provided to EPA within the agency's 60-day review period

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Excerpt ID:** 58714

**Comment:** We agree that it is appropriate for a facility to be able to provide additional information that EPA may request as necessary to complete its review. However, it currently is unclear how that request for additional information relates to the initial 30-day deadline for submittal of the application or to the completeness determination. Presumably, EPA will be able to make any requests for additional information only after the application has been submitted, which would be outside the initial 30-day window, and that such requests would not automatically deem the application incomplete. We propose that EPA clarify this and indicate that EPA will include in its request for additional information a reasonable timeline for submittal of the information that is consistent with the nature of the request and effort necessary to provide the information.

**Response to the above comments:** EPA is extending the timeframe available for facilities to submit the initial application to be no later than November 30, 2020. EPA believes that this timeframe is more appropriate for facilities to prepare and submit the application and aligns with the Part A final rule. The additional time will also provide the Agency the ability to engage in a limited amount of discussion with a facility before the application submission deadline. Such discussions would need to occur before the deadline for final submission of the application.

**Commenter Name:** Dorothy Kellogg

**Commenter Affiliation:** National Rural Electric Cooperative Association (NRECA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0096

**Excerpt ID:** 58947

**Comment:** EPA (or the Participating State Director) should be allowed to ask for additional information after a "complete application" is submitted.

**Response:** EPA is extending the timeframe available for facilities to submit the initial application to be no later than November 30, 2020. EPA believes that this timeframe is more appropriate for facilities to prepare and submit the application, and it aligns with the Part A final rule. The additional time will also provide the Agency the ability to engage in a limited amount of discussion with a facility before the application submission deadline. Such discussions would need to occur before the deadline for final submission of the application.

Further discussion of EPA’s rationale about what information is required to constitute a complete application is included in Unit III.D.1.b of the final rule preamble.

**Commenter Affiliation:** Salt River Project Agricultural Improvement and Power District (SRP)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0087

**Excerpt ID:** 58883

**Comment:** SRP agrees with USWAG’s comments that the final rule must be clear on what constitutes a “complete application” and that EPA should allow additional information to be provided following submission of a complete application if necessary.

**Response:** Discussion of EPA’s rationale about what information is required to constitute a complete application is included in Unit III.D.1.b of the final rule preamble.

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Excerpt ID:** 58852

**Comment:** EPA should allow additional information to be provided following submission of a complete application. Once a complete application has been submitted, it is conceivable that the Agency may want to ask the facility for additional or clarifying information to confirm the eligibility of the impoundment. EPA seems to acknowledge this in the Proposal, stating that the Agency “may request additional information as necessary to complete its review.” However, the Proposal also states that although a facility may have an opportunity to resubmit additional information, “no resubmissions will be accepted after the initial application deadline.” Thus, it is not clear whether the Agency intends to allow additional information to be submitted after the application deadline, even if the Agency believes such information is needed to make an eligibility determination.

If EPA reviews a complete application but determines that additional information is needed, a facility should not be precluded from providing that information. And it does not make sense to require this to occur prior to the application deadline. The Proposal allows only 30 days from the effective date of a final rule to submit an application. That is an altogether insufficient time for (1) a facility to submit the application, (2) EPA to review and comment on that application, and (3) the facility to compile and submit additional information at the Agency’s request within that 30-day window. EPA should make it clear in the final rule that facilities can provide additional information to the Agency as requested following the 30-day submission period and that this request will not deem its initial application to be “incomplete,” as long as it is provided to EPA within the Agency’s 60-day review period.

**Response:** EPA is extending the timeframe available for facilities to submit the initial application to be no later than November 30, 2020. EPA believes that this timeframe is more appropriate for facilities to prepare and submit the application and aligns with the Part A final rule. The additional time will also provide the Agency the ability to engage in a limited amount

of discussion with a facility before the application submission deadline. Such discussions would need to occur before the deadline for final submission of the application.

Further discussion of EPA's rationale about what information is required to constitute a complete application is included in Unit III.D.1.b of the final rule preamble.

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### 10.54.3 Public Comment

**Commenter Affiliation:** Black Warrior Riverkeeper  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0045  
**Excerpt ID:** 58723

**Comment:** EPA's proposed demonstration process would allow unlined ponds to remain open for an unlimited time while EPA or state regulators evaluate complex information submitted by industry, including models purporting to show hydrologic impact, laboratory analyses, and other paper demonstrations. Neither EPA nor state regulators, however, have the necessary expertise to evaluate such highly technical demonstrations, nor is there an opportunity for meaningful public review.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0192  
**Excerpt ID:** 59177

**Comment:** Further, EPA is only proposing to allow a 30- day public comment period on any approval of a demonstration, which does not provide sufficient opportunity for members of the public to review and comment on such highly complex, technical documents.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0192  
**Excerpt ID:** 59209

**Comment:** The Proposal Fails to Provide for Adequate Public Participation in the Demonstration Process, in Violation of RCRA.

The Part B Proposal would provide for a thirty-day public comment period on any proposed approval of an alternate liner demonstration. Because EPA has not proposed that utilities' alternate liner applications and demonstration packages be publicly posted prior to a proposed approval, the beginning of the thirty-day comment period would likely be the first time that the vast majority of the public would have the opportunity to review many of the highly complex, technical documents that would form the basis of EPA's decision – documents that the utility and the Agency would have spent months or even years preparing and reviewing. Moreover, the proposed regulatory language only requires EPA or a state permitting agency to publish notice of its approval decision on its website, rather than taking additional steps (such as publication in the Federal Register or state equivalent, and/or publication in newspapers of general circulation in the impacted community) to ensure that the public receives sufficient notice of the proposed decision. This does not provide an adequate opportunity for the public to be able to review,

evaluate, and give meaningful comment on a decision that could have serious impacts on the wellbeing of the surrounding community.

In order for a member of the public to participate in this process, they would have to regularly monitor the permitting agency's website and also have the capacity to quickly review and comment on highly complex, technical documents, many of which would require expertise in specialized fields such hydrology or engineering to fully understand. The proposed provision thus would place a heavy burden on the public to provide meaningful and informed comments that all but the most sophisticated commenters would find it impossible to meet. Accordingly, the proposed public comment period does not satisfy the statutory requirement that public participation in the implementation and enforcement of any regulation or program under federal solid waste law be "provided for, encouraged, and assisted by" EPA. Approval of an alternate liner demonstration that would allow the continued operation of dangerous, leaking impoundments should be afforded the same level of public participation as a permitting action, with the requisite notice and opportunity for public comment and hearing. EPA's failure to do so creates the reasonable probability that threats to health and the environment will be overlooked, thereby resulting in adverse effects in violation of § 4004(a) of RCRA.

**Commenter Name:** Jonathan Levenshus, Sierra Club, Beyond Coal Campaign

**Commenter Affiliation:** Sierra Club

**Comment Number:** EPA-HQ-OLEM-2019-0173-0048

**Excerpt ID:** 58743

**Comment:** EPA's proposed demonstration process would also allow unlined ponds to remain open for an unlimited time while EPA or state regulators evaluate complex information submitted by industry, including highly technical models and other data purporting to show hydrologic impact. Neither EPA nor state regulators, however, have the necessary expertise to evaluate these complex demonstrations, nor is there an opportunity for meaningful public review.

**Commenter Name:** Angie Rosser

**Commenter Affiliation:** West Virginia Rivers Coalition (WV Rivers) et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0091

**Excerpt ID:** 58913

**Comment:** Additionally, there is no opportunity for the public to review and submit comments.

**Response to the above comments:** The Agency has included in the final regulation an additional public comment period during application review; this is discussed in Unit III.D.1.b of the final rule preamble, along with a discussion of the public comment period that will occur during demonstration review, which is described in Unit III.D.2.b of the preamble. To allow more public participation, EPA will post all final decisions on EPA's website and in the appropriate docket. The facility must post copies of the application and its demonstration, in addition to the Agency's final decision on the facility's publicly accessible CCR Internet site.

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#### 10.54.4 Ability for Facility to Respond to Public Comment or Amend Demonstration

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Excerpt ID:** 58818

**Comment:** VI. EPA must provide owners/operators the opportunity to respond to public comments on demonstration decision.

The Part B proposal states that after reviewing an alternate liner demonstration package, EPA will publish a proposed decision for a 30-day public comment period. After considering the comments, EPA will then issue a final decision within four months of receiving the complete demonstration. If EPA does not receive substantive comments, the proposed decision becomes effective five days after the comment period closes.

Public input is an important element of the liner demonstration process, and Cleco supports EPA including a public comment period. It is equally important for owners/operators to have an opportunity to respond to public comments regarding their demonstrations. While EPA may solicit feedback from owners/operators about certain comments, nothing in the Part B proposal expressly requires the Agency to do so. To address this issue, Cleco requests that EPA state in the rule that owners/operators have the right to respond to public comments EPA receives regarding proposed decisions on their liner demonstrations.

**Response:** EPA disagrees a specific rebuttal process is appropriate. The facility will have the opportunity to provide its best case in the application and the demonstration and will be able to comment on EPA's proposed decision during the comment period. There is no reason that a third opportunity to present information is appropriate or necessary.

**Commenter Name:** Greg Snellen

**Commenter Affiliation:** Missouri Department of Natural Resources

**Comment Number:** EPA-HQ-OLEM-2019-0173-0093

**Excerpt ID:** 58918

**Comment:** Section IV.A. Alternate Liner Demonstration, Submission of Alternate Liner Demonstration and Approval Process, p. 12462: "EPA will review each submitted demonstration and post a tentative approval or denial for public comment on EPA's website. After reviewing the comments, EPA will then take final action on each submitted demonstration." (emphasis added)

**Comment:** The Department recommends providing the owner or operator of the facility an opportunity to respond to public comments on the tentative approval or denial prior to EPA or the Participating State Director taking final action on the submitted demonstration. See Comment 19 below.

**Response:** EPA disagrees a specific rebuttal process is appropriate. The facility will have the opportunity to provide its best case in the application and the demonstration and will be able to comment on EPA's proposed decision during the comment period. There is no reason that a third opportunity to present information is appropriate or necessary.

**Commenter Name:** Greg Snellen

**Commenter Affiliation:** Missouri Department of Natural Resources

**Comment Number:** EPA-HQ-OLEM-2019-0173-0093

**Excerpt ID:** 58924

**Comment:** 40 C.F.R. § 257.71(d)(2)(v) Demonstration Review, p. 12476: “After consideration of the comments, EPA or the Participating State Director will issue its decision on the alternate liner demonstration package within four months of receiving a complete alternate liner demonstration package. If no substantive comments are received, the proposed decision will become effective five days from the close of the comment period.”

Comment: The Department recommends affording the owner or operator of the facility an opportunity to respond to public comments prior to EPA or the Participating State Director issuing its final decision on the alternate liner demonstration. The proposed four-month timeline does not allow sufficient time for submission of a complete alternate-liner demonstration, a comment period that includes the owner’s or operator’s response, and the review of comments and final decision by the EPA or Participating State Director. The Department recommends an additional 60 days to allow for response to public comments and any necessary revision to the liner demonstration. This methodology would be consistent with other RCRA permitting programs where the public is afforded the opportunity to comment on Class 3 modifications and the permittee is allowed an opportunity to respond. A 60-day window would allow for the public comments to be considered adequately and responded to by both the owner/operator and EPA or the participating state. See Comment 5 above

**Response:** EPA disagrees a specific rebuttal process is appropriate. The facility will have the opportunity to provide its best case in the application and the demonstration and will be able to comment on EPA’s proposed decision during the comment period. There is no reason that a third opportunity to present information is appropriate or necessary.

## 10.75 Other Comments on Compliance Requirements

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Excerpt ID:** 59198

**Comment:** The harms from delay in closure of leaking unlined impoundments that would be caused by the alternate liner provision are further exacerbated by the proposed provision that the demonstration, if granted, is not automatically revoked if evidence that the impoundment is contaminating groundwater is detected. Instead, if a statistically significant increase of an Appendix III contaminant is detected, the owner or operator would be permitted to continue operating the unit pending either Appendix IV assessment monitoring or preparation of an alternate source demonstration. And even then, if assessment monitoring reveals exceedance of a groundwater protection standard, the owner or operator would be given an additional opportunity to attempt to put source controls in place before closure would be required. These additional harmful delays in requiring these unlined impoundments to begin closing are totally unjustified, contrary to law, and arbitrary and capricious.



**Response:** EPA has revised its proposal to remove the opportunity for units to implement source control. The final rule requires that if a unit with an approved alternate liner demonstration enters into assessment monitoring, the facility must, in addition to their regular groundwater monitoring, conduct additional intra-well analysis to identify any trend of increasing concentrations of appendix IV constituents in groundwater. If the identified trendline is steep enough that it would result in an exceedance of a GWPS at any point during the active life of the unit, the facility must close the unit. EPA explains the factual basis for its conclusion that this will be protective in Unit III.D.5 of the preamble.

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Excerpt ID:** 58710

**Comment:** Xcel Energy agrees that a facility should be in compliance with applicable provisions of the CCR Rule in order to qualify to make an alternate liner equivalency demonstration, as stated in the preamble on page 12459, ‘Along with the letter, the owner or operator must submit information to EPA documenting that the facility is in compliance with the applicable requirements in 40 CFR 257 subpart D, including the location restrictions.’

**Response:** The Agency provided a rationale of why EPA is finalizing these amendments to the regulations, in Unit III.B of the final rule preamble.

## Chapter 11 Documentation Required to Demonstrate Continued Compliance after Approval

### 11.1 Need for Periodic Recertification

#### 11.1.1 One-Time Certification is Appropriate

**Commenter Name:**

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Page(s):** 45

**Excerpt ID:** 58862

**Comment:**

F. The Alternative Liner Demonstration is Appropriately Proposed as a OneTime Demonstration.

Under the Proposal, an approved demonstration would be effective for the remaining active life of the unit. USWAG agrees with EPA that this is appropriate because “the demonstration must show that the design for the surface impoundment would not result in exceedances of the GWPS at any point in the future.” By making this showing, there is no need to “remake” the demonstration in the future. Moreover, as noted by EPA, groundwater monitoring at the site will continue. If, at any point in the future, groundwater monitoring data indicates that the original

demonstration may have been made in error, facilities would be required to conduct additional analyses to show that the unit will not exceed a groundwater protection standard during the life of the unit. If the owner/operator is unable to do so, EPA can revoke the authorization. This process is appropriate and meets the RCRA Subtitle D protectiveness standard.

**Commenter Name:**

**Commenter Affiliation:** American Coal Council (ACC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0088

**Page(s):** 5-6

**Excerpt ID:** 58901

**Comment:**

Appropriateness of One-time Demonstration

EPA proposes that an approved demonstration would be effective for the remaining active life of the impoundment facility. EPA notes that groundwater monitoring at the site will continue. If groundwater monitoring data at a future time indicates that the original demonstration may have been made in error, a facility would be required to conduct additional analyses to demonstrate the ability to meet the protectiveness standard. If the owner or operator cannot to do so, EPA can revoke the authorization.

**Commenter Name:** Tawny Bridgeford

**Commenter Affiliation:** National Mining Association (NMA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0095

**Page(s):** 6

**Excerpt ID:** 58941

**Comment:** Duration of the Demonstration: NMA supports EPA's proposal that the alternate liner demonstration is a one-time demonstration that if approved would be effective for the remaining active life of the unit. This is appropriate and reasonable given that "the demonstration must show that the design for the surface impoundment would not result in exceedances of the [groundwater protection standards] at any point in the future." Plus, there are safeguards in place which require facilities to conduct additional analyses to show that the unit will not exceed those standards during the life of the unit. If the owner or operator is unable to do so, EPA can revoke the authorization. This process is appropriate and meets the RCRA Subtitle D protectiveness standard.

**Commenter Name:** Dorothy Kellogg

**Commenter Affiliation:** National Rural Electric Cooperative Association (NRECA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0096

**Page(s):** 2-3

**Excerpt ID:** 58944

**Comment:** We also believe that Participating State Directors should be allowed to review and approve alternative liner demonstrations in states with approved programs, and that a one-time

successful alternative liner demonstration is appropriate so long as conditions at the unit do not change.

**Response [to the above comments](#):** As discussed in more detail in Unit III.D.4 of the preamble to the final rule, the Agency agrees that a one-time certification for alternate demonstration process is appropriate.

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#### 11.1.2 Facilities Should Periodically Recertify

**Commenter Name:**  
**Commenter Affiliation:** Unknown  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0038  
**Page(s):**  
**Excerpt ID:** 58682

**Comment:**

I am concerned about the proposed federal coal ash permit program and its impact on our local community. A permit without expiration does not provide for periodic review or renewal of those sites.

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**Commenter Name:**  
**Commenter Affiliation:** Unknown  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0038  
**Page(s):**  
**Excerpt ID:** 58684

**Comment:**

The four coal ash ponds at the former Wood River plant in Illinois are near a densely populated area, and have already been documented with groundwater contamination of toxic contaminants, as noted in a statewide groundwater monitoring report from 2019. A lifetime permit for this site without needed provisions for review/renewal would be a mistake.

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**Commenter Name:**  
**Commenter Affiliation:** Harvard GSAS Environmental Action Team (GrEAT)  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0122  
**Page(s):** 3  
**Excerpt ID:** 59065

**Comment:** The first line of evidence requires characterization of site-specific hydrogeology that surrounds the surface impoundment. The proposed rule recognizes the difficulty of

characterizing complex hydrogeology. However, the rule also states that the “approved demonstration will be effective for the remaining active life of the unit since the demonstration must show that the design of the surface impoundment would not result in exceedances of the GWPS at any point in the future.” This implies that site-specific hydrogeology can be characterized effectively one time. However, changes at the surface can have profound impacts on site-specific hydrogeology. Agricultural development, irrigation systems, urban development, industrial development, and drainage of the land surface can have significant effects on groundwater by changing surface water systems, including wetlands; by altering water flow patterns, including runoff and drainage, that affect groundwater recharge; and by changing water availability (Winter et al. 2013). All of these effects can alter site-specific hydrogeology on short time scales. Moreover, climate change is altering many processes that impact hydrogeology. Notably, climate change results in significant changes in the frequency and quantity of precipitation (Hengeveld 2000, Le Treut et al. 2007, Mearns et al. 2007, Clifton et al. 2018, Persaud et al. 2020). These changes are expected to alter surface-water levels and groundwater recharge (Green et al. 2011). Similarly, rising sea level and more extreme weather events may increase the frequency and extent of flooding events and of salt water intrusion (Oppenheimer et al. 2019). Vengosh et. al, (2019) provided evidence for unmonitored coal ash spills in North Carolina following a hurricane, showing that rare storm events can cause significant spillage. These effects and others can influence site-specific hydrogeology on increasingly short timescales as climate change accelerates (Allen et al. 2019). The possibility of changes in site-specific hydrogeology on short time scales means that the safety of impoundments with alternate liners may also change on short time scales. As a result, EPA should require that owners and operators demonstrate the safety of alternate liners on a regular basis.

**Commenter Name:**

**Commenter Affiliation:** Harvard GSAS Environmental Action Team (GrEAT)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0122

**Page(s):** 3

**Excerpt ID:** 59066

**Comment:** Changes in site-specific hydrogeology may also influence the hydraulic conductivity of alternate liners. Many of these changes can increase ground and surface water contamination, which may in turn influence the hydraulic conductivity of alternate lining (i.e. Setz et al. 2017). Changes in the subgrade water content can also affect hydraulic conductivity (Kerry Rowe et al. 2019). These findings reinforce the need for owners and operators to demonstrate the safety of alternate liners on a regular basis

**Response [to the above comments](#):** The Agency disagrees with the commenter for the reasons detailed in Unit III.D.4 of the preamble to the final rule.

## 11.2 Method to Determine Ongoing Compliance

### 11.2.1 Use of Groundwater Monitoring Not Appropriate to Determine Compliance

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 17-18

**Excerpt ID:** 59108

**Comment:**

The Proposed Rule includes a provision that would remove a facility's authorization to use an alternate liner. In other words, a facility would proceed through the rigorous liner demonstration process and obtain approval from EPA to use the alternate liner. Then, at some point in the future, that authorization would be retracted. Obviously, there are significant monetary and regulatory stakes in this process for a facility that had previously cleared the considerable hurdle to obtain alternate liner approval.

EPA lays out the criteria for losing authorization. Curiously, none of the criteria actually focus on whether there was a change in circumstances with respect to the liner itself. Rather EPA proposed to revoke authorization based on groundwater data. Although the liner demonstration process requires a high level of technical detail concerning the site and liner system, a facility can lose authorization without any analysis of whether there has been a change in either the site conditions or the liner itself. This is a patent flaw and must be corrected. EPA's de-authorization process makes an assumption that if a facility moves into assessment monitoring or there is evidence in EPA's eye, again a subjective judgment, that the unit "may exceed the groundwater protections standard" then EPA may revoke the authorization upon reevaluation. Other circumstances may be present. For example, a facility may conduct a successful alternate source demonstration that did not conclude until the unit had to move into assessment monitoring. By merely moving into assessment, that facility would put its alternate liner authorization at risk.

De-authorization should not rest solely on groundwater data. A more tailored approach to loss of authorization would focus on the liner itself. The evaluation would instead examine changes to the liner itself or changes in the site soils, hydrology or the site-specific conditions that EPA evaluated when issuing the alternate liner authorization.

**Response:** EPA disagrees with the commenter for the reasons detailed in Unit III.D.5.a of the preamble to the final rule.

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#### 11.2.2 Use of Trend Analysis is Not Appropriate

**Commenter Name:**

**Commenter Affiliation:** Lower Colorado River Authority (LCRA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0100

**Page(s):** 5-6

**Excerpt ID:** 58985

**Comment:**

In the preamble on page 12462 and in 257.7 (d)(2)(vii), EPA has modified the Assessment Monitoring program for units with an approved alternate liner demonstration:

To ensure that no exceedances of GWPS will occur in the future, EPA is proposing that facilities that trigger assessment monitoring must also conduct intra -well analyses on each downgradient well as part of subsequent groundwater monitoring reports to identify any trends of increasing concentrations. If there is evidence that the unit may exceed GWPS before source control measures will be put in place (e.g., dewatering, impermeable cap, clean closure), then the authorization would be reconsidered.

and

257.7 (d)(2)(vii) Loss of authorization. (A) If at any time assessment monitoring pursuant to § 257.95 is triggered for the unit, the facility must conduct intra-well analyses on each well as part of subsequent groundwater monitoring reports to identify any trends of increasing concentrations. If there is evidence that the unit may exceed the groundwater protection standard for any constituent within the operational life of the unit, EPA or the Participating State Director will reevaluate the authorization, and may revoke it if source control measures cannot be put in place while the unit continues to operate.

LCRA questions the validity of EPA's proposal to use a trend graph prior to the application of the statistical methods described in § 257.95. The 2015 rule is very prescriptive about how statistical methods will be selected:

The rule requires the owner or operator to select from among the listed statistical procedures based on a determination that the test is appropriate for evaluating groundwater at that site. The statistical method chosen must be appropriate for the distribution of chemical parameters or hazardous constituents. The rule has been revised to include the clarification that normal distributions of data values shall use parametric methods and nonnormal distributions shall use a nonparametric methods. The rule identifies four statistical procedures, along with an alternative procedure that must meet the performance standard of § 257.93(g).

As proposed in § 257.71 (d)(2)(vii), EPA is prescribing an empirical method to determine if a GWPS will be exceeded in the future. This method is superficial, subjective, and does not meet EPA's own performance stated in § 257.93(g). EPA's proposal does not provided guidance as to how to interpret such trends or at what point the trend would reliably show the potential for an exceedance of a GWPS. The use of a trend to make such a prediction is inconsistent and inferior to the statistical methods describe in the 2015 rule. In the proposal, EPA has failed to provide a sufficient demonstration of a correlation of such trends to actual statistically significant increases under § 257.95. The use of a trend analysis as a predictive tool for an exceedance of a GWPS is not supported in the EPA record to this proposal and is, therefore, arbitrary and capricious. LCRA requests that EPA remove the reference to a trend analysis and rely solely on the requirements contained in § 257.95

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEP CO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 9-10

**Excerpt ID:** 59082

**Comment:** EPA also raises the regulatory bar in the loss of authorization process. Again, all CCR impoundments must have a level playing field. All existing CCR impoundments are already subject to closure upon a statistical exceedance of a groundwater protection standard (GWPS). However, the loss of authorization process creates additional hurdles for CCR units that will operate under an alternate liner authorization. In particular, EPA proposes to require those units to conduct intra-well analyses if the unit moves into assessment monitoring. Intra-well analyses are not currently required by the CCR Rule. In addition, EPA imposes a higher level of scrutiny if the unit is in assessment monitoring by allowing an authorization to be revoked if “there is evidence that the unit may exceed the groundwater protection standard for any constituent within the operation life of the unit.” Again, EPA places itself in the role of fortune teller concerning a CCR unit’s operations for the next twenty to thirty years using today’s groundwater data as the basis for making such a prediction. This analysis opens up significant subjectivity and places facilities with alternate liners under a heightened RCRA protectiveness standard. This is inequitable and unnecessary. As further articulated infra, the loss of authorization provisions need substantial revision to address these concerns.

**Commenter Name:**

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Page(s):** 17-18

**Excerpt ID:** 59394

**Comment:** Lastly, if a facility loses authorization to use its alternate liner, EPA must provide a timeline for that facility to commence closure. Liner authorization could be lost at any point in the near or distant future of the life of the CCR Unit, which is not predictable. The timeline should be considered on a case-by-case basis by EPA or the Participating State. A one-size-fits-all timeline does not work. We suggest that EPA could articulate the facility-tailored commence closure deadline in the written loss of authorization notification. The Loss of Authorization provisions in the Final Rule should identify this expectation of EPA or the Participating State by stating that an alternate closure commencement deadline will be identified in the loss of authorization notification.

**Response [to the above comments:](#)** EPA disagrees with the commenter for the reasons detailed in Unit III.D.5.b.i of the preamble to the final rule.

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### 11.3 Other Comments

#### 11.3.1 Facilities Should be Allowed to Conduct Alternate Source Demonstration

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Page(s):** 28-29

**Excerpt ID:** 58819

**Comment:**

VII. EPA must allow owners/operators to make alternate source demonstrations before revoking a liner demonstration.

Under the Part B proposal, if a surface impoundment with an approved liner demonstration triggers assessment monitoring, the owner/operator must conduct intra-well analyses to identify any trends of increasing constituent concentrations. "If there is evidence that the unit may exceed the [GWPS] for any constituent within the operational life of the unit, EPA . . . will reevaluate the authorization and may revoke it if source control measures cannot be put in place while the unit continues to operate." The preamble states that if an owner/operator detects an Appendix III SSI, "the facility must either complete an alternate source demonstration or initiate assessment monitoring pursuant to § 257.95." Cleco requests that EPA make clear in the rule itself that owners/operators that detect an Appendix III SSI or an Appendix IV SSL have the opportunity to complete an alternate source demonstration before assessment monitoring, or corrective action for Appendix IV SSL, is required.

**Commenter Name:**

**Commenter Affiliation:** Great River Energy

**Comment Number:** EPA-HQ-OLEM-2019-0173-0080

**Page(s):** 3

**Excerpt ID:** 58826

**Comment:** The proposed rule appropriately allows alternative liner approval for facilities even if they are in assessment monitoring or have results that exceed groundwater protection standards. The relevant consideration for approving an alternative liner is the protectiveness of the liner. The proposed rule specifies that the approval must be based on the site hydrogeology and the potential for infiltration. As a result, facilities that are in assessment monitoring, and even those where groundwater protection standards have been exceeded, may have their alternative liner approved if the required lines of evidence are provided. This is appropriate because, as the CCR rules acknowledge, there is potential for alternative sources and/or background water quality to lead to exceedances of groundwater protection standards. In addition, as the CCR rule contemplates there is potential for facilities in assessment monitoring to returning to detection monitoring. In either of these cases, if the liner is demonstrated to be protective it should be approved.

**Commenter Name:** Dorothy Kellogg

**Commenter Affiliation:** National Rural Electric Cooperative Association (NRECA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0096

**Page(s):** 3

**Excerpt ID:** 58949

**Comment:** 6. Being in assessment monitoring or detecting exceedance of a groundwater protection standard should not make a site ineligible for consideration or preclude approval of an



alternative liner design when the plant can demonstrate that the groundwater exceedances are from sources other than the CCR unit.

**Response [to the above comments](#):** The applicability of alternate source demonstrations to alternately lined impoundments is discussed in Unit III.D.5.b.ii of the preamble to the final rule.

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### 11.3.2 Facilities Should Not be Granted Additional Time to Attempt Repairs

**Commenter Name:**

**Commenter Affiliation:** Attorney General of Maryland et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0101

**Page(s):** 4

**Excerpt ID:** 58993

**Comment:** Indeed, the proposal flies in the face of what USWAG said about repairing clay-lined impoundments that are found to leak. As noted, USWAG rejected, as an “unsupported supposition,” EPA’s premise that “leaking clay liners . . . can be repaired.” 901 F.3d at 431; see id. at 432 (stressing that “[t]here is no evidence in the record supporting the EPA’s assumption that clay liners are reasonably susceptible of repair”). The Part B Proposal, like the provision that the D.C. Circuit rejected in USWAG, rests on the premise that leaking clay-lined impoundments can be repaired: if such an impoundment satisfies EPA’s alternate lining criteria, then it can operate until “there is evidence that the unit may exceed the groundwater protection standard for any constituent within the operational life of the unit.” Fed. Reg. at 12,477. At that point, its authorization “may [be] revoke[d]” in the event that “source control measures cannot be put in place while the unit continues to operate.” Id. The Part B Proposal thus contemplates repair of clay-lined impoundments. Yet EPA has pointed to no evidence elevating reparability of such impoundments beyond an “unsupported supposition,” 901 F.3d at 431, nor has it even proposed to require evidence of reparability in order for a facility to operate with an alternate lining in the first place. In this respect, too, the Part B Proposal flouts USWAG and is thus unlawful.

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 28-29

**Excerpt ID:** 59197

**Comment:** The harms from delay in closure of leaking unlined impoundments that would be caused by the alternate liner provision are further exacerbated by the proposed provision that the demonstration, if granted, is not automatically revoked if evidence that the impoundment is contaminating groundwater is detected. Instead, if a statistically significant increase of an Appendix III contaminant is detected, the owner or operator would be permitted to continue operating the unit pending either Appendix IV assessment monitoring or preparation of an alternate source demonstration. And even then, if assessment monitoring reveals exceedance of a groundwater protection standard, the owner or operator would be given an additional opportunity to attempt to put source controls in place before closure would be required. These additional harmful delays in requiring these unlined impoundments to begin closing are totally unjustified, contrary to law, and arbitrary and capricious.

**Response [to the above comments](#):** EPA has revised the final rule to provide that if a unit with an approved ~~ALD~~[alternate liner demonstration](#) enters into assessment monitoring, the facility must, in addition to their regular groundwater monitoring, conduct additional intra-well analysis to identify any trend of increasing concentrations of [part 257](#) appendix IV constituents in groundwater. If the identified trendline is steep enough that it would result in an exceedance of a GWPS at any point during the active life of the unit, the facility must close the unit. Further details are provided in Unit III.D.5.b.iii of the preamble to the final rule.

## Chapter 12 Alternative Closure Availability for Facilities with Denied Application or Demonstration

### 12.1 Deadline Tolling of Seeking Alternative Capacity During Application/Demonstration Process

**Commenter Affiliation:** American Coal Council (ACC)  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0088  
**Excerpt ID:** 58899

**Comment:** It is important for EPA to clarify and revise certain aspects of its § 257.103 provisions for those units applying for the alternative liner demonstration. EPA should be clear that facilities submitting an application do not need to seek alternative capacity during the period of the application review and demonstration. To qualify for the § 257.103 provisions, a facility owner or operator must show its ongoing efforts to obtain alternative disposal capacity or that it was infeasible to complete the measures necessary to obtain alternative disposal capacity by November 30, 2020. This showing should not be required until a facility is certain it must close.

**Commenter Name:** Carolyn Slaughter  
**Commenter Affiliation:** American Public Power Association (APPA)  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0099  
**Excerpt ID:** 58977

**Comment:** APPA recommends EPA clarify that facilities that submit an alternative liner application do not need to “seek alternative capacity” during the application review and demonstration submission period. As proposed in the Part A rule, an owner/operator need only show continued efforts are being made to obtain alternative disposal capacity or that it was infeasible to complete the measures necessary to obtain alternative disposal capacity by November 30, 2020.<sup>35</sup>

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0123  
**Excerpt ID:** 59106

**Comment:** In addition, EPA should not have the expectation that facilities will continue securing alternate disposal capacity during the time period that the facility is participating in the liner demonstration review process. In other words, facilities should not be expected to outlay expenses to construct new capacity while participating in the liner demonstration process.<sup>12</sup> As previously noted in its Closure Part A Comments, AEPCO is still not “on notice” such that a

\$27.3 million dollar financial commitment can be secured and justified to its members until closure is certain. Until a facility's liner demonstration is denied, that certainty is not available. A final decision from EPA on Apache's liner demonstration would provide the finality that is needed before AEPCO can begin making significant financial commitments for the Apache CCR impoundment retrofit project. That time period must be backed out of the facility's timeline in an extension request if the liner demonstration fails. As previously stated infra, this decision could be accelerated to the Application phase if EPA agrees with AEPCO's approach.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Excerpt ID:** 58815

**Comment:** EPA must clarify that owners/operators who submit an initial application or liner demonstration do not need to "seek alternative capacity" while they await a decision from EPA.

The site-specific alternative capacity demonstration requires owners/operators to discuss "the progress the owner or operator has made to obtain alternative capacity for the CCR and/or non-CCR wastestreams." Cleco believes that owners/operators who submit an alternate liner application and/or demonstration should not be required to seek alternative disposal capacity while they await EPA's determination, since (1) the cease receipt of waste deadline is tolled while EPA reviews liner applications and demonstrations, and (2) owners/operators should not be required to obtain alternative disposal capacity until they are certain they must close their surface impoundment. Accordingly, Cleco requests that EPA expressly state that owners/operators who engage in the alternate liner demonstration process are not required to seek alternative disposal capacity until after EPA makes a final decision

**Commenter Affiliation:** Great River Energy

**Comment Number:** EPA-HQ-OLEM-2019-0173-0080

**Excerpt ID:** 58827

**Comment:** Facilities that submit an alternative liner demonstration should not be required to continue to seek alternative capacity while their demonstration is under review by the agency. As currently drafted, the Part A rule requires an owner to show that it continues to make efforts to obtain alternative disposal capacity. Continuing to seek alternative disposal capacity during the review would require expenditures and resources to design, engineer, permit, and potentially even initiate construction of new disposal capacity that will be unnecessary if the alternative liner is approved. Therefore, EPA should make it clear that it is not necessary to continue to seek alternative disposal capacity during the review of an alternative liner demonstration in order to qualify for the alternative schedule provision.

**Commenter Affiliation:** Great River Energy

**Comment Number:** EPA-HQ-OLEM-2019-0173-0080

**Excerpt ID:** 58828

**Comment:** Furthermore, it is important that EPA extend the time frame provided in the Part A rule to account for the period between the submission of an alternative liner application and a final decision on the alternative liner. As described in Great River Energy's comments submitted on the Part A rule, obtaining alternative capacity at Coal Creek Station will require until September 2023 if efforts are continuous. As described above, we believe continuing these efforts while an alternative liner demonstration is under review is unwarranted and could result in the unnecessary construction of a new facility in order to meet the compliance deadline established in Part A. Under the proposal, the time between the submittal of the application and a final decision could extend for 17 months or longer. Therefore, time to obtain alternative capacity would extend significantly beyond the latest closure deadline allowed by the proposed timelines in the Part A rule unless efforts continued during the process of seeking approval for an alternative liner. To avoid this, it is critical that the schedules in the Part A rule account for the time between the submission of an alternative liner application and final decision by the agency.

**Commenter Affiliation:** Luminant Generation Company LLC et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0097

**Excerpt ID:** 58966

**Comment:** Further, EPA should clarify that facilities seeking to make an alternate liner demonstration do not need to "seek alternative capacity" while the alternate liner application or demonstration submission is pending. For example, to qualify for the site-specific alternative closure deadline under proposed § 257.103(f)(1), a facility must show that it was infeasible to complete the measures necessary to obtain alternative disposal capacity by November 30, 2020.<sup>45</sup> Such a showing should not be required until a facility is certain it is subject to closure. Moreover, because the closure deadline would be tolled during the review period, facilities should not have to seek out alternative capacity during this time. EPA should confirm this understanding in the final rule.

**Commenter Name:** Tawny Bridgeford

**Commenter Affiliation:** National Mining Association (NMA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0095

**Excerpt ID:** 58938

**Comment:** In terms of logistics, NMA urges EPA to not require facilities seeking alternate liner demonstrations to also seek out alternative capacity at the same time.

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Excerpt ID:** 58859

**Comment:** Moreover, because EPA is now proposing a potential option for continued operation of these units, these owners/operators currently do not have regulatory certainty regarding their regulatory obligations. Because of this, § 257.103 is a critical option, and it is important that EPA clarify certain aspects of these provisions as applied to those units applying for the alternative liner demonstration

First, EPA should clarify that facilities that submit an application do not need to “seek alternative capacity” during the pendency of the application review and demonstration submission period. To qualify for the § 257.103 provisions (as proposed in the Part A Proposal), an owner/operator must show that it has made and continues to make efforts to obtain alternative disposal capacity or that it was infeasible to complete the measures necessary to obtain alternative disposal capacity by November 30, 2020. Clearly, this showing should not be required until a facility is certain it must close. Because the initiate closure deadline would be tolled during the review period, facilities should not have to seek out alternative capacity during this time. EPA should confirm this in the final rule.

**Response to the above comments:** This issue of deadline tolling is discussed in Unit III.D.3 of the preamble to the final rule.

If an alternate liner demonstration is denied and the facility lacks capacity, the owner or operator may apply for one of the site-specific alternative deadlines § 257.103(f)(1) or (f)(2). The time frames for applying for those alternatives will be governed by § 257.103(f) rather than the six months contemplated by the proposal. By contrast, if the owner or operator chooses to not apply for § 257.103(f)(1) or (f)(2), for example, if they already have alternative capacity to manage their waste on site, then the surface impoundment must cease receipt of waste and initiate closure as soon as feasible. That date will be stipulated in the demonstration denial.

More information on § 257.103(f)(1) and (f)(2) demonstrations can be found in 85 FR 53516 (August 28, 2020).

## 12.2 Deadline Tolling for § 257.103 Alternative Closure Deadlines for Facilities With Denied Applications/Demonstrations

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEPCO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Excerpt ID:** 59107

**Comment:** For facilities that have alternate capacity, EPA expects closure to commence within 6 months of denial. This deadline is aggressive and inconsistent with the rulemaking record. In the rulemaking record, EPA provides an average estimate of 22.5 months for facilities to obtain alternate capacity. Although this deadline is not feasible for AEPCO, even this 22.5 month timeframe would be shortened if EPA only provided facilities six months to close after denial. To illustrate, if a facility submits its Application on July 1, 2020, its demonstration package on July 1, 2021, and EPA denies the package on January 1, 2022 then the facility would have to close by July 1, 2022. This is inequitable because the facility does not have notice that it must close until it receives its denial. Meanwhile, during the liner demonstration process, more than eighteen months will run off of the clock to secure alternate capacity. EPA must give this time back to facilities in the form of a site-specific deadline to commence closure written into each Denial notification.

**Commenter Affiliation:** American Coal Council (ACC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0088

**Excerpt ID:** 58898

**Comment:** Alternative closure must be available to any impoundment facility that applies for but is ineligible or does not meet the requirements of an alternate liner demonstration.

EPA proposes in CCR Part B that if EPA determines an impoundment facility is not eligible or that a demonstration does not meet the standard for approval, the owner or operator must cease receipt of waste and initiate closure within six months. However, this EPA proposal would also allow facilities unable to meet this deadline to utilize procedures EPA proposed separately in § 257.103 which provide additional time to initiate closure in the event a facility has no alternative disposal capacity available. The provisions in § 257.103 should be applicable for the practical reason that an owner or operator cannot stop placing waste and initiate closure if there is no other location to dispose of the waste. If a facility is forced to initiate closure before alternative capacity is available, the continued operation of the power plant itself could be jeopardized

**Commenter Affiliation:** American Coal Council (ACC)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0088

**Excerpt ID:** 58900

**Comment:** Additionally, it is important that EPA adjust the time periods applicable under § 257.103 for impoundments that are unable to make the alternative liner demonstration. The dates should be extended by the commensurate amount of time it takes the facility to go through the alternative liner demonstration. Under this EPA proposal, it may be 17 months or longer for a final decision denying an alternative liner. These facilities should have the same amount of time as facilities not submitting alternative liner demonstrations to develop alternative disposal capacity.

**Commenter Name:** Carolyn Slaughter

**Commenter Affiliation:** American Public Power Association (APPA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0099

**Excerpt ID:** 58976

**Comment:** If EPA or the Participating State Director determines that a unit is not eligible or is denied the ability to use the proposed alternative liner demonstration, the owner/operator of the unit must cease receipt of waste and initiate closure within six months. However, the proposal allows facilities to obtain alternative capacity in accordance with the alternative closure provisions under §257.103. APPA supports the applicability of the alternative closure provisions in §257.103 to facilities that apply for but are unable to meet the requirements of an alternative liner application or demonstration.

**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEP CO)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0123

**Excerpt ID:** 59105

**Comment:** AEPCO will need more time than EPA’s new, proposed closure commencement deadline of August 31, 2020 to secure alternate CCR storage capacity, otherwise Apache’s coal unit will be forced to temporarily shutdown. Apache’s only coal unit is a critical asset and must be kept operational. In the comments submitted for the Closure Part A Rule, AEPCO explains Apache’s importance, challenges as a cooperative, and detailed timeline to secure alternative capacity. If AEPCO’s liner demonstration is not successful, AEPCO will have to apply for a site specific alternate to the initiation of closure deadline. The proposed due date for long-term extensions is June 30, 2020.

The Short-Term and Site-Specific Extension Deadlines proposed under the Closure Part A Rule must be tolled during the pendency of the Alternate Liner Demonstration Review. The Proposed Rule did not plainly accomplish this task. Although EPA tolls the closure commencement deadline upon submittal of the Application, if a facility does not prevail in its demonstration, the Proposed Rule merely states that if the facility needs an extension to obtain alternate capacity, the facility may do so under Section 257.103. The reference to Section 257.103 could imply that a facility needing a Site-Specific extension should have already applied for that extension by June 30 as a fallback, or that reference could imply that EPA intends to provide an alternate extension deadline for facilities that have liner demonstrations denied. However, EPA does not provide any details as to what the new deadline for Short-Term or Site-Specific Extensions would be.

The Proposed Rule does not shed light on whether EPA anticipates that facilities must pursue a Site-Specific extension at the same time as they prepare for the liner demonstration. EPA places facilities such as Apache in an untenable situation. AEPCO will have to guess whether EPA intends to provide alternate deadlines for Site Specific Extensions when it issues liner demonstration denials. To resolve this confusion, EPA should provide a new deadline for facilities that receive liner demonstration denials. For example, the proposed regulatory language in 40 CFR § 257.71(d)(2)(vi) could simply state that “if the facility needs an extension to obtain alternate capacity, the facility may do so under Section 257.103” within 60 days of written receipt of denial of eligibility by EPA or the Participating State Director.

**Commenter Affiliation:** Berkshire Hathaway Energy Company

**Comment Number:** EPA-HQ-OLEM-2019-0173-0085

**Excerpt ID:** 58866

**Comment:** In addition, we stress two additional factors that are of critical importance to the Berkshire Hathaway Energy companies. First, entities that submit an alternative liner demonstration that ultimately is not approved cannot be precluded from exercising options for alternate closure under § 257.103(a) and (b) after the notification that the alternative liner has not been approved.

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Excerpt ID:** 58814

**Comment:** EPA must revise the site-specific alternative disposal capacity extension so it is fully available to owners/operators whose alternate applications or liner demonstrations are denied.

The Part A proposal allows owners/operators to seek an extension for the deadline to cease receipt and initiate closure when it is “infeasible to complete the measures necessary to provide alternative disposal capacity on-site or off-site of the facility by November 30, 2020.” This mechanism requires owners/operators to submit a demonstration detailing “the specifics of the process they are undertaking to develop alternate capacities for the necessary CCR and/or non-CCR wastestreams to support the claim that additional time is necessary.” The Part A proposal requires owners/operators to submit this demonstration “no later than 2 months prior to the unit’s deadline to cease receiving waste.” Depending on site-specific circumstances, EPA could allow the unit to continue operating until as late as October 15, 2023.

If EPA denies an initial application or liner demonstration, the Part B proposal requires the owner/operator to cease receipt and initiate closure within six months of the denial. This means that if an owner/operator needs a site-specific deadline extension due to a lack of alternative disposal capacity, it must submit its demonstration within four months of receiving EPA’s denial (i.e., two months before its new deadline to cease receipt and initiate closure). Four months is not sufficient to develop the detailed alternative capacity demonstration EPA requires. Owners/operators instead would be forced to expend time and resources preparing their lack of alternative disposal capacity demonstrations before EPA makes a liner decision. Therefore, as stated in its comments to the Part A proposal, Cleco believes EPA should provide owners/operators with more time to prepare alternate capacity demonstrations.

In addition to providing more time to submit alternate capacity demonstrations, EPA should also adjust the closure deadline under the alternative disposal capacity extension for owners/operators whose liner applications or demonstrations are denied. As stated above, under the Part A proposal, the longest closure extension a unit can receive is until October 15, 2023. EPA should extend this timeframe by the amount of time the alternate liner demonstration process takes. The alternative liner demonstration process could take seventeen months for EPA to issue a final decision denying an alternative liner demonstration. As a result, the maximum additional time available to obtain alternative disposal capacity is significantly diminished.

To illustrate, if Part B’s effective date is August 1, 2020, an owner/operator might not receive a final denial from EPA until January 2022. The owner/operator would then have until July 2022 to initiate closure. If it needed more time to close due to a lack of alternative disposal capacity, the owner/operator would need to submit a demonstration by May 2022. If EPA granted the demonstration and extended the initiation of closure deadline to October 15, 2023, the extension would only provide an additional fifteen months to initiate closure.

This result creates a major disincentive for owners/operators to submit alternative liner demonstrations, since doing so greatly diminishes any real benefit of obtaining additional time to close if the demonstration is ultimately denied. To address this issue, EPA should revise the Part B proposal to provide owners/operators who submit liner demonstrations the ability to obtain a deadline extension of the same duration that they would have been able to obtain if they had not submitted a liner demonstration. In this scenario, EPA could calculate the deadline extension by



measuring the time from Part B's final rule effective date until EPA denies an owner/operator's liner application or demonstration and adding that duration to October 15, 2023

**Commenter Name:** Bill Matthews

**Commenter Affiliation:** Cleco Corporate Holdings LLC

**Comment Number:** EPA-HQ-OLEM-2019-0173-0078

**Excerpt ID:** 58817

**Comment:** The Part B proposal expressly states that owners/operators may seek additional time to initiate closure if it lacks alternative disposal capacity.

Part B does not, however, address whether owners/operators who have their liner applications or demonstrations denied are eligible for an alternate closure deadline based on the permanent cessation of a coal-fired boiler by a date certain (permanent cessation alternative). EPA should accordingly revise the Part B proposal to ensure the permanent cessation alternative is available to these owners/operators.

EPA must first revise the deadline to submit a permanent cessation demonstration. As currently written, the deadline to submit the demonstration is May 15, 2020. It seems this deadline will change since it is unlikely EPA will finalize the Part A proposal by that date. If and when EPA revises the submittal deadline, it should ensure it accounts for owners/operators that submit liner demonstrations. One approach is for EPA to make the deadline to submit permanent cessation demonstrations relative to the deadline to initiate closure. This is the same way EPA calculates the deadline for submitting lack of alternative disposal capacity demonstrations, which must be submitted two months before the deadline to cease receipt and initiate closure. This approach would give owners/operators that submit liner demonstrations an opportunity to utilize the permanent cessation alternative. While this "relative deadline" approach would improve the proposal, Cleco reiterates its previous comments that EPA should provide owners/operators additional time to submit alternate closure demonstrations

EPA should also lengthen the permanent cessation deadline extension for owners/operators whose liner applications or demonstrations are denied to provide them the same additional time that they could have received had they not participated in the alternate liner process. EPA should accordingly revise the Part B proposal to re-calculate the closure deadlines in the same manner as described above in Section V.E.1.

**Commenter Affiliation:** Luminant Generation Company LLC et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0097

**Excerpt ID:** 58965

**Comment:** In the event EPA or the Participating State Director determines that a facility is not eligible or is unable to make the appropriate demonstration, the Proposed Rule provides that the facility must cease receipt of waste and initiate closure within six months of the denial. However, the Proposed Rule also allows facilities to take advantage of the alternative closure deadlines in § 257.103 where the facility would be unable to meet that closure deadline based on lack of alternative disposal capacity. The Companies support the applicability of the alternative closure

process to facilities that apply for, but are unable to meet, the requirements of an alternate liner application or demonstration. However, EPA should clarify certain aspects related to this process.

Specifically, it is critical that the final rule address the deadline by which facilities can submit an alternative closure demonstration under proposed § 257.103(f)(1) (site-specific alternative capacity demonstration) and § 257.103(f)(2) (retirement demonstration) given that some of the timeframes provided in proposed § 257.103 will have passed prior to any denial date of the alternate liner application or demonstration. EPA was correct to recognize that the Part A proposal and the Part B proposal, when read together, allow for the subsequent submittal of a site-specific alternate capacity demonstration under § 257.103(f)(1) in the event of a liner application or demonstration denial. Specifically, proposed § 257.103(f)(3)(i)(A) provides that the deadline to submit a site-specific demonstration under § 257.103(f)(1) is “no later than 2 months prior to the unit’s deadline to cease receiving waste.” Thus, because the submittal of a complete application or liner demonstration tolls the unit’s cease receipt date, and the Proposed Rule explicitly provides that the unit “must cease receipt of waste and initiate closure within six months of the denial,” the facility has four months after a denial (i.e., two months prior to the cease receipt date) to submit a site-specific alternative capacity demonstration under proposed § 257.103(f)(1).

However, because the deadline to submit a retirement demonstration under proposed § 257.103(f)(2) is a set date (as proposed, May 15, 2020), that deadline will have passed by the time EPA has acted on an alternate liner submission. Some facilities might choose to retire their boilers if an alternate liner demonstration is not approved. Thus, EPA should explicitly provide a deadline to submit a retirement demonstration in the event an alternate liner application or demonstration is denied. The retirement demonstration option is an important compliance tool just like the alternative capacity demonstration. In fact, it seems logical that if a facility is seeking to comply with the alternate liner demonstration, it would also be in a position to consider a retirement option, given that, under both scenarios, the facility would be seeking to continue operations without investing significant capital resources to build additional capacity.

Thus, the final rule should align the deadlines to submit an alternative closure demonstration under proposed § 257.103(f)(1) (alternative capacity) and § 257.103(f)(2) (retirement), by explicitly providing a four month deadline after the denial of an alternate liner submission to submit either type of demonstration (or if the action is appealed or judicially challenged, four months after such challenge is resolved). In addition, the final Part A rule should similarly include extended deadlines for alternative closure demonstration submittals in the event an alternate liner application or demonstration is submitted and subsequently denied.

**Commenter Affiliation:** Luminant Generation Company LLC et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0097

**Excerpt ID:** 58967

**Comment:** Finally, EPA should clarify that the compliance periods under proposed § 257.103 are extended for those units that seek, but are denied, an adequate alternate liner demonstration. For example, under the Proposed Rule, it could take at least 16 months to receive a final decision

denying an alternate liner demonstration. However, proposed § 257.103(f)(1) requires a facility to develop alternative capacity by October 15, 2023. Since a facility should not be required to “seek alternative capacity” while the demonstration is pending, as discussed above, the facility would be required to develop alternative capacity in a shorter timeframe than those facilities that sought alternative capacity demonstrations initially. Thus, facilities seeking to make alternate liner demonstrations should receive the same amount of time in total as facilities not submitting alternate liner demonstrations to either develop alternative capacity or cease retirement of coal fired boiler(s) and close impoundments under the proposed § 257.103 provisions. The deadlines for cease receipt of waste and closure in § 257.103(f)(1) and (f)(2) should be specifically extended for facilities that sought, but were denied, an alternate liner demonstration.

**Commenter Name:** Tawny Bridgeford

**Commenter Affiliation:** National Mining Association (NMA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0095

**Excerpt ID:** 58937

**Comment:** Ineligible Facilities: NMA supports allowing those facilities that apply for but are deemed ineligible for the alternate liner demonstration to receive additional time to address their unlined surface impoundments. As proposed, the owner or operator of ineligible facilities must cease receipt of waste and initiate closure within six months. EPA’s proposal would also allow facilities unable to meet this deadline to utilize the alternative closure requirements in 42 C.F.R. § 257.103. This is a reasonable option for facilities that have no alternative disposal capacity available. As EPA has recognized, “EPA cannot impose more protective measures than can be technically feasibly implemented, as the law cannot compel the impossible.” Facilities will likely need more than the 6-months built into this provision to find alternative capacity and avoid unnecessary and costly disruptions to the continued operation of the power plant. As EPA is aware, these facilities were not forced to close under the original 2015 CCR disposal rule and therefore are in the early stages of developing alternative capacity. This option will provide additional regulatory certainty for owners and operators.

Additionally, any deadlines specified in 42 C.F.R. § 257.103 should be extended by the same amount of time it takes the facility to undertake the alternate liner demonstration (e.g., 17 months without an extension).

**Commenter Name:** Dorothy Kellogg

**Commenter Affiliation:** National Rural Electric Cooperative Association (NRECA)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0096

**Excerpt ID:** 58950

**Comment:** A plant that submits an unsuccessful demonstration (Step 1 or Step 2) should be eligible for an alternative closure deadline extension.

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Excerpt ID:** 58858

**Comment:** Alternative Closure Must be Available to Any Facility that Applies for But is Ineligible or Does Not Make the Appropriate Demonstration.

The Part B Proposal provides that, in the event the Agency determines that a facility is not eligible or that a demonstration does not meet the standard for approval, the owner/operator must cease receipt of waste and initiate closure within six months.” However, the Proposal also would allow those facilities that would be unable to meet this deadline to utilize the procedures in § 257.103. This provision provides additional time to initiate closure where the facility has no alternative disposal capacity available.

USWAG supports the applicability of the alternative closure provisions in § 257.103 (either § 257.103(a) or (b)) to facilities that apply for but are unable to meet the requirements of an alternative liner application or demonstration. The rationale underlying § 257.103 is that the Agency can compel only what can be technically feasibly implemented. Owners/operators cannot cease placing waste and initiate closure if there is no other place to dispose of that waste. If facilities are forced to initiate closure before alternative capacity is available, this could have serious implications for continued operation of the power plant itself. This fact remains true for all units undergoing forced closure, including those units whose owners/operators seek to keep operating under the proposed alternative liner demonstration.

In fact, § 257.103 is all the more important for these units because they are likely to be impoundments that were not subject to forced closure under the original 2015 CCR rule, but instead must do so solely because of the USWAG decision—i.e., units that are not adversely impacting groundwater and/or were originally classified as a clay-lined unit. These owners/operators are likely to just now be in the early stages of developing alternative capacity plans.

**Commenter Affiliation:** Utility Solid Waste Activities Group (USWAG)

**Comment Number:** EPA-HQ-OLEM-2019-0173-0082

**Excerpt ID:** 58860

**Comment:** Second, it is critical that EPA adjusts the time periods applicable under the proposed § 257.103 to those units that are unable to make the alternative liner demonstration. Under the proposed § 257.103(f)(1) option, facilities can get an extension to initiate closure until October 15, 2023. And the proposed § 257.103(f)(2) option provides small impoundments (those 40 acres or smaller) until October 17, 2023 to complete closure of the impoundment and cease operation of the coal-fired boiler, while large impoundments (those greater than 40 acres) would have until October 17, 2028 to do the same. These dates should be extended by the commensurate amount of time it takes the facility to undertake the alternative liner demonstration. Under the Proposal, it could take approximately 17 months to get a final decision denying an alternative liner demonstration (or longer if the facility receives an extension to submit the demonstration due to analytical limitations). Put simply, facilities should not be penalized for submitting, in good faith, an equivalency liner demonstration that EPA ultimately determines not to accept. In these circumstances, a facility should get the same amount of time as facilities not submitting alternative liner demonstrations to develop alternative disposal capacity or cease the operation of coal-fired boilers under the proposed § 257.103 provisions.

**Commenter Affiliation:** Xcel Energy Inc.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0044

**Excerpt ID:** 58716

**Comment:** We agree with the sequence that EPA has articulated in both the preamble (page 12462) and the rule text at 257.71(d)(2)(vi) which appropriately begins with the opportunity to make an alternate liner equivalency demonstration and, if deemed by EPA as ineligible or unsuccessful and if a facility does not have and cannot construct alternate disposal capacity so that it could then cease receipt and initiate closure within 6-months, it may apply for and make a no alternative disposal capacity demonstration under Part A. To that end, we concur with comments made by USWAG and others, urging EPA to align the timelines between the two rules so that a facility has the opportunity to submit an application to make a liner equivalency demonstration, thereby tolling the cease receipt date in Part A. Specifically, the effective date of Part B must be at least 30 days prior to the cease receipt date in Part A.

**Response to the above comments:** If an alternate liner demonstration is denied and the facility lacks capacity, the owner or operator may apply for one of the site-specific alternative deadlines § 257.103(f)(1) or (f)(2). The time frames for applying for those alternatives will be governed by § 257.103(f) rather than the six months contemplated by the proposal. By contrast, if the owner or operator chooses to not apply for § 257.103(f)(1) or (f)(2), for example, if they already have alternative capacity to manage their waste on site, then the surface impoundment must cease receipt of waste and initiate closure as soon as feasible. That date will be stipulated in the demonstration denial.

This issue of the cease receipt of waste deadline and pursuit of an alternative closure demonstration is discussed in Unit III.D.3 of the preamble to the final rule.

More information on § 257.103(f)(1) and (f)(2) demonstrations can be found in 85 FR 53516 (August 28, 2020).

## Chapter 13 Economic Comments on the RIA for the Alternative Liner Provision

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 94

**Excerpt ID:** 59219

**Comment:** EPA's failure to meaningfully identify and quantify or assess the multitude of health, environmental, and economic impacts from the Part B Proposal is apparent in many additional ways throughout the RIA and Proposal, as well as compounded by the fact that many of its statements are incomplete or incorrect. For example, the Proposal claims that "[i]n a supplemental analysis the RIA also estimates the incremental costs and costs savings of this rule assuming the provisions of the companion Part A proposed rule are in place." However, the Part B RIA fails to provide any such analysis. A one-page appendix simply summarizes the items assessed in the 2014 RIA, incorrectly identifies whether those are affected by the proposed rules,

and vaguely notes the “potential effort needed to update the baseline estimates for each activity originally developed,” without any substantive discussion or follow through. In addition, many of EPA’s assumptions are poorly supported or wrong, as highlighted in these comments.

**Response:** EPA disagrees with the commenter that the RIA fails to address health, environmental, or economic impacts from the Part B proposed rule. EPA also disagrees that the examples cited by the commenter show that the RIA is incomplete or incorrect. With respect to the specific examples cited in the comment, the RIA does not contain a reference to a supplemental analysis concerning Part A. Also, the commenter has also misunderstood the purpose of Appendix A, which is merely to show which categories of compliance costs from the 2015 CCR rule were accounted for in the 2015 RIA. Further, the commenter fails to acknowledge that the RIA contains an entire chapter discussing the environmental and human health impacts of the proposed Part B rule. The commenter alleges that the assumptions underlying the analysis are poorly supported or wrong, but then fails to explain why or to offer plausible alternatives for EPA to consider.

### 13.1 RIA Costs Too Low, Actual Costs will be Higher

**Commenter Name:** Thomas Cmar

**Commenter Affiliation:** Earthjustice et al.

**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 91

**Excerpt ID:** 59211

**Comment:** As stated throughout these comments, EPA’s Part B Proposal is yet another proposed rulemaking in a quick succession of hastily drafted proposals intended to weaken the 2015 CCR Rule beyond recognition. And once again, EPA consciously disregarded its responsibilities with respect to conducting an adequate RIA. The Part B RIA wholly failed to identify and consider the increased costs and benefits that will be borne from increased health risks, environmental contamination, and clean up as a result of the Proposal. As explained throughout these comments, EPA’s Part B Proposal would significantly weaken the 2015 CCR Rule, and the significant increased costs to health and the environment that would result need to be accounted for in a proper analysis.

**Response:** EPA disagrees with the commenter’s assertion that the RIA fails to account for the Part B rule’s impact on human health and environmental benefits. The commenter incorrectly characterizes the impoundments that would continue to operate with an alternate liner designation as dangerous. The RIA directly refutes this assertion. It cites the protective and restrictive requirements a surface impoundment must meet in order to qualify for an alternate liner designation. Eligible units must be in compliance with all existing requirements of the 2015 CCR rule. These include the location restrictions and the groundwater monitoring requirements. Eligible units must also demonstrate to EPA that their continued operation will not lead to any statistically significant levels of an Appendix IV constituent into groundwater. For these reasons the operation of eligible units is therefore consistent with the modeled behavior of non-leaking impoundments in the 2015 benefits assessment. And for this reason, the RIA concludes that the Part B rule will not negatively affect human health and environmental benefits.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0192  
**Page(s):** 92  
**Excerpt ID:** 59216

**Comment:** EPA’s Part B RIA “requests comment on the assumptions, methodology, and data used in this analysis,” but EPA is already well aware of the obvious deficiencies with its analysis. EPA recognizes that “the magnitude and extent of any possible reductions is dependent on facility- and market-specific factors, and the baseline risks and benefits of the 2015 rule have not been re-examined.” The remedy to this problem is simple – EPA must reexamine them using the best available data and fulfill its obligations. It would be irrational and arbitrary for EPA to finalize the Part B Proposal without identifying all of the costs and benefits to the public that will flow from the Proposal, including public health and environmental costs and benefits.

**Response:** EPA disagrees with the commenter that the RIA has obvious deficiencies. The RIA analysis is conducted at the national rather than at the site-specific level and the quoted text merely points this fact out. The commenter fails to propose any concrete amendments to the assumptions, methodology, or data used in the RIA and further fails to acknowledge that the RIA contains an entire chapter devoted to the discussion of human health and environmental impacts.

13.2 RIA Costs Too High, Actual Costs will be Lower  
13.3 RIA Benefits Too Low, Actual Benefits will be Higher  
13.4 RIA Benefits Too High, Actual Benefits will be Lower

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0192  
**Page(s):** 91-92  
**Excerpt ID:** 59213

**Comment:** As was the case with previous CCR Rule proposals, these alleged “savings” are trivially small in the context of a multi-billion dollar industry, in addition to being predicated on the patently false premise that proposed changes to the 2015 CCR Rule will not result in any lost benefits to health or the environment.

**Response:** EPA disagrees with the commenter that the RIA misrepresents the impacts that the Part B rule will have on human health and the environment. The RIA for the Part B rule contains an entire chapter discussing the impact of the rule on human health and the environment, which the commenter has failed to address in a substantive way.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0192

**Page(s):** 91-92  
**Excerpt ID:** 59214

**Comment:** EPA freely admits, as it did in the Part A RIA essentially verbatim, that the Part B RIA “does not provide a comprehensive assessment of changes in baseline costs or a comprehensive discussion of total baseline risks or incremental changes in risk resulting from the proposed Part B rule.” This is wholly inadequate, especially given the data available on the risks associated with coal ash units and the Part B Proposal’s expected impact on disposal practices and the lifespan of coal ash units. Unlike the Part A Proposal, the Part B Proposal claims that the RIA includes a “comprehensive discussion of the qualitative impacts to benefits.” However, there is absolutely nothing comprehensive about the few vague and incomplete paragraphs EPA provided in the RIA about impacts to benefits. In fact, the Part B Proposal redline included additional statements throughout that made more explicit that decreased benefits and increased harm could result from the Proposal, as well as the need to conduct a thorough analysis. Because the Part B RIA fails to rationally consider the numerous lost health, environmental, and economic benefits that would result from timely closure of dangerous impoundments, EPA’s analysis is fatally flawed and yet another reason why finalizing the proposed rule would be arbitrary, capricious, and contrary to law.

**Response:** EPA disagrees with the commenter’s assertion that the RIA fails to account for the Part B rule’s impact on human health and environmental benefits. The commenter incorrectly characterizes the impoundments that would continue to operate with an alternate liner designation as dangerous. The RIA directly refutes this assertion. It cites the protective and restrictive requirements a surface impoundment must meet in order to qualify for an alternate liner designation. Eligible units must be in compliance with all existing requirements of the 2015 CCR rule. These include the location restrictions and the groundwater monitoring requirements. Eligible units must also demonstrate to EPA that their continued operation will not lead to any statistically significant levels of an Appendix IV constituent into groundwater. For these reasons the operation of eligible units is therefore consistent with the modeled behavior of non-leaking impoundments in the 2015 benefits assessment. And for this reason, the RIA concludes that the Part B rule will not negatively affect human health and environmental benefits.

**Commenter Name:** Thomas Cmar  
**Commenter Affiliation:** Earthjustice et al.  
**Comment Number:** EPA-HQ-OLEM-2019-0173-0192  
**Page(s):** 93  
**Excerpt ID:** 59217

**Comment:** For the 2014 RIA, “unit closures and associated costs and benefits were estimated over 40 years,” and the resulting timing and cost of closure for these impoundments formed the baseline for closure-related costs. However, the Part B RIA makes clear that EPA did not conduct the “comprehensive reexamination” it should have. In other words, EPA essentially assumed there would be no changes in risks or benefits resulting from the Proposal, even though the Proposal undeniably weakens the 2015 CCR Rule

**Response:** EPA disagrees with the commenter that the RIA misrepresents the impacts that the Part B rule will have on human health and the environment. EPA concluded that the final rule



would not result in changes in risks or benefits because of the protective and restrictive requirements a surface impoundment must meet in order to qualify for an alternate liner designation. Eligible units must be in compliance with all existing requirements of the 2015 CCR rule. These include the location restrictions and the groundwater monitoring requirements. Eligible units must also demonstrate to EPA that their continued operation will not lead to any statistically significant levels of an Appendix IV constituent into groundwater. For these reasons the operation of eligible units is therefore consistent with the modeled behavior of non-leaking impoundments in the 2015 benefits assessment. And for this reason, EPA concludes that the Part B rule will not negatively affect human health and environmental benefits. .

**Commenter Name:** Isabel Carey

**Commenter Affiliation:** Institute for Policy Integrity

**Comment Number:** EPA-HQ-OLEM-2019-0173-0121

**Page(s):** 2

**Excerpt ID:** 59044

**Comment:** Under current regulations, these units would close earlier and perform activities like CCR removal or dewatering that reduce the risk of future CCR releases. By delaying such closure activities, the Proposed Rule will permit additional CCR releases that threaten the environment and human health. But even though CCR releases may contain “arsenic and other toxic metals,” EPA fails to address how the Proposed Rule will forgo the benefits provided by a more protective standard. This violates EPA’s duties under Executive Order 12,866 and the Administrative Procedure Act.

**Response:** EPA disagrees with the commenter that the RIA misrepresents the impacts that the Part B rule will have on human health and the environment. The RIA for the Part B rule contains an entire chapter discussing the impact of the rule on human health and the environment, which the commenter has failed to address in a substantive way.

**Commenter Name:** Isabel Carey

**Commenter Affiliation:** Institute for Policy Integrity

**Comment Number:** EPA-HQ-OLEM-2019-0173-0121

**Page(s):** 4

**Excerpt ID:** 59055

**Comment:** Units with approved alternative liner demonstrations will be permitted to operate indefinitely. However, because some of these units may then leak, EPA must consider the forgone benefits of permitting such facilities to continue operating.

Once an alternative liner demonstration is approved, the approval is “effective for the remaining active life of the unit.” But although a successful applicant must demonstrate, “with a reasonable degree of certainty,” that the surface impoundment will not result in exceedances of groundwater protection standards (GWPS), EPA recognizes that leaks may occur. Once a unit has been approved, if there “is evidence that the unit may exceed” GWPS standards before control measures are put in place, EPA indicates only that “authorization would be reconsidered.”

Therefore, this provision expands the number of leaking units that may be permitted to continue operating.

EPA does not address the forgone benefits that will be caused by the Proposed Rule when units approved for operation after an alternative liner demonstration begin leaking. Under current regulations, these unlined surface impoundments would be required to close. But under the Proposed Rule, these units would be considered lined surface impoundments. As EPA explains, “lined CCR surface impoundments . . . that impact groundwater above the specified GWPS are not required to close and could continue operations while corrective action was performed, and the source of the leak was addressed.” Accordingly, these units could now continue receiving CCR during the remediation period, potentially exacerbating the harm caused by the groundwater exceedances.

**Response:** EPA does not believe that the ability to apply for an alternative liner demonstration will result in forgone benefits, as described by the commenter. If there is evidence that the actual performance of a unit may be deficient, the final rule is designed to trigger closure of that unit before an exceedance of GWPS can occur. During the demonstration, this is accomplished by requiring facilities to remain in detection monitoring. After approval, this is accomplished through additional monitoring requirements with intra-well trend analysis, and if necessary, based on the results, mandatory closure of the unit. Taken together, these requirements will mitigate the potential for a loss of benefits from the continued operation of these units. Furthermore, the corrective action provisions of the 2015 CCR rule remain in effect for these units. Under these provisions no unit is permitted to release CCR indefinitely into the environment, as the commenter appears to believe. The location restrictions and other requirements incorporated in the demonstration process help ensure that the site is well-characterized and that corrective action can be expedited, in the unlikely event that it is necessary.

**Commenter Name:** Isabel Carey

**Commenter Affiliation:** Institute for Policy Integrity

**Comment Number:** EPA-HQ-OLEM-2019-0173-0121

**Page(s):** 5-6

**Excerpt ID:** 59056

**Comment:** And, of course, there is no guarantee that leaks can be remedied. EPA recognizes that soil-based lining systems like clay are “permeable by nature” and that “heterogeneity within these soils may result in preferential flow pathways that effectively negate the low [hydraulic] conductivity of the remaining soil.” In other words, soil variation can allow fluids to pass through the soil layer more easily in certain areas than in others. While the alternative demonstration materials must provide information that addresses the variability of the soil, EPA cannot ensure uniformity in a natural geologic formation. If, for example, a clay-lined surface impoundment leaks due to such natural variation, a unit may not be able to prevent the site from exceeding GWPS.

Because current regulations do not require lined surface impoundments to close, even when their releases exceed GWPS,<sup>36</sup> such units operating pursuant to alternative liner demonstrations may be permitted to continue operating and releasing CCR indefinitely. While the Proposed Rule

authorizes EPA to revoke a unit's authorization to operate subject to an alternative liner demonstration if the unit's releases exceed GWPS, it does not require EPA to do so. 37 Because EPA recognizes that units with successful alternative liner demonstrations may nonetheless release CCR in exceedance of GWPS, perhaps indefinitely, the agency must address the forgone benefits caused by these releases.

**Response:** EPA does not believe that the ability to apply for an alternative liner demonstration will result in forgone benefits, as described by the commenter. If there is evidence that the actual performance of a unit may be deficient, the final rule is designed to trigger closure of that unit before an exceedance of GWPS can occur. During the demonstration, this is accomplished by requiring facilities to remain in detection monitoring. After approval, this is accomplished through additional monitoring requirements with intra-well trend analysis, and if necessary, based on the results, mandatory closure of the unit. Taken together, these requirements will mitigate the potential for a loss of benefits from the continued operation of these units. Furthermore, the corrective action provisions of the 2015 CCR rule remain in effect for these units. Under these provisions no unit is permitted to release CCR indefinitely into the environment, as the commenter appears to believe. The location restrictions and other requirements incorporated in the demonstration process help ensure that the site is well-characterized and that corrective action can be expedited, in the unlikely event that it is necessary.

**Commenter Name:** Isabel Carey

**Commenter Affiliation:** Institute for Policy Integrity

**Comment Number:** EPA-HQ-OLEM-2019-0173-0121

**Page(s):** 5-6

**Excerpt ID:** 59058

**Comment:** The Proposed Rule will lead to closure delays and may permit CCR releases by facilities otherwise required to close. EPA's failure to address the forgone benefits to the environment and human health caused by these changes is arbitrary and capricious

**Response:** EPA disagrees with the commenter that the final rule will lead to closure delays or would permit releases by facilities otherwise required to close. The RIA for the Part B rule contains an entire chapter discussing the impact of the final rule on human health and the environment, which the commenter has failed to address in a substantive way.

## 14.0 Risk Comments on the RIA for the Alternative Liner Provision

### 14.1 RIA Risk Modeling Too Low, Actual Risks will be Higher (Lower Benefits)

**Commenter Name:** Isabel Carey

**Commenter Affiliation:** Institute for Policy Integrity

**Comment Number:** EPA-HQ-OLEM-2019-0173-0121

**Comment:** Finally, EPA may be unable to evaluate applications and demonstration packages in the respective 60 day and four month timeframes promised by the Proposed Rule. If more facilities apply than EPA anticipates, the agency provides no assurances that reviewing authorities will have the capacity to review all applications under the timeframes indicated. The RIA assumes that between 10 and 20 units will submit an application, but EPA concedes that an “additional 65 units could join this universe if they provide evidence of passing all location restrictions and installing a certified groundwater monitoring system.” Units will be highly incentivized to apply, because EPA estimates that completing the application process will cost \$118,000 but a successful application will save the average unit \$12.5 million. Ultimately the compliance tolling provided to facilities is based on EPA’s response times to the initial application and the final demonstration package. If EPA cannot meet its self-imposed deadlines, these delays will further push back surface impoundment closure and risk additional CCR releases from facilities that would otherwise have initiated closure proceedings.

**Response:** EPA is confident that the agency will be able to complete its evaluation of the applications within the four months prior to the April 11, 2021 deadline to cease receipt of waste. Nevertheless, EPA further disagrees with the commenter that delays in processing applications would lead to a greater risk of additional CCR releases. Units that pursue an alternate liner designation are still subject to groundwater monitoring and if a unit was to detect a statistically significant increase in an Appendix III constituent, before their application or demonstration was approved then the unit would have to cease receipt of waste.

#### ~~Chapter 15-Other Comments/Out of Scope~~

~~**Commenter Affiliation:** Arizona Electric Power Cooperative, Inc. (AEP CO)~~

~~**Comment Number:** EPA HQ OLEM 2019-0173-0123~~

~~**Excerpt ID:** 59089~~

~~**Comment:** The requirement at Section 257.71(d) where the standard for the demonstration is meeting the composite liner criteria established in 257.70(b) is incorrect. Facilities that were already equipped with a composite liner, such as the CWDF at AEP CO’s Apache Station, were already provided an opportunity to compare to this standard within the 2015 rule at 257.71(a)(iii). AEP CO chose not to pursue this comparison at the time because we were confident that our liner is protective of the aquifer and that our facility would not be required to close. With that said, this is not the Standard that should be required, but meeting RCRA’s Subtitle D protectiveness standard is the bar that EPA should set. AEP CO has already cleared this bar, and will provide that evidence within the initial application.~~

~~The standard for the demonstration from a composite-lined unit should be that there is no indication from groundwater monitoring data that the unit has or affected groundwater. In the Proposed Rule, this is actually required in the Application phase and not in the Demonstration Package itself. EPA should either: (1) Allow for the Application to be adequate for composite-lined facilities that have not impacted groundwater, consistent with AEP CO’s comments; or (2) Modify the Liner Demonstration process to create an inherent bias of success to account for the~~

~~facilities that have a desirable composite liner system, while also providing more flexibility in the site specific technical data to be submitted.~~

~~**Response:** The final regulation now incorporates the protectiveness standard from RCRA section 4004 (a).~~

~~**Commenter Name:** Thomas Cmar~~

~~**Commenter Affiliation:** Earthjustice et al.~~

~~**Comment Number:** EPA-HQ-OLEM-2019-0173-0192~~

~~**Excerpt ID:** 59220~~

~~**Comment:** XI. BY FAILING TO CONSULT WITH TRIBAL GOVERNMENTS, EPA HAS VIOLATED EXECUTIVE ORDER 13175 AND EPA'S POLICY FOR IMPLEMENTING THE ORDER.~~

~~Pursuant to Executive Order (E.O.) 13175, it is federal policy "to establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications." A 2009 presidential memorandum reaffirmed the principles in E.O. 13175, namely, that "[e]onsultation is a critical ingredient of a sound and productive Federal tribal relationship." To implement E.O. 13175, EPA's policy is to "ensure[] the close involvement of tribal governments and give[] special consideration to their interests whenever EPA's actions may affect . . . tribal interests." Notification of the initial consultation process "should occur *sufficiently early* in the process to allow for meaningful input" and the process can require "subsequent rounds of consultation."~~

~~EPA's failure to meaningfully consult with tribal governments regarding the Part B Proposal is contrary to both the plain language of E.O. 13175 and EPA's own policy for implementing the order. The order directs federal agencies such as EPA to consult with tribal officials regarding "the development of Federal policies that have tribal implications." During the rulemaking for the 2015 CCR Rule, EPA concluded that "this action may have tribal implications." That was the right conclusion, given that three large coal plants subject to the CCR Rule are located on tribal lands. Given that the CCR Rule had tribal implications, "EPA consulted with tribal officials *early in the process* of developing this regulation to permit them to have meaningful and timely input into its development."~~

~~Here, the Part B Proposal readily admits that "[t]his action has tribal implications because it would impose requirements on facilities located in Indian country." The Proposal confirms that three large coal plants subject to the CCR Rule are located on tribal lands:~~

~~The Navajo Generating Station and the Four Corners Power Plant are on tribal trust lands belonging to the Navajo Nation, while the Bonanza Power Plant is located on tribal trust lands within the Uintah and Ouray Reservation of the Ute Indian Tribe. Because CCR units are land-based units, the fact that these CCR facilities are located on tribal trust land means that the facility owners within the meaning of the CCR Rule are the tribal trust beneficial landowner tribes.~~

~~However, instead of consulting tribal governments "early enough to allow tribes the opportunity to provide meaningful input that can be considered prior to EPA deciding whether, how, or when~~

~~to act on the matter under consideration,” as it should have, the Agency claims it “will engage with tribal officials under the EPA Policy on Consultation and Coordination with Indian Tribes concurrent with the public comment process for this regulation.” This concurrent consultation process does not allow for meaningful and timely input into the Proposal’s development, as EPA alleges, especially given the speed and time at which EPA is moving with the regulatory process and the other concerns facing tribal officials today. EPA’s interpretation of applicable law is inconsistent with the plain language of E.O. 13175, and EPA’s policy for implementing it is arbitrary and capricious and reflects a blatant disregard of the tribal interests that are implicated by the Part B Proposal.~~

~~E.O. 13175 defines “[p]olicies that have tribal implications” to include “regulations . . . that have substantial direct effects on one or more Indian tribes.” The Part B Proposal would clearly have such effects. As discussed in detail throughout these comments, the Part B Proposal would change the requirements regarding disposal of coal ash on tribal lands in ways that are likely to adversely impact tribal interests in the health of tribal members and the quality of their environment, in particular their groundwater and surface water.~~

~~In addition, there is no question that policies regulating the disposal of CCR have real-life implications for the tribes that reside in the vicinity of CCR units. For example, it has been well-documented for over a decade that leaking, unlined surface impoundments at the Four Corners Power Plant have caused significant groundwater contamination and degradation of water quality downstream from the plant.~~

~~EPA claims that the Part B Proposal “will neither impose substantial direct compliance costs on federally recognized tribal governments, nor preempt tribal law.” Even if this were the case, EPA does not clearly state any rationale for why approaching its E.O. 13175 consultation obligations in concurrence with the short and inadequate commenting period is rational, so the Proposal is therefore arbitrary and capricious.~~

~~To remedy its noncompliance with the Executive Order, EPA must ensure that it takes all necessary steps for proper consultation with tribes whose lands are the site of, or near, coal ash disposal units that are affected by the Part B Proposal—i.e., the Navajo Nation, at a minimum—and then re-propose for public review and comment a rule based on the input of the tribes.~~

**Response:** ~~The Agency disagrees that consultation was required on the proposed or final rule. This action does not have tribal implications as specified in Executive Order 13175. This action does not impose substantial direct compliance costs or otherwise have a substantial direct effect on one or more Indian tribes, to the best of EPA’s knowledge. Neither will it have substantial direct effects on the relationship between the federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes. Thus, Executive Order 13175 does not apply to this action.~~

~~**Commenter Name:** Thomas Cmar~~

~~**Commenter Affiliation:** Earthjustice et al.~~

~~Comment Number: EPA-HQ-OLEM-2019-0173-0192~~  
~~Excerpt ID: 59221~~

~~Comment: XII. THE ENDANGERED SPECIES ACT REQUIRES EPA TO CONSULT WITH THE FISH AND WILDLIFE SERVICE AND THE NATIONAL MARINE FISHERIES SERVICE BEFORE FINALIZING ANY RULE~~

~~Several of the undersigned commenters provided comments on EPA's failure to consult with the Fish and Wildlife Service and the National Marine Fisheries Service under the Endangered Species Act Section 7 prior to finalizing any rule in response to the Part A Proposal. EPA's Proposal would remove or weaken several safeguards in the 2015 CCR Rule that protect listed species, and thus the proposed action may affect listed species within the meaning of 50 C.F.R. § 402.14. Those comments (and related attachments) are attached hereto and incorporated by reference.~~

~~**Response:** EPA disagrees the consultation was required as part of developing this rule. Under the existing regulations, all CCR units must comply with 40 CFR 257.3-2. 40 CFR 257.52(b). That regulation, which was developed after consultation with FWS, requires facilities not to cause or contribute to the taking of any endangered or threatened species of plant or wildlife, and not to result in the destruction or adverse modification of critical habitat. This obligation is not modified or affected in any way by this final rule. The commenter has presented no facts that convince EPA that re-initiation is warranted by this rule.~~

~~Commenter Name: Thomas Cmar~~  
~~Commenter Affiliation: Earthjustice et al.~~  
~~Comment Number: EPA-HQ-OLEM-2019-0173-0192~~  
~~Excerpt ID: 59222~~

~~Comment: XIII. THE PROPOSED RULE VIOLATES EXECUTIVE ORDER 12898 ON ENVIRONMENTAL JUSTICE.~~

~~Executive Order 12898 requires that: each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands.~~

~~This obligation was recently affirmed in *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers*, and has been applied by the U.S. Environmental Appeals Board. Specifically, "[t]he purpose of an environmental justice analysis is to determine whether a project will have a disproportionately adverse effect on minority and low-income populations." The Part B Proposal violates E.O. 12898 and its implementing guidance documents by failing to take all lawful and practicable steps to identify and address the disproportionate and adverse impacts of the continued use and disposal of coal ash on communities of color and low-income communities.~~

~~**Response:** EPA disagrees that the Part B final rule violates Executive Order 12898.~~



~~Contra the commenter's claims, EPA considers that the approach taken in this rule effectively addresses the risk from CCR surface impoundments. EPA is finalizing a two-step process for submittal of necessary documentation for the alternate liner demonstration. The first step consists of an initial application intended to show whether a unit meets certain minimum requirements before embarking on a comprehensive alternate liner demonstration. These minimum requirements are designed to ensure that it is likely that the facility will ultimately be able to make the more extensive demonstration to support continued operation, and that the CCR surface impoundment can operate safely over the short term while the facility collects the data and conducts the analyses necessary to support the demonstration. The first step requires the facility to demonstrate that it is in full compliance with the applicable requirements in 40 CFR part 257 subpart D; that it possesses site characteristics that make it likely that it could qualify for a demonstration; and that there are no constituents listed in part 257 Appendix III that have been detected at a statistically significant increase (SSI). The second step consists of a final demonstration intended to show whether there is a reasonable probability that releases from the impoundment throughout its active life may result in groundwater concentrations of constituents listed in part 257 Appendix IV at a statistically significant level (SSL) in the future. The purpose of this two-step approach is to ensure that units allowed to embark on a comprehensive and time-consuming demonstration meet the minimum requirements to ensure protectiveness throughout the process.~~

~~The RIA accompanying the final rule evaluates the impacts to each category of benefits monetized in the 2015 CCR rule. It concludes that the provisions of the Part B final rule will not substantially affect benefits, which affirms EPA's consideration that the Part B final rule effectively addresses risks and validates the conclusion of the 12898 analysis.~~

~~**Commenter Affiliation:** Electric Power Research Institute, Inc. (EPRI)~~

~~**Comment Number:** EPA-HQ-OLEM-2019-0173-0046~~

~~**Excerpt ID:** 58734~~

~~**Comment:** Concerning pH of CCRs~~

~~In footnote 8, the March 3 Proposal states: "The pH of CCR wastes can range from around 3 to 13. Although the total pH range is wide, the majority of wastes are more basic, with a median value somewhere between 10 and 11." EPRI would like to point out that the median pH varies by material and management method, and for coal ash it varies by coal source, with bituminous coal ash typically having a pH in the neutral range, while the pH of subbituminous coal ash tends to be more basic. EPRI (2006) reports on field leachate samples collected at 15 impoundments and 17 landfills. Median pH values from that sampling are listed in Table 3.~~

~~EPRI also looked at data collected by USEPA from its 2010 questionnaire for the steam electric power generating effluent guidelines, as reported in USEPA's 2013 Steam Electric Technical Questionnaire database. The median pH for this dataset was 7.4 SU. EPRI did not attempt to subdivide this dataset by coal source, management method, or material.~~

~~These field data suggest that the median pH value of 10-11 specified in footnote 8 is not representative of all CCRs~~



~~**Response:** EPA acknowledges the information provided by the commenter. However, the full pH range cited in the preamble was drawn from data considered in the 2014 Risk Assessment and was provided solely as an example of a leachate property that could affect soil chemistry. The information provided does not alter the conclusion that pH of CCR leachate can deviate considerably from neutral. Therefore, no changes were made to the rule in response to this comment.~~

~~**Commenter Name:** Paul Pike~~

~~**Commenter Affiliation:** Ameren~~

~~**Comment Number:** EPA-HQ-OLEM-2019-0173-0117~~

~~**Excerpt ID:** 59027~~

~~**Comment:** AMO is also requesting that the new regulations include the ability for an owner/operator to provide a demonstration to the EPA that their existing lined facilities will not have adverse effects on human health or the environment. This liner demonstration could be created for units that have site-specific data to support the continuing use of the units even if they were constructed with a base that is located less than 1.52 meters (five feet) above the upper limit of the uppermost aquifer. Impoundments that were built prior to the final CCR rule may have had State requirements that either allowed less separation to the uppermost aquifer or met site-specific conditions which allowed for their authorization by their State.~~

~~AMO requests that the EPA include an option for the owner or operator to submit information to EPA documenting that the facility is in compliance with applicable requirements in 40 CFR part 257 subpart D, except for the placement above the uppermost aquifer. It is noted that the amount of sitespecific data and the complexity of the analyses necessary for a demonstration will vary based on the size of the unit, the type of engineered liner present (or lack thereof), heterogeneity of site geology, and other site specific factors. For these reasons, it is imperative that EPA take into account each of these situations on a site specific basis.~~

~~The proposed demonstration shall contain information showing that the low effective hydraulic conductivity of the liner will preclude release and transport of contaminants. The proposed demonstration will further include Information detailing that the existing network of monitoring wells is sufficient to capture any releases based on direction of flow, well location, screening depth and other relevant factors, the potentiometric surface, and the anticipated direction(s) of groundwater flow across the site and that there is no indication from groundwater monitoring data that the unit has or will adversely affect groundwater (i.e., no statistically significant increases (SSI) of Appendix IV constituents above relevant GWPS), including documentation of the most recent statistical tests conducted.~~

~~**Comment:** AMO has a specific example of the situation postulated above. AMO's Sioux Energy Center was constructed prior to the establishment of the CCR Rule and was constructed with a liner exceeding the CCR rule requirements, but occasionally is below the water table, due to transient flooding near the Missouri and Mississippi rivers. Missouri regulations require new landfills to evaluate local groundwater elevations prior to construction. Prior to construction of the Sioux landfill, sufficient historical groundwater elevations were presented to the Missouri Department of Natural Resources (MDNR) for review. Out of an abundance of caution, AMO presented an engineering demonstration to MDNR that concluded there would be no adverse~~

~~effects to human health or the environment as a result of occasional contact with high groundwater. This demonstration was accepted by MDNR (see attachments). The liner that was installed at Sioux exceeds the current CCR liner design standard and significantly exceeded the State's standard.~~

~~This unit meets all of the location standards with the occasional exception of the separation to the uppermost aquifer (if the most conservative definition of the uppermost aquifer is taken to be ground surface, during flooding conditions). The local aquifer changes due to its location between the Mississippi and Missouri Rivers, and seasonal rainfall patterns. The existing State groundwater monitoring system has been operated for over 10 years and even with the close proximity of the uppermost aquifer it has not shown an exceedance of groundwater standards. The unit has a certified CCR groundwater monitoring system and there is no indication from groundwater monitoring data that the unit has or will adversely affect groundwater (i.e., no statistically significant increases (SSI) of Appendix IV constituents above relevant groundwater protection standards). This unit is being forced to close solely due to an overly conservative view of groundwater separation and does not pose a risk to human health or the environment.~~

**Response:** ~~It appears the commenter described a landfill that does not meet the location restrictions performance standard for distance to the uppermost aquifer. Given that the alternate source demonstrations will only be allowed for surface impoundments, this comment is out of scope with these regulations. For CCR surface impoundments that are applying for the alternate liner demonstration, EPA is maintaining that these must meet all the location restrictions at §§ 257.60-257.64 in order to be eligible for an alternate liner demonstration. EPA did not propose what the commenter is requesting and therefore EPA cannot include it in the final rule. Other comment issues are described in Unit III of the preamble.~~

**Commenter Name:** ~~Thomas Cmar~~

**Commenter Affiliation:** ~~Earthjustice et al.~~

**Comment Number:** ~~EPA-HQ-OLEM-2019-0173-0194~~

**Page(s):** ~~7~~

**Excerpt ID:** ~~59378~~

**Comment:** ~~The Alternate Liner Demonstration includes two required Lines of Evidence, 1) Characterization of Site Hydrogeology and, 2) Potential for Infiltration that must be incorporated into the final demonstration. Only those unlined surface impoundments for which the owner/operator can demonstrate that there would be no reasonable probability of adverse effect to human health or the environment would be approved.~~

~~The characterization of site-specific hydrogeology required as the first line of evidence in support of the Alternate Liner Demonstration correctly identifies the extreme heterogeneity of alluvial sediments that are so commonly found underlying CCR surface impoundments located on or near a floodplain. EPA even recognizes that the flow path of rivers and streams which are often located immediately adjacent to CCR storage facilities are likely to have shifted over geologic time, resulting in the highly variable sediments with interconnected lenses of sand that are commonly encountered in the subsurface. The realization that is missing from this description is acknowledgement that the hydrologic and geomorphic processes that have shaped the floodplain and deposited these highly variable sediments in the past will continue to operate~~

~~into the future. These processes will act in a variety of ways over time to undercut the ability of an alternate liner, or indeed a traditional liner, to contain CCR wastes and migrating contaminants. The critical problem that is not acknowledged by EPA is that determining the heterogeneity of alluvial sediments with a requisite degree of certainty is very difficult and not commonly undertaken, and that determining that the current site conditions will remain the same over long periods of time is a scientific impossibility.~~

~~**Response:** EPA does not assume site conditions will remain the same over a long period time, neither in this rulemaking nor in the original CCR rule. The detection and assessment monitoring requirements in §§257.94 and 257.95, which are ongoing and apply to all units, are intended to detect changes in site conditions over time. This may include changes in contaminant concentrations as well as groundwater flow direction. If the groundwater flow direction is determined to change, for example, new wells may need to be added to the monitoring network to ensure that groundwater monitoring continues to characterize groundwater upgradient and downgradient of the unit.~~